NBS FORTRAN Test Programs

Volume 2—Listings for Version 1

NATIONAL BUREAU OF STANDARDS

The National Bureau of Standards [1] was established by an act of Congress March 3, 1901. The Bureau's overall goal is to strengthen and advance the Nation's science and technology and facilitate their effective application for public benefit. To this end, the Bureau conducts research and provides: (1) a basis for the Nation's physical measurement system, (2) scientific and technological services for industry and government, (3) a technical basis for equity in trade, and (4) technical services to promote public safety. The Bureau consists of the Institute for Basic Standards, the Institute for Materials Research, the Institute for Applied Technology, the Institute for Computer Sciences and Technology, and the Office for Information Programs.

THE INSTITUTE FOR BASIC STANDARDS provides the central basis within the United States of a complete and consistent system of physical measurement; coordinates that system with measurement systems of other nations; and furnishes essential services leading to accurate and uniform physical measurements throughout the Nation's scientific community, industry, and commerce. The Institute consists of a Center for Radiation Research, an Office of Measurement Services and the following divisions:

Applied Mathematics — Electricity — Mechanics — Heat — Optical Physics — Nuclear Sciences [2] — Applied Radiation [2] — Quantum Electronics [3] — Electromagnetics [3] — Time and Frequency [3] — Laboratory Astrophysics [3] — Cryogenics [3].

THE INSTITUTE FOR MATERIALS RESEARCH conducts materials research leading to improved methods of measurement, standards, and data on the properties of well-characterized materials needed by industry, commerce, educational institutions, and Government; provides advisory and research services to other Government agencies; and develops, produces, and distributes standard reference materials. The Institute consists of the Office of Standard Reference Materials and the following divisions:

Analytical Chemistry — Polymers — Metallurgy — Inorganic Materials — Reactor Radiation — Physical Chemistry.

THE INSTITUTE FOR APPLIED TECHNOLOGY provides technical services to promote the use of available technology and to facilitate technological innovation in industry and Government; cooperates with public and private organizations leading to the development of technological standards (including mandatory safety standards), codes and methods of test; and provides technical advice and services to Government agencies upon request. The Institute consists of a Center for Building Technology and the following divisions and offices:

Engineering and Product Standards — Weights and Measures — Invention and Innovation — Product Evaluation Technology — Electronic Technology — Technical Analysis — Measurement Engineering — Structures, Materials, and Life Safety [4] — Building Environment [4] — Technical Evaluation and Application [4] — Fire Technology.

THE INSTITUTE FOR COMPUTER SCIENCES AND TECHNOLOGY conducts research and provides technical services designed to aid Government agencies in improving cost effectiveness in the conduct of their programs through the selection, acquisition, and effective utilization of automatic data processing equipment; and serves as the principal focus within the executive branch for the development of Federal standards for automatic data processing equipment, techniques, and computer languages. The Institute consists of the following divisions:

Computer Services — Systems and Software — Computer Systems Engineering — Information Technology.

THE OFFICE FOR INFORMATION PROGRAMS promotes optimum dissemination and accessibility of scientific information generated within NBS and other agencies of the Federal Government; promotes the development of the National Standard Reference Data System and a system of information analysis centers dealing with the broader aspects of the National Measurement System; provides appropriate services to ensure that the NBS staff has optimum accessibility to the scientific information of the world. The Office consists of the following organizational units:

Office of Standard Reference Data — Office of Information Activities — Office of Technical Publications — Library — Office of International Relations.

---

[1] Headquarters and Laboratories at Gaithersburg, Maryland, unless otherwise noted; mailing address Washington, D.C. 20234.
[2] Part of the Center for Radiation Research.
[3] Located at Boulder, Colorado 80302.
[4] Part of the Center for Building Technology.

NBS FORTRAN Test Programs
Volume 2—Listings for Version 1

Frances E. Holberton and
Elizabeth G. Parker

Institute for Computer Sciences and Technology
National Bureau of Standards
Washington, D.C. 20234

National Bureau of Standards Special Publication 399

INTRODUCTION

This document, Volume 2 of three volumes, contains the program listings and supporting input data for the NBS FORTRAN Test Programs, Version 1, developed by the Institute for Computer Sciences and Technology, National Bureau of Standards. The test programs are written in ASA Standard FORTRAN and test the language elements described in the ASA Standard FORTRAN document X3.9-1966.

The NBS FORTRAN Test Programs, Version 1, contain 116 test units, each structured as an executable FORTRAN program. Test units numbered 008, 009, 310, and 312 contain input data which is listed following the respective test unit.

This listing is in the order described in Volume 1 Section III Distribution Tape Organization.

Volume 1, Section I describes the system design, the programming techniques and conventions used in the program development and should enable the user to extend, alter or reorganize the test programs.

Volume 1, Section II defines the organization and operating procedure for performing the tests and contains a set of representative results obtained from actual running of the test programs on several FORTRAN processors.

Volume 1, Section III describes the order and location of each test unit and data as recorded on magnetic tape for distribution.

Volume 2 contains the program listings for the NBS FORTRAN Test Programs, Version 1.

Volume 3 contains the program listings for the NBS FORTRAN Test Programs, Version 3.

Listings of NBS FORTRAN Test Programs, Version 1

Table of Contents

Listings of NBS FORTRAN Test Programs, Version 1

Table of Contents

Table of Contents

Listings of NBS FORTRAN Test Programs, Version 1

Table of Contents

```
C**************************************************************P0000010
C*                                                            P0000020
C*       ANSI FORTRAN  (X3.9-1966)   TEST PROGRAMS            P0000030
C*                                                            P0000040
C*      PREPARED BY THE NATIONAL BUREAU OF STANDARDS    VERSION 1  P0000050
C*                                                            P0000060
C*      JUNE 1974                                            P0000070
C*                                                            P0000080
C*      116 EXECUTABLE TEST PROGRAMS                         P0000090
C*                                                            P0000100
C*      THE FOLLOWING NAMES AND SYMBOLS SHOULD AGREE         P0000110
C*                                                            P0000120
C*      EQUAL =   PLUS +   LEFT PARENTHESIS (   RIGHT PARENTHESIS ) P0000130
C*                                                            P0000140
C*      CODES USED TO DESCRIBE THE INFORMATION IN THE TABLE  P0000150
C*                                                            P0000160
C*         M   MAIN PROGRAM                                  P0000170
C*         F   EXTERNAL FUNCTION                             P0000180
C*         S   SUBROUTINE                                    P0000190
C*         B   BLOCK DATA                                    P0000200
C*                                                            P0000210
C*         I   INPUT REQUIRED                                P0000220
C*                                                            P0000230
C*         NO. OF PAGES OF OUTPUT                            P0000240
C*                                                            P0000250
C*         X   INTERMEDIATE TAPE REQUIRED                    P0000260
C*                                                            P0000270
C*         C   BLANK COMMON                                  P0000280
C*         /   SPECIAL BLANK COMMON                          P0000290
C*                                                            P0000300
C*         D   DATA STATEMENTS DEFINED                       P0000310
C*                                                            P0000320
C*         NO. OF CARDS PER SEGMENT                          P0000330
C*                                                            P0000340
C* DIRECTORY OF TEST PROGRAMS                     - - - - - - 342P0000350
C*                                                            P0000360
C* FMTRW - 008 FORMATTED INPUT/OUTPUT            M I 8 - - - 529P0000370
C*          6 SYSTEM IDENTIFICATION CARDS        - - - - - -   6P0000380
C*         40 DATA CARDS                         - - - - - -  40P0000390
C*                                                            P0000400
C* AFRMT - 009 A-CONVERSION                      M I 1 - - - 115P0000410
C*          3 DATA CARDS                         - - - - - -   3P0000420
C*                                                            P0000430
C* DATA2 - 010 DATA STATEMENT USE                M - 3 - - -  74P0000440
C*  DATA1 - 003 TEST FORMAT OF DATA STATEMENT    M - - - - D  84P0000450
C*                                                            P0000460
C* AASGN - 011 REAL AND INTEGER ARITH ASSIGNMT. STMNTS.  M - 3 - - - 268P0000470
C*                                                            P0000480
C* DASGN - 013 SIMPLE D.P. ASSIGNMENT STATEMENTS M - 8 - - - 420P0000490
C*                                                            P0000500
C* CASGN - 015 SIMPLE COMPLEX ASSIGNMENT STATEMENTS  M - 9 - - - 469P0000510
C*                                                            P0000520
C* LASGN - 016 LOGICAL ASSIGNMENT STATEMENTS     M - 1 - - - 106P0000530
C*                                                            P0000540
C* INTRL - 017 ARITHMETIC ASSIGNMENT STATEMENTS  M - 4 - - - 185P0000550
C*                                                            P0000560
C* UGOTO - 020 UNCONDITIONAL GO TO STATEMENTS    M - 1 - - -  69P0000570
C*                                                            P0000580
C* AGOTO - 021 GO TO ASSIGNMENT STATEMENTS       M - 1 - - - 149P0000590
C*                                                            P0000600
C* CGOTO - 022 COMPUTED GO TO STATEMENTS         M - 1 - - - 146P0000610
C*                                                            P0000620
C* ARBAD - 030 BASIC ADDITION                    M - 1 - - - 115P0000630
C*                                                            P0000640
C* ARFAD - 031 DOUBLE PRECISION ADDITION         M - 1 - - -  57P0000650
C*                                                            P0000660
C* ARBSB - 032 BASIC SUBTRACTION                 M - 1 - - -  67P0000670
C*                                                            P0000680
```

```
C*  ARFSB - 033 OOUBLE PRECISION SUBTRACTION                    M - 1 - - -  72P0000690
C*                                                                             P0000700
C*  ARBAS - 034 BASIC AOOITION ANO SUBTRACTION                  M - 1 - - -  79P0000710
C*                                                                             P0000720
C*  ARFAS - 035 AOOITION ANO SUBTRACTION OF D.P. VALUES         M - 1 - - -  60P0000730
C*                                                                             P0000740
C*  ARBMI - 036 MULTIPLICATION OF INTEGER VALUES                M - 1 - - -  66P0000750
C*                                                                             P0000760
C*  ARBMR - 037 MULTIPLICATION OF REAL VALUES                   M - 1 - - -  64P0000770
C*                                                                             P0000780
C*  ARFMO - 038 MULTIPLICATION OF O.P. VALUES                   M - 1 - - -  71P0000790
C*                                                                             P0000800
C*  ARBOV - 039 OIVISION OF INTEGER ANO REAL VALUES             M - 1 - - -  78P0000810
C*                                                                             P0000820
C*  ARFOV - 040 OIVISION OF O.P. VALUES                         M - 1 - - -  66P0000830
C*                                                                             P0000840
C*  ARBEX - 041 EXPONENTIATION OF INTEGER ANO REAL VALUES M - 1 - - -  90P0000850
C*                                                                             P0000860
C*  ARFEX - 042 EXPONENTIATION OF O.P. VALUES                   M - 1 - - -  74P0000870
C*                                                                             P0000880
C*  ARBHI - 043 HIERARCHY OF OPERATORS ANO PARENTHESES          M - 1 - - - 177P0000890
C*                                                                             P0000900
C*  SBB67 - 050 SUBSCRIPTS OF INTEGER, REAL ARRAYS  V, K  M - 1 - - -  79P0000910
C*                                                                             P0000920
C*  SBB45 - 051 SUBSCRIPTS OF INT.,REAL ARRAYS V+K, V-K   M - 1 - - -  87P0000930
C*                                                                             P0000940
C*  SBB13 - 052 SUBSCRIPTS OF INT.,REAL ARRAYS C*V,       M - 1 - - - 112P0000950
C*                            C*V+K, C*V-K                                      P0000960
C*                                                                             P0000970
C*  SBF17 - 053 SUBSCRIPTS OF O.P. ARRAYS V, K, C*V,      M - 1 - - -  79P0000980
C*                        C*V+K, C*V-K, V+K, V-K                               P0000990
C*                                                                             P0001000
C*  SIMIF - 054 ARITH. IF, LOGICAL IF FOLLOWEO BY GO TO   M - 1 - - -  77P0001010
C*                                                                             P0001020
C*  IFABS - 055 INTRINSIC FUNCTIONS  ABS, IABS            M - 1 - - -  64P0001030
C*                                                                             P0001040
C*  IFFLT - 056 INTRINSIC FUNCTION  FLOAT                 M - 1 - - -  49P0001050
C*                                                                             P0001060
C*  IFFIX - 057 INTRINSIC FUNCTION  IFIX                  M - 1 - - -  59P0001070
C*                                                                             P0001080
C*  IFSGN - 058 INTRINSIC FUNCTIONS  SIGN, ISIGN          M - 1 - - -  82P0001090
C*                                                                             P0001100
C*  IFOAB - 059 INTRINSIC FUNCTION  DABS                  M - 1 - . - -  65P0001110
C*                                                                             P0001120
C*  IFTRN - 060 INTRINSIC FUNCTIONS  AINT, INT, IDINT     M - 1 - - - 107P0001130
C*                                                                             P0001140
C*  IFMOD - 061 INTRINSIC FUNCTIONS  AMOO, MOO            M - 1 - - -  84P0001150
C*                                                                             P0001160
C*  IFMAX - 062 INTR. FUNCT. AMAX0,AMAX1,MAX0,MAX1,OMAX1  M - 2 - - - 248P0001170
C*                                                                             P0001180
C*  IFMIN - 063 INTR. FUNCT. AMIN0,AMIN1,MIN0,MIN1,OMIN1  M - 2 - - - 225P0001190
C*                                                                             P0001200
C*  IFOSG - 064 INTRINSIC FUNCTION  OSIGN                 M - 1 - - -  58P0001210
C*                                                                             P0001220
C*  IFDIM - 065 INTRINSIC FUNCTIONS  OIM, IOIM            M - 1 - - -  69P0001230
C*                                                                             P0001240
C*  IFSGL - 066 INTRINSIC FUNCTION  SNGL                  M - 1 - - -  80P0001250
C*                                                                             P0001260
C*  IFREL - 067 INTRINSIC FUNCTION  REAL                  M - 1 - - - 102P0001270
C*                                                                             P0001280
C*  IFIMG - 068 INTRINSIC FUNCTION  AIMAG                 M - 1 - - - 129P0001290
C*                                                                             P0001300
C*  IFOBL - 069 INTRINSIC FUNCTION  OBLE                  M - 1 - - -  57P0001310
C*                                                                             P0001320
C*  IFCPX - 070 INTRINSIC FUNCTION  CMPLX                 M - 1 - - -  61P0001330
C*                                                                             P0001340
C*  IFCJG - 071 INTRINSIC FUNCTION  CONJG                 M - 1 - - -  66P0001350
C*                                                                             P0001360
```

```
C* IFBMS - 072 INTEGER AND REAL INTRINSIC FUNCTIONS        M - 1 - - - 129P0001370
C*                                                                     P0001380
C* IFFMS - 073 INT., REAL AND D.P. INTRINSIC FUNCTIONS     M - 2 - - - 181P0001390
C*                                                                     P0001400
C* EXPON - 080 BASIC EXTERNAL FUNCTION    EXP              M - 1 - - -  60P0001410
C*                                                                     P0001420
C* DEXPO - 081 BASIC EXTERNAL FUNCTION    DEXP             M - 1 - - -  68P0001430
C*                                                                     P0001440
C* CEXPO - 082 BASIC EXTERNAL FUNCTION    CEXP             M - 3 - - -  98P0001450
C*                                                                     P0001460
C* LOGTM - 083 BASIC EXTERNAL FUNCTION    ALOG             M - 1 - - -  57P0001470
C*                                                                     P0001480
C* DPLOG - 084 BASIC EXTERNAL FUNCTION    DLOG             M - 1 - - -  67P0001490
C*                                                                     P0001500
C* CXLOG - 085 BASIC EXTERNAL FUNCTION    CLOG             M - 3 - - - 106P0001510
C*                                                                     P0001520
C* COLOG - 086 BASIC EXTERNAL FUNCTION    ALOG10           M - 1 - - -  56P0001530
C*                                                                     P0001540
C* DCLOG - 087 BASIC EXTERNAL FUNCTION    DLOG10           M - 1 - - -  66P0001550
C*                                                                     P0001560
C* SINUS - 088 BASIC EXTERNAL FUNCTION    SIN              M - 1 - - -  81P0001570
C*                                                                     P0001580
C* DPSIN - 089 BASIC EXTERNAL FUNCTION    DSIN             M - 1 - - -  82P0001590
C*                                                                     P0001600
C* CSICO - 090 BASIC EXTERNAL FUNCTIONS   CSIN, CCOS       M - 1 - - -  65P0001610
C*                                                                     P0001620
C* COSNS - 091 BASIC EXTERNAL FUNCTION    COS              M - 1 - - -  82P0001630
C*                                                                     P0001640
C* DPCOS - 092 BASIC EXTERNAL FUNCTION    DCOS             M - 1 - - -  81P0001650
C*                                                              ~      P0001660
C* TANGH - 094 BASIC EXTERNAL FUNCTION    TANH             M - 1 - - -  57P0001670
C*                                                                     P0001680
C* SQROT - 095 BASIC EXTERNAL FUNCTION    SQRT             M - 1 - - -  55P0001690
C*                                                                     P0001700
C* DSQRO - 096 BASIC EXTERNAL FUNCTION    DSQRT            M - 1 - - -  63P0001710
C*                                                                     P0001720
C* CSQRO - 097 BASIC EXTERNAL FUNCTION    CSQRT            M - 1 - - -  74P0001730
C*                                                                     P0001740
C* ARCTG - 098 BASIC EXTERNAL FUNCTION    ATAN             M - 1 - - -  58P0001750
C*                                                                     P0001760
C* DACTG - 099 BASIC EXTERNAL FUNCTION    DATAN            M - 1 - - -  66P0001770
C*                                                                     P0001780
C* ACTG2 - 100 BASIC EXTERNAL FUNCTION    ATAN2            M - 1 - - -  56P0001790
C*                                                                     P0001800
C* DATN2 - 101 BASIC EXTERNAL FUNCTION    DATAN            M - 1 - - -  66P0001810
C*                                                                     P0001820
C* DMODA - 102 BASIC EXTERNAL FUNCTION    DMOD             M - 1 - - -  63P0001830
C*                                                                     P0001840
C* CABSA - 103 BASIC EXTERNAL FUNCTION    CABS             M - 1 - - -  84P0001850
C*                                                                     P0001860
C* BSFTS - 110 STATEMENT FUNCTIONS - INTEGER AND REAL      M - 1 - - -  74P0001870
C*  BSFDF - 005 STATEMENT FUNCTION DEFINITION              M - - - - -  35P0001880
C*                                                                     P0001890
C* FSFTS - 111 STATEMENT FUNCT.- D.P., COMPLEX, LOGICAL    M - 1 - - - 108P0001900
C*  FSFDF - 006 STATEMENT FUNCTION DEFINITIONS             M - - - - -  58P0001910
C*                                                                     P0001920
C* CPXAD - 140 ADDITION AND SUBTRACTION OF COMPLEX         M - 1 - - -  76P0001930
C*                                                                     P0001940
C* CPXMU - 141 MULTIPLICATION OF COMPLEX NUMBERS           M - 1 - - - 141P0001950
C*                                                                     P0001960
C* CPXDV - 142 DIVISION OF COMPLEX NUMBERS                 M - 1 - - -  83P0001970
C*                                                                     P0001980
C* CPXEX - 143 EXPONENTIATION OF COMPLEX NUMBERS           M - 1 - - - 125P0001990
C*                                                                     P0002000
C* CPXOP - 144 ARITHMETIC OPERATIONS ON COMPLEX            M - 1 - - -  63P0002010
C*                                                                     P0002020
C* CREAD - 145 ADD AND SUBTRACT COMPLEX AND REAL NUMBERS M - 1 - - -  67P0002030
C*                                                                     P0002040
```

```
C*   CREMU  - 146 MULTIPLY COMPLEX BY REAL NUMBERS          M - 1 - - -  62P0002050
C*                                                               P0002060
C*   CREDV  - 147 DIVIDE COMPLEX BY REAL AND THE REVERSE    M - 1 - - -  58P0002070
C*                                                               P0002080
C*   CREOP  - 148 COMBINED OPERATIONS ON COMPLEX AND REAL   M - 1 - - -  66P0002090
C*                                                               P0002100
C*   MISC3  - 149 BLANKS IN,CONT. OF STATEMENT TO MAX LINES M - 1 - - -  97P0002110
C*                                                               P0002120
C*   MISC4  - 150 SPECIAL CHARACTERS FOR CONTINUATIONS      M - 1 - - - 105P0002130
C*                                                               P0002140
C*   BRFCP  - 160 REAL EXTERNAL FUNCTIONS                   M - 1 - - -  82P0002150
C*      AFS - 400     REAL ARGUMENT                         F - - - - - 010P0002160
C*      BFS - 420     REAL ARGUMENTS                        F - - - - -  10P0002170
C*      CFS - 430     INTEGER ARGUMENT                      F - - - - -  10P0002180
C*      DFS - 440     INTEGER ARGUMENTS                     F - - - - -  11P0002190
C*      EFS - 450     ARRAY NAME AS ARGUMENT                F - - - - -  11P0002200
C*      FFS - 460     DIFFERENT TYPES OF ARGUMENTS          F - - - - -  15P0002210
C*                                                               P0002220
C*   BIFCP  - 161 INTEGER EXTERNAL FUNCTIONS                M - 1 - - -  87P0002230
C*     IAFI - 401     REAL ARGUMENT                         F - - - - -  10P0002240
C*     IBFI - 421     REAL ARGUMENTS                        F - - - - -  10P0002250
C*     ICFI - 431     INTEGER ARGUMENT                      F - - - - -  10P0002260
C*     IDFI - 441     INTEGER ARGUMENTS                     F - - - - D  13P0002270
C*     IEFI - 451     ARRAY NAME AS ARGUMENT                F - - - - -  11P0002280
C*     IFFI - 461     DIFFERENT TYPES OF ARGUMENTS          F - - - - -  15P0002290
C*                                                               P0002300
C*   FRFCP  - 162 REAL EXTERNAL FUNCTIONS                   M - 1 - C - 132P0002310
C*      GFS - 402     D.P. ARGUMENT                         F - - - - -  11P0002320
C*      HFS - 422     COMPLEX ARGUMENTS                     F - - - - -  12P0002330
C*     IRFS - 432     LOGICAL ARGUMENT                      F - - - - -  16P0002340
C*     JRFS - 442     EXTERNAL PROCEDURE                    F - - - - -  11P0002350
C*      RFS - 452     DIFFERENT TYPES OF ARGUMENTS          F - - - C -  29P0002360
C*                                                               P0002370
C*   FIFCP  - 163 INTEGER EXTERNAL FUNCTIONS                M - 1 - C - 123P0002380
C*      IFI - 403     D.P. ARGUMENT                         F - - - - -  11P0002390
C*      JFI - 423     COMPLEX ARGUMENTS                     F - - - - -  12P0002400
C*      KFI - 433     LOGICAL ARGUMENT                      F - - - - -  16P0002410
C*      LFI - 443     EXTERNAL PROCEDURE                    F - - - - -  11P0002420
C*      MFI - 453     DIFFERENT TYPES OF ARGUMENTS          F - - - C -  29P0002430
C*                                                               P0002440
C*   CFCCP  - 164 COMPLEX EXTERNAL FUNCTION                 M - 1 - C - 132P0002450
C*      AFC - 404     REAL ARGUMENT                         F - - - - -  10P0002460
C*      BFC - 414     INTEGER ARGUMENT                      F - - - - -  10P0002470
C*      CFC - 424     ARRAY NAME AS ARGUMENT                F - - - - -  11P0002480
C*      DFC - 434     D.P. ARGUMENT                         F - - - - -  12P0002490
C*      EFC - 444     COMPLEX ARGUMENT                      F - - - - -  11P0002500
C*      FFC - 454     LOGICAL ARGUMENT                      F - - - - -  15P0002510
C*      HFC - 464     DIFFERENT TYPES OF ARGUMENTS          F - - - C -  28P0002520
C*                                                               P0002530
C*   DPFCP  - 165 DOUBLE PRECISION EXTERNAL FUNCTIONS       M - 1 - C - 135P0002540
C*      AFD - 405     REAL ARGUMENT                         F - - - - -  10P0002550
C*      BFD - 415     INTEGER ARGUMENT                      F - - - - -  10P0002560
C*      CFD - 425     D.P. ARGUMENTS                        F - - - - -  11P0002570
C*      DFD - 435     COMPLEX ARGUMENT                      F - - - - -  12P0002580
C*      EFD - 445     LOGICAL ARGUMENT                      F - - - - -  16P0002590
C*      FFD - 455     EXTERNAL PROCEDURE                    F - - - - -  11P0002600
C*      GFD - 465     ARRAY NAME AS ARGUMENT                F - - - - -  12P0002610
C*      HFD - 475     DIFFERENT TYPES OF ARGUMENTS          F - - - C -  32P0002620
C*                                                               P0002630
C*   BFCCP  - 166 LOGICAL EXTERNAL FUNCTIONS                M - 1 - C - 144P0002640
C*      AFB - 406     REAL ARGUMENT                         F - - - - -  10P0002650
C*      BFB - 416     INTEGER ARGUMENT                      F - - - - -  10P0002660
C*      CFB - 426     D.P. ARGUMENT                         F - - 1 - -  11P0002670
C*      DFB - 436     LOGICAL ARGUMENT                      F - - - - -  11P0002680
C*      EFB - 446     COMPLEX ARGUMENT                      F - - 1 - -  12P0002690
C*      FFB - 456     ARRAY NAME AS ARGUMENT                F - - - - -  12P0002700
C*      GFB - 466     EXTERNAL PROCEDURE                    F - - - - -  11P0002710
C*      HFB - 476     DIFFERENT TYPES OF ARGUMENTS          F - - - C -  25P0002720
```

```
C*                                                                           P0002730
C*  SBRTN - 167 SUBROUTINE SUBPROGRAM                          M - 1 - C - 103P0002740
C*    AAQ - 407     INTEGER,REAL VARIABLES,ARRAY ELEMENTS      S - - - - -  23P0002750
C*    ABQ - 417     ARRAY ELEMENTS                             S - - - - -  13P0002760
C*    ACQ - 427   . NO ARGUMENT LIST                           S - - - C -  21P0002770
C*                                                                           P0002780
C* FSBRT - 168 SUBROUTINE SUBPROGRAM                           M - 1 - C - 153P0002790
C*    ADQ - 408     DIFFERENT TYPES OF ARGUMENTS               S - - - - -  39P0002800
C*    AEQ - 418     ARRAY NAMES AND INTEGER ARGUMENTS          S - - - - -  23P0002810
C*    AFQ - 428     NO ARGUMENT LIST                           S - - - C -  41P0002820
C*                                                                           P0002830
C* BLKDT - 169 BLOCK DATA TEST                                 M - 1 - - -  71P0002840
C* BLOKD - 409     BLOCK DATA SUBPROGRAM                       B - - - D  36P0002850
C*                                                                           P0002860
C* BLKDA - 179 BLOCK DATA TEST                                 M - 1 - - -  70P0002870
C* BLAKD - 419     BLOCK DATA SUBPROGRAM                       B - - - D  24P0002880
C* BLBKD - 429     BLOCK DATA SUBPROGRAM                       B - - - D  17P0002890
C* BLCKD - 439     BLOCK DATA SUBPROGRAM                       B - - - D  20P0002900
C*                                                                           P0002910
C* UNFRW - 180 UNFORMATTED WRITE AND READ                      M - 1 X - - 133P0002920
C*                                                                           P0002930
C* BACUP - 182 BACKSPACE TAPE                                  M - 1 X - -  74P0002940
C*                                                                           P0002950
C* DOTRM - 190 DO LOOPS - TERMINAL STATEMENTS                  M - 1 - - - 135P0002960
C*                                                                           P0002970
C* DOLMT - 191 DO LOOPS - PARAMETERS AS VARIABLE NAMES         M - 1 - - -  62P0002980
C*                                                                           P0002990
C* DONSC - 192 DO LOOPS - COMPLETELY NESTED NEST               M - 1 - - - 166P0003000
C*                                                                           P0003010
C* DONSI - 193 DO LOOPS - INCOMPLETE DO, EXIT BY GO TO         M - 1 - - -  60P0003020
C*                                                                           P0003030
C* DONSX - 194 DO LOOPS - EXTENDED RANGE                       M - 1 - - - 130P0003040
C*                                                                           P0003050
C* DONML - 195 DO LOOPS - NESTED NEST                          M - 1 - - -  65P0003060
C*                                                                           P0003070
C* DONIO - 196 DO LOOPS - I/O TERMINAL STATEMENTS              M - 1 X - -  91P0003080
C*                                                                           P0003090
C* MORDO - 197 DO LOOPS -I/O,STATMT FT.,INTR FT.,CALL          M - 1 X - - 143P0003100
C*  BSFDF - 005 STATEMENT FUNCTIONS                            M - - - - -  35P0003110
C*    MDQ - 412     SUBROUTINE SUBPROGRAM                      S - - - - -  13P0003120
C*                                                                           P0003130
C* SUBR1 - 200 SUBROUTINE - OPERATIONS DONE AT SUB LEVEL       M - 1 X C -  52P0003140
C* SUBRQ - 410     SUBROUTINE SUBPROGRAM - NO ARG. LIST        S - - X C - 101P0003150
C*                                                                           P0003160
C* LOGIF - 300 LOGICAL IF STATEMENTS                           M - 1 - - - 275P0003170
C*    SMCQ - 411     SUBROUTINE SUBPROGRAM                     S - - - - -  12P0003180
C*                                                                           P0003190
C* BARIF - 301 ARITHMETIC IF STATEMENTS - INTEGER, REAL        M - 1 - - - 175P0003200
C*                                                                           P0003210
C* FARIF - 302 ARITHMETIC IF STATEMENTS - D.P.                 M - 1 - - -  99P0003220
C*                                                                           P0003230
C* IOFMT - 310 FORMATTED READ/WRITE -ADDITIONAL FEATURES       M I 5 - - - 310P0003240
C*           38 DATA CARDS                                     - - - - -  38P0003250
C*                                                                           P0003260
C* RDFMT - 312 FORMATS IN ARRAYS                               M I 1 - - D 201P0003270
C*    FMTQ - 462     SUBROUTINE SUBPROGRAM                     S - - - - -  33P0003280
C*           13 DATA CARDS                                     - - - - -  13P0003290
C*                                                                           P0003300
C* MISC5 - 350 SPECIFICATIONS FOR PROGRAM FORM                 M - 1 - - - 156P0003310
C*                                                                           P0003320
C* FUNMX - 351 BASIC EXTERNAL FUNCTIONS - TRIG FORMULAE        M - 1 - - -  58P0003330
C*                                                                           P0003340
C* NAMES - 352 NAMES RESEMBLE FORTRAN VERBS, FUNCTIONS         M - 1 - - -  79P0003350
C*    MAQQ - 413     SUBROUTINE  (INTRINSIC FUNCTION NAMES     S - - - - -  15P0003360
C*    MBQQ - 463     SUBROUTINE   USED AS VARIABLE NAMES IN    S - - - - -  15P0003370
C*    AMQQ - 473     SUBROUTINE   SOME SUBRTS. AND AS          S - - - - D  21P0003380
C*    BMQQ - 483     SUBROUTINE   FUNCTIONS IN OTHERS)         S - - - - -  16P0003390
C*                                                                           P0003400
```

```
C* SPEC2 - 360 COMMON, DIMENSION, EQUIVALENCE              M - 1 - / - 169P0003410
C*                                                                      P0003420
C**********************************************************************P0080010
C*****                                                                  P0080020
C*****                        FMTRW - (008)                            P0080030
C*****                                                                  P0080040
C**********************************************************************P0080050
C*****   GENERAL PURPOSE                                      ASA REFSP0080060
C*****      TO TEST SIMPLE FORMAT AND FORMATTED I/O STATEMENTS  7.1.3.2.2P0080070
C*****      SO THAT THESE FEATURES MAY BE USED IN OTHER TEST    7.1.3.2.3P0080080
C*****         PROGRAM SEGMENTS                                  7.2.3  P0080090
C*****   RESTRICTIONS OBSERVED                                          P0080100
C*****   *  ALL FORMAT STATEMENTS ARE LABELED                  7.2.3   /57P0080110
C*****   *  H AND X DESCRIPTORS ARE NEVER REPEATED             7.2.3.3/54P0080120
C*****   *  FOR W.D DESCRIPTORS, D IS ALWAYS SPECIFIED AND     7.2.3.1/31P0080130
C*****      W IS EQUAL TO OR GREATER THAN D                    7.2.3.1/33P0080140
C*****   *  FIELD WIDTH IS NEVER ZERO                      .   7.2.3   /18P0080150
C*****   *  IF THERE IS AN I/O LIST, THE FORMAT STATEMENT      7.2.3.4/22P0080160
C*****      CONTAINS AT LEAST ONE FIELD DESCRIPTOR (OTHER               P0080170
C*****      THAN H OR X)                                                P0080180
C*****   *  ITEMS IN I/O LIST CORRESPOND TO FORMAT DESCRIPTORS 7.2.3.4/36P0080190
C*****   *  NEGATIVE OUTPUT VALUES ARE SIGNED                  7.2.3.6/56P0080200
C*****   *  FIELD WIDTH NEVER EXCEEDED BY OUTPUT               7.2.3.6/01P0080210
C*****   *  FOR I CONVERSION, EXTERNAL INPUT FIELDS ARE      7.2.3.6.1/07P0080220
C*****      INTEGER CONSTANTS                                           P0080230
C*****   GENERAL COMMENTS                                               P0080240
C*****      PLUS SIGNS FOR INPUT FIELDS ARE USUALLY OMITTED     7.2.3.6/44P0080250
C*****                                                                  P0080260
C*****                                                                  P0080270
C*****                                                                  P0080280
C*****      FORMATTED WRITES WITHOUT AN I/O LIST (FORMAT       7.1.3.2.3/05P0080290
C*****      STATEMENTS TEST H AND X DESCRIPTORS AND SLASH      7.2.3.2 /44P0080300
C*****      RECORD DIVIDERS)                                   7.2.3.8 /09P0080310
C*****                                                         7.2.3.9 /31P0080320
C  INPUT DATA TO THIS SEGMENT CONSISTS OF 40 CARD IMAGES IN COL. 1 - 80 P0080330
COL.        1-------------------------------------------------------61 P0080340
CARD  1       999                                                      P0080350
CARD  2       555554444                                                P0080360
CARD  3       666   777777  8                                          P0080370
CARD  4       333333111112222222225555544444444444                     P0080380
CARD  5       7.7123456.7                                              P0080390
CARD  6       8.889.9997.123456                                        P0080400
CARD  7       5.44446.5555533.133.133.133.1444.1                       P0080410
CARD  8       5555.15555.1  66666.166666.1   44.22                     P0080420
CARD  9       2.12.12.12.12.1666.3334.3334.3334.333                    P0080430
CARD 10     -0.1E+01+0.22E-01 0.333E+02 0.4444E+03-0.55555E-03+0.666666E+ P0080440
COL.        62-----------77                                            P0080450
CARD 10 00+0.9876543E+12                                               P0080460
COL.        1-------------------------------------------------------61 P0080470
CARD 11     1.05.522.066.633.123455.0789                               P0080480
CARD 12     123.00456.88 0.123E+01   +0.987+1 -0.2345+02 -0.6879E+2+0.7E+0 P0080490
COL        62-----70                                                   P0080500
CARD 12 3 0.4E+03                                                      P0080510
COL.        1-------------------------------------------------------61 P0080520
CARD 13      0.9876543E-04+0.1357913E-04                               P0080530
CARD 14     19.34+0.2468E+02    +.765+287.643.96 0.5407E+0243.96+0.5407E+0 P0080540
COL.        62-----------78                                            P0080550
CARD 14 243.96    0.5407+2                                             P0080560
COL.        1--------------------------- ---------------------------61 P0080570
CARD 15        +0.10+06                                                P0080580
CARD 16     -0.334D-04    -.334-4 +0.7657654D00 0.123456789101D+10      P0080590
CARD 17      +0.987654321109876D-1+0.987654321109876D-01    .98765432109876 P0080600
COL.        62-66                                                      P0080610
CARD 17 -1                                                             P0080620
COL.        1-------------------------------------------------------61 P0080630
CARD 18      -.555555542D+03   -0.555555542+3                          P0080640
CARD 19     TABC                                                       P0080650
CARD 20     FDEFFGHIT*+T1F$)TF                                         P0080660
```

```
CARD 21     9.91.19.92.29.93.39.94.49.91.19.92.29.93.39.94.4          P0080670
CARD 22    9.95.59.96.69.97.79.98.89.95.59.96.69.97.79.98.8           P0080680
CARD 23  ·   -9.9-9.9-9.9-9.9                                         P0080690
CARD 24    -0.99D+01-0.99D+01-0.99D+01-0.99D+01-0.99D+01 -.99D+01  -.99+  P0080700
COL.      62------72                                                   P0080710
CARD 24 01  -.99+1                                                    P0080720
COL.      1--------------------------------------------------------61 P0080730
CARD 25   9999999999                                                  P0080740
CARD 26    +0.99D+01 0.99D+01  +.99D01    +.99D1                      P0080750
CARD 27   .9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9  P0080760
CARD 28   TFTFTFTFTF                                                  P0080770
CARD 29    99999999+0.99D+01 0.99D+01· 0.99D+01+0.99D+01    .99D1    P0080780
CARD 30   9.95.59.96.69.97.79.98.89999999999999999999TFFT9.99.99.99.99.9  P0080790
CARD 31      T  F     T  F                                            P0080800
CARD 32    4444.55555                                                 P0080810
COL.        1----------------------------------------------------61   P0080820
CARD 33   123.45678E2  1234.5678   123.45678  12.345678  1.2345678  .123 P0080830
COL.      62-66                                                       P0080840
CARD 33 45678                                                         P0080850
COL.        1----------------------------------------------------61   P0080860
CARD 34    9876.5498.7654E2 9876.54    987.654864786D-486.4786E286.4786 P0080870
COL.      62--------------80                                          P0080880
CARD 34  8657.86D0  9876.54                                           P0080890
COL.        1----------------------------------------------------61   P0080900
CARD 35    9.8765598.7654E2  9876.54  987.654864786D-386.4786E286.4786 P0080910
COL.      62--------------80                                          P0080920
CARD 35  8657.86D0  9876.54                                           P0080930
COL.        1----------------------------------------------------61   P0080940
CARD 36   1223335544888611222                                         P0080950
CARD 37   4556662334449966111                                         P0080960
CARD 38   7889993775558997777                                         P0080970
CARD 39   11112 334 559 880 11                                        P0080980
CARD 40   6 778 995 441 222 00                                        P0080990
C*****                                                                 P0081000
C*****   S P E C I F I C A T I O N S    SEGMENT 008                    P0081010
C*****                                                                 P0010010
C*****   WHEN EXECUTING ONLY SEGMENT 008, THE SPECIFICATION STATEMENTS P0010015
C*****   WHICH APPEAR AS COMMENTS MUST HAVE THE C= IN COLUMNS          P0010020
C*****   1 AND 2 REMOVED                                               P0010025
C=     DIMENSION A1S(5),A2S(2,2)   ,EP1S(33),CMA1S(5),A3S(3,3,3)       P0010030
C=    1,IAC1I(5),IAC2I(2,7),AC1S(25),AC2S(5,6),MCA1I(5)                P0010035
C=     INTEGER I2I(2,2),I3I(2,2,2),MCA3I(2,3,3)                        P0010040
C=     LOGICAL MCA1B(7),A1B(2),A2B(2,2),A3B(2,2,2),AVB,CVB,DVB ,MCBVB  P0010045
C=     DOUBLE PRECISION DPA1D(5),MCA3D(1,4,2),ZZDVD ,A2D(2,2),A3D(2,2,2) P0010050
C=    1,AC1D(10),BC2D(7,4),DPAVD,DPBVD                                 P0010055
C=     COMPLEX BVC,QAVC,CHAVC,CHBVC,CHCVC,CHDVC                        P0010060
C=    1,LL1C(32),LM2C(8,4),A1C(12),A2C(2,2),B3C(2,2,2),B1C(8)          P0010065
C*****                                                                 P0010070
       DIMENSION A1S(5),A2S(2,2)   ,EP1S(33),CMA1S(5),A3S(3,3,3)       P008A1
      1,IAC1I(5),IAC2I(2,7),AC1S(25),AC2S(5,6),MCA1I(5)                P008A2
       INTEGER I2I(2,2),I3I(2,2,2),MCA3I(2,3,3)                        P008A3
       LOGICAL MCA1B(7),A1B(2),A2B(2,2),A3B(2,2,2),AVB,CVB,DVB ,MCBVB  P008A4
       DOUBLE PRECISION DPA1D(5),MCA3D(1,4,2),ZZDVD ,A2D(2,2),A3D(2,2,2) P008A5
      1,AC1D(10),BC2D(7,4),DPAVD,DPBVD                                 P008A6
       COMPLEX BVC,QAVC,CHAVC,CHBVC,CHCVC,CHDVC                        P008A7
      1,LL1C(32),LM2C(8,4),A1C(12),A2C(2,2),B3C(2,2,2),B1C(8)          P008A8
C*****   I N P U T - O U T P U T   TAPE  ASSIGNMENT STATEMENTS         P0081020
C*****                                                                 P0081030
C*****   WHEN EXECUTING ONLY SEGMENT 008, THE FOLLOWING STATEMENTS     P0070010
C*****   NUVI=6 AND IRVI=5 MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED. P0070015
C*****                                                                 P0070020
C=     IRVI = 5                                                        P0070025
C=     NUVI = 6                                                        P0070030
       IRVI = 5                                                        P008B1
       NUVI = 6                                                        P008B2
C*****   IDENTIFY THE SOURCE OF THE TEST PROGRAMS                      P0070035
       WRITE(NUVI,0071)                                                P0070040
0071   FORMAT (41H1 F O R T R A N  T E S T  P R O G R A M S//          P0070045
```

```
      1 42H    PREPARED BY NATIONAL BUREAU OF STANDARDS//           P0070050
      3 38H    FOR USE ON FORTRAN PROCESSORS           //           P0070055
      4 42H    IN ACCORDANCE WITH ASA FORTRAN X3.9-1966//           P0070060
      5 23H    VERSION 1              ///)                           P0070065
C*****   3 OF 6 INPUT CARDS IDENTIFY THE USERS SYSTEM AND COMPILER  P0070070
C        PREPARED BY USER                                           P0070075
C        READ, NO LIST                                              P0070080
C        PREPARED BY USER                                           P0070085
C        READ, NO LIST                                              P0070090
C        PREPARED BY USER                                           P0070095
C        READ, NO LIST                                              P0070100
      READ(IRVI,0070)                                               P0070105
      READ(IRVI,0072)                                               P0070110
      READ(IRVI,0073)                                               P0070115
0070  FORMAT(40H    BASED ON ASA FORTRAN X3.9-1966          /)      P0070120
0072  FORMAT(40H    TEST PROGRAMS                           /)      P0070125
0073  FORMAT(40H    FORTRAN COMPILER                        /)      P0070130
      WRITE(NUVI,0070)                                              P0070135
      WRITE(NUVI,0072)                                              P0070140
      WRITE(NUVI,0073)                                              P0070145
C*****     HEADER FORMAT STATEMENT                                  P0081040
0080  FORMAT (1H1, 1X,27HFMTRW - (008) FORMATTED I/O//2X,           P0081050
     138HASA REFS - 7.1.3.2.2  7.1.3.2.3  7.2.3//2X,7HRESULTS)      P0081060
      WRITE (NUVI,0080)                                             P0081070
C*****     FORMAT WITH DIGITS 0-9 IN H FIELDS                       P0081080
0081  FORMAT (//22H  1010101010101010101010,9H999999999,8H88888888/2X, P0081090
     17H7777777,6H666666,5H55555,4H4444,3H333,2H22,1H1)             P0081100
      WRITE (NUVI,0081)                                             P0081110
C*****     FORMAT  CONTAINING ALL LETTERS (A-Z) IN H FIELDS AND     P0081120
C*****     A VARIABLE NUMBER OF BLANKS IN H AND X FIELDS            P0081130
0082  FORMAT(/2X,3HAAA,5X,5H     ,3HBBB,10X,3HCCC/3H   ,3HDDD,9X,3HEEE, P0081140
     19H           ,3HFFF/4X,3HGGG,8X,3HHHH,8H       ,3HIII/5H    ,3HJJJP0081150
     2,7H       ,3HKKK,7X,3HLLL/6X,3HMMM,6X,3HNNN,6H      ,3HOOO/7X,  P0081160
     3 3HPPP,5H     ,3HQQQ,5X,3HRRR/8X,3HSSS,4X,3HTTT,4H     ,3HUUU/   1P0081170
     45H        VVV   ,3HWWW,3X,3HXXX/12X,3HYYY,3X,3HZZZ)           P0081180
      WRITE (NUVI,0082)                                             P0081190
C*****     FORMAT CONTAINING H FIELD WITH ALL POSSIBLE              P0081200
C*****     SPECIAL CHARACTERS                              3.1/46   P0081210
0083  FORMAT(/21H  = + - * / ( ) , . $)                            P0081220
      WRITE (NUVI,0083)                                             P0081230
C*****     FORMAT  TO TEST VERTICAL SPACING                         P0081240
C*****                                                7.1.3.4/04    P0081250
7154  FORMAT(/24H  BEGIN VERTICAL SPACING//30H  FORMAT(14H   SKIP 1 LINEP0081260
     1  /) /)                                                       P0081270
      WRITE (NUVI, 7154)                                            P0081280
7155  FORMAT(32H  FORMAT(15H   SKIP 2 LINES  //) //)                P0081290
      WRITE (NUVI, 7155)                                            P0081300
7156  FORMAT(33H  FORMAT(16H   SKIP 3 LINES  ///) ///)              P0081310
      WRITE (NUVI,7156)                                             P0081320
0084  FORMAT( 32H   IMBEDDED SLASHES - SKIP 1 LINE //               P0081330
     1  14H  SKIP 2 LINES///  14H  SKIP 3 LINES/ 3(/),              P0081340
     2  19H  SKIP TO NEXT LINE/ 1H , 12H SKIP 1 LINE/ 1H0,          P0081350
     3  38H TEST NO/1H+,9X,14H/1H+,7HADVANCE/19H  SKIP TO NEW PAGE / P0081360
     4  1H1,              /// 30H   END OF VERTICAL SPACING TEST)   P0081370
      WRITE (NUVI,0084)                                             P0081380
C*****     FORMATTED READ AND WRITE STATEMENTS WITH INTEGER  7.1.3.2.1/25P0081390
C*****     VARIABLES AND ARRAY ELEMENTS IN AN I/O LIST. (THE  7.2.3.3/01P0081400
C*****     NUMBER OF ITEMS IN THE LIST IS VARIABLE.) SOME           P0081410
C*****     FORMAT STATEMENTS CONTAIN REPEATED FIELDS.               P0081420
C*****     FORMATS CONTAINING I CONVERSION DESCRIPTORS.       7.2.3.6.1/03P0081430
C*****     FIELDS WIDTH IS FROM 1 TO 5 DIGITS. SOME          7.2.3.3  /01P0081440
C*****     FIELDS ARE REPEATED                                      P0081450
0085  FORMAT (//25H  BEGIN I CONVERSION TEST/40H  EACH PAIR OF LINES SHOP0081460
     1ULD BE IDENTICAL/47H  LINE 1 OF EACH GROUP IS HOLLERITH INFORMATIOP0081470
     2N)                                                            P0081480
      WRITE (NUVI,0085)                                             P0081490
C*****  INPUT CARD  1                                               P0081500
0086  FORMAT (2X,I3)                                                P0081510
```

```
          READ (IRVI,0086) JACVI                                       P0081520
C*****    INPUT CARD    2                                              P0081530
0087   FORMAT  ( 1X,.I5, 1X,I4)                                        P0081540
       READ (IRVI,0087) KBCVI, IAC1I(1)                                P0081550
C*****    INPUT CARD    3                                              P0081560
0088   FORMAT (2X,I3,2X,3(I2),2X,I1)                                   P0081570
       READ (IRVI,0088) IAC2I(1,2), LCCVI, IAC1I(5), IHDVI, MCA3I(1,2,3) P0081580
C*****    INPUT CARD    4                                              P0081590
0089   FORMAT (2X,2(I3),1(I5),4(I2),5(I1),3(I4))                       P0081600
       READ (IRVI,0089) MDCVI, IAC2I(2,2), IAC1I(4), NECVI, IAC1I(3),  P0081610
     1     IAC2I(2,3), IAC2I(2,1), MRRVI, IGDVI, KGVI, IEDVI, IAC2I(1,1)P0081620
     2     ,IAC1I(2), IAC2I(2,7), MCA3I(2,1,3)                         P0081630
7086   FORMAT (/ 5H  999)                                             P0081640
       WRITE (NUVI,7086)                                               P0081650
       WRITE (NUVI,0086) JACVI                                         P0081660
7087   FORMAT (/ 11H  5555 4444)                                      P0081670
       WRITE (NUVI,7087)                                               P0081680
       WRITE (NUVI,0087) KBCVI, IAC1I(1)                               P0081690
7088   FORMAT (/ 16H  666  777777  8)                                 P0081700
       WRITE (NUVI,7088)                                               P0081710
       WRITE (NUVI,0088) IAC2I(1,2), LCCVI, IAC1I(5), IHDVI, MCA3I(1,2,3)P0081720
7089   FORMAT (/ 38H  33333311111222222225555554444444444444)        P0081730
       WRITE (NUVI,7089)                                               P0081740
       WRITE (NUVI,0089) MDCVI, IAC2I(2,2), IAC1I(4), NECVI, IAC1I(3),  P0081750
     1      IAC2I(2,3), IAC2I(2,1), MRRVI, IGDVI, KGVI, IEDVI, IAC2I(1,1)P0081760
     2      ,IAC1I(2), IAC2I(2,7), MCA3I(2,1,3)                        P0081770
C*****       FORMATTED READ AND WRITE STATEMENTS WITH REAL     7.1.3.2.1/25P0081780
C*****       VARIABLES AND ARRAY ELEMENTS IN AN I/O LIST.(THE  7.2.3.6.2/18P0081790
C*****       NUMBER OF ITEMS IN THE LIST IS VARIABLE.) ONLY    7.2.3.3  /01P0081800
C*****       F CONVERSION IS USED IN THE FORMAT STATEMENTS.            P0081810
C*****       SOME F FIELD DESCRIPTORS ARE REPEATED. FIELD              P0081820
C*****       WIDTH ALWAYS CONTAINS 1 POSITION FOR DECIMAL PT.          P0081830
C*****       FORMATS CONTAINING F CONVERSION DESCRIPTORS.     7.2.3.6.2/18P0081840
C*****       FIELD WIDTH IS FROM 1 TO 7 DIGITS. PLACEMENT OF   7.2.3.3  /01P0081850
C*****       DECIMAL POINT IS VARIABLE. SOME F FIELDS ARE              P0081860
C*****       REPEATED                                                  P0081870
7080   FORMAT (/ 25H  BEGIN F CONVERSION TEST/40H  EACH PAIR OF LINES SHOP0081880
     1ULD BE IDENTICAL)                                                P0081890
       WRITE (NUVI,7080)                                               P0081900
C*****    INPUT CARD    5                                              P0081910
7081   FORMAT (2X,F3.1,F8.1)                                           P0081920
       READ (IRVI,7081) ACVS, CMAVS                                    P0081930
C*****    INPUT CARD    6                                              P0081940
7082   FORMAT(2X,F4.2,F5.3,F8.6)                                       P0081950
       READ (IRVI,7082) A1S(2), BCVS, CMBVS                            P0081960
C*****    INPUT CARD    7                                              P0081970
7083   FORMAT (2X,F6.4,F7.5,4(F4.1),F5.1)                              P0081980
       READ (IRVI,7083) HHCVS, CMCVS, GGCVS, FFCVS, A1S(1), AC1S(25),  P0081990
     1     AC2S(4,1)                                                   P0082000
C*****    INPUT CARD    8                                              P0082010
7084   FORMAT (2X,2(F6.1),2X,2(F7.1),2X,F5.2)                          P0082020
       READ (IRVI,7084) AC1S(18), AC1S(7), AC2S(4,4) , AC1S(8), AC1S(10)P0082030
C*****    INPUT CARD    9                                              P0082040
7085   FORMAT (2X,5(F3.1),F7.3,3(F5.3))                                P0082050
       READ (IRVI,7085) AC2S(3,3) , AC2S(5,1), CCVS, AC1S(12), DCVS,   P0082060
     1    AC1S(13), AC1S(5), A3S(1,1,2), AC2S(3,5)                     P0082070
7091   FORMAT (/ 13H  7.7123456.7)                                    P0082080
       WRITE (NUVI,7091)                                               P0082090
       WRITE (NUVI,7081) ACVS, CMAVS                                   P0082100
7092   FORMAT (/ 19H  8.889.9997.123456)                              P0082110
       WRITE (NUVI,7092)                                               P0082120
       WRITE (NUVI,7082) A1S(2), BCVS, CMBVS                           P0082130
7093   FORMAT (/ 36H  5.44446.5555533.133.133.133.1444.1)             P0082140
       WRITE (NUVI,7093)                                               P0082150
       WRITE (NUVI,7083) HHCVS, CMCVS, GGCVS, FFCVS, A1S(1), AC1S(25)  P0082160
     1    ,AC2S(4,1)                                                   P0082170
7094   FORMAT (/ 37H  5555.15555.1  66666.166666.1   44.22 )          P0082180
       WRITE (NUVI,7094)                                               P0082190
```

```
            WRITE (NUVI,7084) AC1S(18), AC1S(7), AC2S(4,4) , AC1S(8), AC1S(10)P008220
7095  FORMAT ( /39H  2.12.12.12.12.1666.3334.3334.3334.333)              P008221
      WRITE (NUVI,7095)                                                  P008222
      WRITE (NUVI,7085) AC2S(3,3) , AC2S(5,1), CCVS, AC1S(12), DCVS,     P008223
     1     AC1S(13), AC1S(5),  A3S(1,1,2), AC2S(3,5)                     P008224
C*****     FORMATTED READ AND WRITE STATEMENTS WITH REAL      7.1.3.2.1/ P008225
C*****      VARIABLES AND ARRAY ELEMENTS IN AN I/O LIST.      7.2.3.6.2/ P008226
C*****       E CONVERSION IS USED IN THE FORMAT STATEMENTS    7.2.3.3  / P008227
C*****      SOME E FIELD DESCRIPTORS ARE REPEATED                        P008228
C*****     (FIELD WIDTH ALWAYS INCLUDES 6 EXTRA POSITIONS 7.2.3.6.2.1/47P008229
C*****     TO PROVIDE FOR SIGN, DECIMAL POINT AND EXPONENT.    7.2.3.6/01P008230
C*****     PROVISION IS ALWAYS MADE FOR THE DIGIT ZERO      7.2.3.6.2.1/04P008231
C*****     BEFORE THE DECIMAL POINT)                                     P008232
C*****     THE NUMBER OF DECIMAL PLACES VARIES FROM 1                    P008233
C*****     TO 7 DIGITS.                                                  P008234
7110  FORMAT (//25H  BEGIN E CONVERSION TEST/40H  EACH PAIR OF LINES SHOP008235
     1ULD BE IDENTICAL)                                                  P008236
      WRITE (NUVI,7110)                                                  P008237
C***** INPUT CARD  10                                                    P008238
7111  FORMAT (E8.1,E9.2,E10.3,E11.4,E12.5,E13.6,E14.7)                   P008239
      READ (IRVI,7111) AVS, BVS, EP1S(5), AC2S(1,5), CVS, AC2S(5,4),     P008240
     1     A3S(2,1,2)                                                    P008241
7112  FORMAT (/ 21H  -0.1E+01    0.22E-01/2X,E8.1,2X,E9.2//              P008242
     1        25H   0.333E+02    0.4444E+03/2X,E10.3,2X,E11.4//          P008243
     2        29H  -0.55555E-03   0.666666E+00/2X,E12.5,2X,E13.6//       P008244
     3        16H   0.9876543E+12/2X,E14.7)                             P008245
      WRITE (NUVI,7112) AVS, BVS, EP1S(5), AC2S(1,5), CVS, AC2S(5,4),    P008246
     1     A3S(2,1,2)                                                    P008247
C*****     FORMATTED READ AND WRITE STATEMENTS WITH COMPLEX  7.1.3.2.1/25P008248
C*****     VARIABLES AND ARRAY ELEMAENTS IN AN I/O LIST.     7.2.3.6.4/52P008249
C*****      E AND F CONVERSION ARE USED IN THE FORMAT        7.2.3.4  /39P008250
C*****       STATEMENTS. SOME FORMAT DESCRIPTORS ARE REPEATED 7.2.3.3  /01P008251
7118  FORMAT (  31H1 BEGIN COMPLEX CONVERSION TEST/32H  EACH GROUP SHOULP008252
     1D BE IDENTICAL)                                                    P008253
      WRITE (NUVI,7118)                                                  P008254
C***** INPUT CARD  11                                                    P008255
7119  FORMAT ( 2(F3.1) , 2(F4.1), 2(F7.4))                              P008256
      READ (IRVI,7119) CHAVC, CHBVC, A1C(2)                             P008257
C***** INPUT CARDS 12, 13                                                P008258
7120  FORMAT ( 2(F6.2), 2(E10.3), 2(E11.4), 2(E8.1)/ 2(E14.7))          P008259
      READ (IRVI,7120) A2C(1,2), B3C(2,2,1), CHCVC, A1C(1), CHDVC       P008260
C***** INPUT CARD  14                                                    P008261
7122  FORMAT (F5.2, E11.4, E10.3, F4.1, 3(F5.2,E11.4))                  P008262
      READ (IRVI,7122) A2C(2,1), BVC, QAVC, LM2C(1,2), LL1C(2)          P008263
7123  FORMAT (/ 10H   1.0   5.5/ 2X, F3.1,2X, F3.1 //                   P008264
     1 12H   22.0   66.6/ 2X, F4.1, 2X, F4.1 //                         P008265
     2 18H   33.1234   55.0789/ 2X, F7.4, 2X, F7.4 )                    P008266
      WRITE (NUVI,7123) CHAVC, CHBVC, A1C(2)                            P008267
7124  FORMAT (/   16H   123.00   456.88/ 2X, F6.2, 2X, F6.2 //          P008268
     1 24H    0.123E+01    0.987E+01/ 2X, E10.3, 2X, E10.3 //           P008269
     2 26H   -0.2345E+02  -0.6879E+02/ 2X, E11.4, 2X, E11.4 //          P008270
     3 20H    0.7E+03    0.4E+03/ 2X, E8.1, 2X, E8.1 //                 P008271
     4 32H    0.9876543E-04   0.1357913E-04/ 2X, E14.7, 2X, E14.7)      P008272
      WRITE (NUVI,7124) A2C(1,2), B3C(2,2,1), CHCVC, A1C(1), CHDVC      P008273
7126  FORMAT (/ 20H  19.34   0.2468E+02/ 2X, F5.2, 2X, E11.4//          P008274
     1 18H   0.765E+02  87.6/ 2X, E10.3, 2X,F4.1//                      P008275
     2 18H  43.96 0.5407E+02/    3(F7.2,E11.4/))                        P008276
      WRITE (NUVI,7126) A2C(2,1), BVC, QAVC, LM2C(1,2), LL1C(2)         P008277
C*****      O MATTED READ AND WRITE STATEMENTS WITH         7.1.3.2.1/25P008278
C*****       BLE PRECISION VARIABLES IN AN I/O LIST.        7.2.3.6.3/41P008279
C*****      D CONVERSION IS USED IN THE FORMAT STATEMENTS.  7.2.3.3  /01P008280
C*****      SOME D FORMAT DESCRIPTORS ARE REPEATED. (FIELD              P008281
C*****      WIDTH ALWAYS INCLUDES 6 EXTRA POSITIONS TO      7.2.3.6.2.1/45P008282
C***  .      PROVIDE FOR SIGN, DECIMAL POINT AND EXPONENT   7.2.3.6   /04P008283
C*****      AND 1 POSITION FOR OPTIONAL DIGIT ZERO BEFORE   7.2.3.6.2.1/04P008284
C*****      THE DECIMAL POINT)                                          P008285
7127  FORMAT ( /25H  BEGIN D CONVERSION TEST/32H  EACH GROUP SHOULD BE IP008286
     1DENTICAL)                                                          P008287
```

```
      WRITE (NUVI,7127)                                                  P0082880
C*****   INPUT CARD   15                                                 P0082890
7128  FORMAT ( 2X, D8.1)                                                 P0082900
      READ (IRVI,7128) DPAVD                                             P0082910
C*****   INPUT CARDS  16, 17, 18                                         P0082920
7129  FORMAT ( 2(D10.3), D14.7, D18.11/ 3(D21.14)/ 2(D16.9))            P0082930
      READ (IRVI,7129) MCA3D(1,2,2), AC1D(2), BC2D(3,1), AC1D(1),       P0082940
     1      ZZDVD, AC1D(3), DPBVD, MCA3D(1,2,1), BC2D(1,2)              P0082950
7130  FORMAT (/ 10H   0.1D+06)                                          P0082960
      WRITE (NUVI,7130)                                                  P0082970
      WRITE (NUVI,7128) DPAVD                                            P0082980
7131  FORMAT (/ 12H   -0.334D-04/ 2X, D10.3 / 2X, D10.3 //              P0082990
     1 16H   0.7657654D+00/ 2X, D14.7 //                                P0083000
     2 20H1  0.123456789010+10/ 2X, D18.11 //                           P0083010
     3 23H   0.987654321098760-01/ 2X, D21.14/ 2X, D21.14 / 2X, D21.14//P0083020
     4 18H  -0.555555542D+03/ 2X, D16.9/ 2X, D16.9 )                    P0083030
      WRITE (NUVI,7131) MCA3D(1,2,2), AC1D(2), BC2D(3,1), AC1D(1)       P0083040
     1      ZZDVD, AC1D(3), DPBVD, MCA3D(1,2,1), BC2D(1,2)              P0083050
C*****     FORMATTED READ AND WRITE STATEMENTS WITH LOGICAL   7.1.3.2.1/25P0083060
C*****     VARIABLES AND ARRAY ELEMENTS IN AN I/O LIST        7.2.3.7   /56P0083070
C*****     SOME L DESCRIPTORS ARE REPEATED.                              P0083080
7132  FORMAT(//25H  BEGIN L CONVERSION TEST/33H   LINES BELOW SHOULD BE IP0083090
     1DENTICAL)                                                          P0083100
C*****     L CONVERSION IS USED IN THE FORMAT STATEMENTS      7.2.3.3   /01P0083110
      WRITE (NUVI,7132)                                                  P0083120
C*****   INPUT CARD    19                                                P0083130
7133  FORMAT (L4)                                                        P0083140
      READ (IRVI,7133) A2B(2,1)                                          P0083150
C*****   INPUT CARD    20                                                P0083160
7134  FORMAT ( 2(L4), L3, L2, L3, 2(L1))                                 P0083170
      READ (IRVI,7134) MCA1B(1), MCBVB, A2B(1,1), A3B(1,1,1), CVB,       P0083180
     1      DVB, A3B(1,2,1)                                              P0083190
7135  FORMAT (//24H       T    F    F   T T   FTF/ 2X, 3(L4), L3, L2, L3, P0083200
     1 2(L1))                                                            P0083210
      WRITE (NUVI,7135) A2B(2,1), MCA1B(1), MCBVB, A2B(1,1), A3B(1,1,1),P0083220
     1      CVB, DVB, A3B(1,2,1)                                         P0083230
C*****     FORMATTED READ AND WRITE STATEMENTS WITH ARRAY     7.1.3.2.1/26P0083240
C*****     NAMES OF ALL TYPES IN AN I/O LIST. THE NUMBER OF   7.1.3.2.1/39P0083250
C*****     ITEMS IN THE LIST IS VARIABLE. SOME FIELD          7.2.3.3   /01P0083260
C*****     DESCRIPTORS ARE REPEATED.                                     P0083270
7097  FORMAT (//32H   TEST UNSUBSCRIPTED ARRAY NAMES/35H   IN I/O LISTS. EP0083280
     1ACH GROUP OF LINES/22H   SHOULD BE IDENTICAL.)                     P0083290
      WRITE (NUVI,7097)                                                  P0083300
C*****   INPUT CARDS   21, 22                                            P0083310
7098  FORMAT(2X,8(F3.1),8F3.1/8(2(F3.1)))                               P0083320
      READ (IRVI,7098) B1C,B3C                                          P0083330
C*****   INPUT CARDS   23, 24, 25                                        P0083340
7099  FORMAT(2X,4(F4.1)/4(D9.2),4D9.2/5(I2))                            P0083350
      READ (IRVI,7099) A2S, A3D, MCA1I                                  P0083360
C*****   INPUT CARDS   26, 27, 28                                        P0083370
7100  FORMAT(2X,4(D9.2)/27(F2.1)/5(L1),5L1)                             P0083380
      READ (IRVI,7100) A2D, A3S, A1B, A3B                               P0083390
C*****   INPUT CARDS   29, 30                                            P0083400
7101  FORMAT (2X,4(I2),5(D9.2)/4(2(F3.1)),8(I2),4(L1),5(F3.1))          P0083410
      READ (IRVI,7101) I2I, DPA1D, A2C, I3I, A2B, CMA1S                 P0083420
7102  FORMAT (/ 26H   9.91.19.92.29.93.39.94.4 / 2X,8(F3.1)/2X,8(F3.1)) P0083430
      WRITE (NUVI,7102) B1C                                             P0083440
7103  FORMAT (/ 18H   -9.9-9.9-9.9-9.9/2X,4(F4.1) //                    P0083450
     138H  -0.99D+01-0.99D+01-0.99D+01-0.99D+01/2X,4(D9.2)/2X,4(D9.2)// P0083460
     2 12H  9999999999/ 2X, 5(I2) //38H   0.99D+01 0.99D+01 0.99D+01 0.9P0083470
     39D+01/ 2X, 4(D9.2) // 37H   0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9/1X,P0083480
     4 9(F4.1)/ 1X, 9(F4.1)/ 1X,9(F4.1)/  4H1 TF/ 2X,2(L1))             P0083490
      WRITE (NUVI,7103) A2S, A3D, MCA1I, A2D, A3S, A1B                  P0083500
7104  FORMAT (/  10H   TFTFTFTF/  2X, 8(L1) // 10H   99999999/ 2X, 4(I2)//P0083510
     1 11H    0.99D+01/ 5(D11.2//)       /26H   9.95.59.96.69.97.79.98.8/2X,P0083520
     28(F3.1)/2X,8(F3.1)/2X,8(F3.1)//18H   9999999999999999/2X,8(I2)// P0083530
     3  6H   TFFT/ 2X, 4(L1) // 17H  9.99.99.99.99.9/2X, 5(F3.1))       P0083540
      WRITE (NUVI,7104) A3B, I2I, DPA1D, A2C, B3C, I3I, A2B, CMA1S      P0083550
```

```
C*****      FORMATTED WRITES TO TEST THAT LEADING BLANKS        7.2.3.6/51P0083560
C*****      ARE INSERTED IN THE OUTPUT FIELD WHEN THE OUTPUT              P0083570
C*****      PRODUCED IS SMALLER THAN THE FIELD WIDTH. (I, E,              P0083580
C*****      F AND D DESCRIPTORS ARE TESTED)                               P0083590
7090  FORMAT ( /30H  LEADING BLANK INSERTION TEST/40H   EACH PAIR OF LINEP0083600
     1S SHOULD BE IDENTICAL)                                              P0083610
      WRITE (NUVI,7090)                                                   P0083620
7096  FORMAT (/   3H  8/I3//4H  22/I4//5H   22/I5//6H    22/I6//          P0083630
     1 7H     22/I7// 5H   7.7/F5.1// 7H    8.88/F7.2/  9H1   9.999/      P0083640
     2 F9.3// 11H     5.4444/F11.4//   13H      6.55555/F13.5//           P0083650
     3 15H       7.123456/F15.6// 10H  0.21E+01/E10.2//                   P0083660
     4 12H   0.331E+02/E12.3// 14H      0.4441E+03/E14.4//                P0083670
     5 16H       0.55551E+04/E16.5// 18H        0.666661E+05/E18.6//      P0083680
     6 20H       0.1234567E+06/E20.7)                                     P0083690
      WRITE (NUVI,7096) MCA3I(1,2,3), IAC1I(3), NECVI, IAC1I(3),          P0083700
     1      IAC2I(2,3), ACVS, A1S(2), BCVS, HHCVS, CMCVS, CMBVS,          P0083710
     2      DCVS, AC1S(25), AC2S(4,1), AC1S(7), AC1S(8), CMAVS            P0083720
7105  FORMAT (/   9H  0.1D+00/D9.1// 10H    0.1D+00/D10.1//               P0083730
     1 11H     0.1D+00/D11.1// 12H      0.1D+00/D12.1//                   P0083740
     2 10H  1.0   5.5/ 2(F5.1) // 12H    9.9    5.5/ 2(F6.1) //           P0083750
     3 14H    9.9     5.5/ 2(F7.1) // 16H     1.0      5.5/ 2(F8.1))      P0083760
      WRITE (NUVI,7105) AC1D(3), ZZDVD, ZZDVD,                           P0083770
     1      ZZDVD, CHAVC, B3C(1,1,1), B3C(1,1,1), CHAVC                   P0083780
C*****      FORMATTED READ AND WRITE STATEMENT TO TEST THAT     7.2.3.7/03P0083790
C*****      OPTIONAL BLANKS MAY PRECEDE A LOGICAL INPUT FIELD   7.2.3.7/06P0083800
7138  FORMAT (  33H1 TEST LOGICAL FIELDS WITH BLANKS/33H   LINES BELOW SHP0083810
     1OULD BE IDENTICAL)                                                  P0083820
      WRITE (NUVI,7138)                                                   P0083830
C*****  INPUT CARD   31                                                   P0083840
7139  FORMAT ( L6, L4, L10, L5)                                          P0083850
      READ (IRVI,7139) AVB, MCA1B(2), A2B(1,2), A3B(2,1,2)               P0083860
7140  FORMAT (//27H        T    F       T    F/ 2X, L6, L4, L10, L5)     P0083870
      WRITE (NUVI,7140) AVB, MCA1B(2), A2B(1,2), A3B(2,1,2)              P0083880
C*****      FORMATTED READ AND WRITE TO TEST F DESCRIPTORS      7.2.3.1/31P0083890
C*****      WHERE D IS EQUAL TO ZERO AND WHERE W EQUALS D       7.2.3.4/40P0083900
C*****      (2ND TEST APPLIES ONLY TO READ STMNTS.)                       P0083910
7108  FORMAT (//36H   TEST D = 0, W=D+1  (PAIRS OF LINES/ 28H   BELOW SHOUP0083920
     1LD BE IDENTICAL))                                                   P0083930
      WRITE (NUVI,7108)                                                   P0083940
C*****  INPUT CARD   32                                                   P0083950
7141  FORMAT (2X, F5.0, F5.5)                                            P0083960
      READ (IRVI,7141) ACVS, BVS                                         P0083970
7109  FORMAT (//7H   4444./2X, F5.0// 9H    .55555/ 3X,F6.5)             P0083980
      WRITE (NUVI,7109) ACVS, BVS                                        P0083990
C*****      FORMATS WITH G CONVERSIONS                                    P0084000
C*****  INPUT CARD   33                                                   P0084010
7142  FORMAT(  3(G11.4), 3G11.4)                                        P0084020
      READ (IRVI,7142) AC1S(14), AC1S(15), AC1S(16), AC1S(17)           P0084030
     1                 AC1S(21), AC1S(22)                                P0084040
7143  FORMAT(/ 2X,23HBEGIN G CONVERSION      /2X,38HEACH PAIR OF LINES SHP0084050
     1OULD BE IDENTICAL//36H       .1235E+05         1235.        123.5/  P0084060
     2 G14.4,4X,2G11.4///3X,33H  12.35        1.235       .1235/         P0084070
     3 G14.4,4X,2G11.4)                                                   P0084080
      WRITE(NUVI,7143) AC1S(14), AC1S(15), AC1S(16), AC1S(17),           P0084090
     1                 AC1S(21), AC1S(22)                                P0084100
C*****      SCALE FACTOR APPLIED TO F,E,D,G DESCRIPTORS                   P0084110
C*****      ON READ, BUT NOT ON WRITE                                     P0084120
C*****  INPUT CARD   34                                                   P0084130
7144  FORMAT(2PF8.3,-2PE9.4,F9.4,0PG9.4,D9.4,-2PE9.4,F9.4,D9.4,2PG9.4)   P0084140
      READ(IRVI,7144)EP1S(16),EP1S(17),EP1S(18), EP1S(19),              P0084150
     1 BC2D(1,4),EP1S(20),EP1S(22),BC2D(2,1),EP1S(23)                    P0084160
7145  FORMAT(22H1 SCALE FACTOR ON READ/31H   IN ORDER OF FORMAT OCCURRENCP0084170
     1E//40H  CARD    9876.54    98.7654E2      9876.54/                 P0084180
     2 40H  DESC    2PF8.3       -2PE9.4          F9.4/                   P0084190
     3 40H  TO BE   98.7654    .9877E+04    987654.00/                    P0084200
     4 4H  IS, F12.4, E12.4, F12.2//                                      P0084210
     5 40H  CARD    987.654    864786D-4     86.4786E2/                   P0084220
     6 40H  DESC    0PG9.4         D9.4        -2PE9.4/                    P0084230
```

```
      7   40H   TO BE   987.654      .8648D-02      .8648E+04/          P0084240
      8   4H   IS, F12.3,D12.4, E12.4//                                 P0084250
      9   40H   CARD   86.4786      8657.87D0       9876.54/            P0084260
      A   40H   DESC     F9.4        D9.4           2PG9.4/             P0084270
      B   40H   TO BE 8647.860   .8658D+04          98.77/             P0084280
      C4H   IS,F12.3, D12.4, G16.4)                                    P0084290
         WRITE(NUVI,7145) EP1S(16),EP1S(17),EP1S(18),EP1S(19),         P0084300
      1    BC2D(1,4),EP1S(20),EP1S(22),BC2D(2,1),EP1S(23)              P0084310
C*****     SCALE FACTOR APPLIED TO  F, E, D, G  DESCRIPTORS            P0084320
C*****     ON WRITE, BUT, NOT ON READ                                  P0084330
C*****  INPUT CARD   35                                                P0084340
7152  FORMAT(F8.2,E9.4,F9.2,G9.3,D9.0,E9.4,F9.4,D9.2,G9.4)             P0084350
      READ(IRVI,7152) AC1S(1),AC1S(2),AC1S(3),AC1S(4),                 P0084360
      1  AC1D(4),AC1S(20),AC1S(23),AC1D(5),AC1S(24)                    P0084370
7153  FORMAT(/23H  SCALE FACTOR ON WRITE/31H  IN ORDER OF FORMAT OCCURREP0084380
      1NCE//40H   CARD   9.87655      98.7654E2       9876.54/         P0084390
      2   40H   DESC    2PF12.2     -2PE12.4         F12.4/            P0084400
      3   40H   TO BE   987.65     .0099E+06        98.7654/          P0084410
      4   4H   IS, 2PF12.2, -2PE12.4,F12.4//                          P0084420
      5   40H   CARD   987.654     864786D-3      86.4786E2/          P0084430
      6   40H   DESC    1PG12.2      D12.4        -2PE12.4/           P0084440
      7   40H   TO BE 9.88E+02   8.6479D+02     .0086E+06/            P0084450
      8   4H   IS, 1PG12.2, D12.4,  -2PE12.4//                        P0084460
      9   40H   CARD   86.4786     8657.86D0       9876.54/           P0084470
      A   40H   DESC    2PF12.2      1PD12.4       2PG16.4/           P0084480
      B   40H   TO BE  8647.86   8.6579D+03          9877./          P0084490
      C   4H   IS, 2PF12.2, 1PD12.4, 2PG16.4//                       P0084500
      H28H   THE LAST TWO LINES OF EACH/24H  SET SHOULD BE THE SAME)  P0084510
         WRITE(NUVI,7153) AC1S(1),AC1S(2),AC1S(3),AC1S(4),           P0084520
      1  AC1D(4),AC1S(20),AC1S(23),AC1D(5),AC1S(24)                  P0084530
C*****  I/O FORMAT RESCAN                                             P0084540
C*****  INPUT CARDS  36, 37, 38                                       P0084550
7146  FORMAT( I1,I2,I3)                                               P0084560
      READ(IRVI,7146) I2I,IAC1I                                       P0084570
7147  FORMAT(/ 37H  FORMAT RESCAN - THE SECOND GROUP OF/38H  EACH SET SHP0084580
      1OULD AGREE WITH THE FIRST //15H    1    22    333/15H    4    55   .666/P0084590
      115H    7    88    999/1H )                                     P0084600
         WRITE(NUVI,7147)                                             P0084610
7148  FORMAT(I4,I5,I6)                                                P0084620
         WRITE(NUVI,7148) I2I(1,1),I2I(2,1),I2I(1,2),I2I(2,2),IAC1I   P0084630
C*****  INPUT CARDS  39, 40                                           P0084640
7149  FORMAT(I4, 2(I1,1X,I2))                                         P0084650
      READ( IRVI,7149) I2I, IAC1I                                     P0084660
7150  FORMAT(/21H    2 **    4 $$    6 ((/7H    8 $$/1H )             P0084670
         WRITE( NUVI,7150)                                            P0084680
7151  FORMAT (I4,3H **,1(I4,3H $$,(I4,3H (())))                       P0084690
         WRITE( NUVI,7151) I2I(2,1),I2I(2,2),IAC1I(2),IAC1I(4)        P0084700
C*****     END OF TEST SEGMENT 008                                    P0084710
C*****  WHEN EXECUTING ONLY SEGMENT 008 , THE STOP AND END CARDS      P0084720
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C= IN COLUMNS     P0084730
C*****  1 AND 2 REMOVED                                               P0084740
C=    STOP                                                            P0084750
C=    END                                                             P0084760
      STOP                                                            P008C1
      END                                                             P008C2
   PREPARED BY USER
    DO NOT READ OR WRITE RECORD  2  .  DOUBLE SPACE ON OUTPUT.    ID 2
   PREPARED BY USER
    DO NOT READ OR WRITE RECORD  4  .  DOUBLE SPACE ON OUTPUT     ID 4
   PREPARED BY USER
      DO NOT READ OR WRITE RECORD 6   DOUBLE SPACE ON OUTPUT      ID 6
 999
  555554444
  666  777777  8
  3333331111112222222255555444444444444
  7.7123456.7
  8.889.9997.123456
  5.44446.5555533.133.133.133.1444.1
```

NBS FORTRAN Test Programs Version 1

```
      7   40H   TO BE   987.654      .8648D-02      .8648E+04/          P0084240
      8   4H   IS, F12.3,D12.4, E12.4//                                 P0084250
      9   40H   CARD   86.4786      8657.87D0       9876.54/            P0084260
      A   40H   DESC     F9.4        D9.4           2PG9.4/             P0084270
      B   40H   TO BE 8647.860   .8658D+04          98.77/             P0084280
      C4H   IS,F12.3, D12.4, G16.4)                                    P0084290
         WRITE(NUVI,7145) EP1S(16),EP1S(17),EP1S(18),EP1S(19),         P0084300
      1    BC2D(1,4),EP1S(20),EP1S(22),BC2D(2,1),EP1S(23)              P0084310
C*****     SCALE FACTOR APPLIED TO  F, E, D, G  DESCRIPTORS            P0084320
C*****     ON WRITE, BUT, NOT ON READ                                  P0084330
C*****  INPUT CARD   35                                                P0084340
7152  FORMAT(F8.2,E9.4,F9.2,G9.3,D9.0,E9.4,F9.4,D9.2,G9.4)             P0084350
      READ(IRVI,7152) AC1S(1),AC1S(2),AC1S(3),AC1S(4),                 P0084360
      1  AC1D(4),AC1S(20),AC1S(23),AC1D(5),AC1S(24)                    P0084370
7153  FORMAT(/23H  SCALE FACTOR ON WRITE/31H  IN ORDER OF FORMAT OCCURREP0084380
      1NCE//40H   CARD   9.87655      98.7654E2       9876.54/         P0084390
      2   40H   DESC    2PF12.2     -2PE12.4         F12.4/            P0084400
      3   40H   TO BE   987.65     .0099E+06        98.7654/          P0084410
      4   4H   IS, 2PF12.2, -2PE12.4,F12.4//                          P0084420
      5   40H   CARD   987.654     864786D-3      86.4786E2/          P0084430
      6   40H   DESC    1PG12.2      D12.4        -2PE12.4/           P0084440
      7   40H   TO BE 9.88E+02   8.6479D+02     .0086E+06/            P0084450
      8   4H   IS, 1PG12.2, D12.4,  -2PE12.4//                        P0084460
      9   40H   CARD   86.4786     8657.86D0       9876.54/           P0084470
      A   40H   DESC    2PF12.2      1PD12.4       2PG16.4/           P0084480
      B   40H   TO BE  8647.86   8.6579D+03          9877./          P0084490
      C   4H   IS, 2PF12.2, 1PD12.4, 2PG16.4//                       P0084500
      H28H   THE LAST TWO LINES OF EACH/24H  SET SHOULD BE THE SAME)  P0084510
         WRITE(NUVI,7153) AC1S(1),AC1S(2),AC1S(3),AC1S(4),           P0084520
      1  AC1D(4),AC1S(20),AC1S(23),AC1D(5),AC1S(24)                  P0084530
C*****  I/O FORMAT RESCAN                                             P0084540
C*****  INPUT CARDS  36, 37, 38                                       P0084550
7146  FORMAT( I1,I2,I3)                                               P0084560
      READ(IRVI,7146) I2I,IAC1I                                       P0084570
7147  FORMAT(/ 37H  FORMAT RESCAN - THE SECOND GROUP OF/38H  EACH SET SHP0084580
      1OULD AGREE WITH THE FIRST //15H    1    22    333/15H    4    55   .666/P0084590
      115H    7    88    999/1H )                                     P0084600
         WRITE(NUVI,7147)                                             P0084610
7148  FORMAT(I4,I5,I6)                                                P0084620
         WRITE(NUVI,7148) I2I(1,1),I2I(2,1),I2I(1,2),I2I(2,2),IAC1I   P0084630
C*****  INPUT CARDS  39, 40                                           P0084640
7149  FORMAT(I4, 2(I1,1X,I2))                                         P0084650
      READ( IRVI,7149) I2I, IAC1I                                     P0084660
7150  FORMAT(/21H    2 **    4 $$    6 ((/7H    8 $$/1H )             P0084670
         WRITE( NUVI,7150)                                            P0084680
7151  FORMAT (I4,3H **,1(I4,3H $$,(I4,3H (())))                       P0084690
         WRITE( NUVI,7151) I2I(2,1),I2I(2,2),IAC1I(2),IAC1I(4)        P0084700
C*****     END OF TEST SEGMENT 008                                    P0084710
C*****  WHEN EXECUTING ONLY SEGMENT 008 , THE STOP AND END CARDS      P0084720
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C= IN COLUMNS     P0084730
C*****  1 AND 2 REMOVED                                               P0084740
C=    STOP                                                            P0084750
C=    END                                                             P0084760
      STOP                                                            P008C1
      END                                                             P008C2
   PREPARED BY USER
    DO NOT READ OR WRITE RECORD  2  .  DOUBLE SPACE ON OUTPUT.    ID 2
   PREPARED BY USER
    DO NOT READ OR WRITE RECORD  4  .  DOUBLE SPACE ON OUTPUT     ID 4
   PREPARED BY USER
      DO NOT READ OR WRITE RECORD 6   DOUBLE SPACE ON OUTPUT      ID 6
 999
  555554444
  666  777777  8
  3333331111112222222255555444444444444
  7.7123456.7
  8.889.9997.123456
  5.44446.5555533.133.133.133.1444.1
```

NBS FORTRAN Test Programs Version 1   13

```
   5555.15555.1  66666.166666.1   44.22
   2.12.12.12.12.1666.3334.3334.3334.333
-0.1E+01+0.22E-01 0.333E+02 0.4444E+03-0.55555E-03+0.666666E+00+0.9876543E+12
1.05.522.066.633.123455.0789
123.00456.88 0.123E+01   +0.987+1 -0.2345+02  -0.6879E+2+0.7E+03 0.4E+03
 0.9876543E-04+0.1357913E-04
19.34+0.2468E+02    +.765+287.643.96 0.5407E+0243.96+0.5407E+0243.96    0.5407+2
  +0.1D+06
-0.334D-04    -.334-4 +0.7657654D00 0.123456789D1D+10
 +0.98765432109876D-1+0.98765432109876D-01    .98765432109876-1
 -.555555542D+03  -0.555555542+3
TABC
FDEFFGHIT*+T1F$)TF
  9.91.19.92.29.93.39.94.49.91.19.92.29.93.39.94.4
9.95.59.96.69.97.79.98.89.95.59.96.69.97.79.98.8
  -9.9-9.9-9.9-9.9
-0.99D+01-0.99D+01-0.99D+01-0.99D+01-0.99D+01 -.99D+01   -.99+01    -.99+1
9999999999
  +0.99D+01 0.99D+01  +.99D01    +.99D1
.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9
TFTFTFTFTF
  99999999+0.99D+01 0.99D+01 0.99D+01+0.99D+01     .99D1
9.95.59.96.69.97.79.98.89999999999999999999TFFT9.99.99.99.99.99.9
     T  F     T   F
  4444.55555
123.45678E2   1234.5678   123.45678   12.345678  1.2345678  .12345678
 9876.5498.7654E2 9876.54    987.654864786D-486.4786E286.4786  8657.86D0  9876.54
 9.8765598.7654E2  9876.54   987.654864786D-386.4786E286.4786  8657.86D0  9876.54
122333544888611222
455666233444966111
788999377555899777
11112 334 559 880 11
6 778 995 441 222 00
C**********************************************************************P0090010
C*****                                                                P0090020
C*****                       AFRMT - (009)                            P0090030
C*****                                                                P0090040
C**********************************************************************P0090050
C*****     GENERAL PURPOSE                               ASA REFSP0090060
C*****        TO TEST SIMPLE FORMAT AND FORMATTED I/O STATEMENTS  7.1.3.2.2P0090070
C*****        WHICH USE A-CONVERSION SO THAT THIS FEATURE MAY     7.1.3.2.2P0090080
C*****        BE USED IN OTHER SEGMENTS                           7.1.3.2.3P0090090
C*****                                                            7.2.3    P0090100
C*****                                                            7.2.3.8   P0090110
C*****     RESTRICTIONS OBSERVED                                          P0090120
C*****     *  ALL FORMAT STATEMENTS ARE LABELED                  7.2.3   /57P0090130
C*****     *  H AND X DESCRIPTORS ARE NEVER REPEATED             7.2.3.3/54P0090140
C*****     *  FIELD WIDTH IS NEVER ZERO                          7.2.3   /18P0090150
C*****     *  IF THERE IS AN I/O LIST, THE FORMAT STATEMENT      7.2.3.4/22P0090160
C*****        CONTAINS AT LEAST ONE FIELD DESCRIPTOR (OTHER              P0090170
C*****        THAN H OR X)                                               P0090180
C*****     *  ITEMS IN I/O LIST CORRESPOND TO FORMAT DESCRIPTORS 7.2.3.4/36P0090190
C*****     *  FIELD WIDTH NEVER EXCEEDED BY OUTPUT               7.2.3.6/01P0090200
C*****                                                                   P0090210
C*****        READ AND WRITE STATEMENTS FOR ENTIRE SEGMENT FOLLOW        P0090220
C*****                                                                   P0090230
C*****        FORMATTED READ AND WRITE STATEMENTS WITH ALL       7.1.3.2.1/25P0090240
C*****        TYPES OF FIELDS. ONLY A (HOLLERITH) CONVERSION     7.2.3.8  /16P0090250
C*****        IS USED IN THE FORMAT STATEMENTS. SOME A FORMAT    7.2.3.3  /01P0090260
C*****        DESCRIPTORS ARE REPEATED                                   P0090270
C INPUT DATA TO THIS SEG. CONSISTS OF 3 DATA CARD IMAGES IN COLS. 1 - 55P0090280
COL.       1-------------------------31-------------------55       P0090290
CARD  1    B=EF-*JKL/()012TUVW+,.$X YZACDGHIPQRSMN0678(C)B2$9+A345        P0090300
CARD  2    QZ1*A                                                         P0090310
CARD  3    ABCDEFGHIJKLMNOPQRSTUVWXYZ                                    P0090320
C*****                                                                   P0090330
C*****  S P E C I F I C A T I O N S   SEGMENT 009                        P0090340
C*****                                                                   P0010080
```

```
C*****    WHEN EXECUTING ONLY SEGMENT 009, THE SPECIFICATION STATEMENTS   P0010085
C*****    WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                   P0010090
C*****    IN COLUMNS  1  AND  2  REMOVED.                                  P0010095
C*****                                                                     P0010100
C=    DIMENSION A1S(5),A3S(3,3,3),EP1S(33),IAC2I(2,7),AC2S(5,6)            P0010105
C=   1,MCA1I(5),CMA1S(5)                                                   P0010110
C=    INTEGER BVI,MAVI,LAVI,MCA3I(2,3,3)                                   P0010115
C=    REAL MVS,CVS,BCVS                                                    P0010120
C=    LOGICAL MCA1B(7), A1B(2), A2B(2,2),A3B(2,2,2),AVB,EVB               P0010125
      DIMENSION A1S(5),A3S(3,3,3),EP1S(33),IAC2I(2,7),AC2S(5,6)            P009A1
     1,MCA1I(5),CMA1S(5)                                                   P009A2
      INTEGER BVI,MAVI,LAVI,MCA3I(2,3,3)                                   P009A3
      REAL MVS,CVS,BCVS                                                    P009A4
      LOGICAL MCA1B(7), A1B(2), A2B(2,2),A3B(2,2,2),AVB,EVB               P009A5
C*****                                                                     P0010130
C*****    I N P U T - O U T P U T  T A P E  ASSIGNMENT STATEMENTS          P0090350
C*****                                                                     P0070150
C*****    WHEN EXECUTING ONLY SEGMENT 009, THE FOLLOWING TWO STATEMENTS    P0070155
C*****    NUVI = 6    AND IRVI = 5    MUST HAVE                            P0070160
C*****    THE C= IN COL 1 AND 2 REMOVED.                                   P0070165
C=    NUVI = 6                                                             P0070170
C=    IRVI = 5                                                             P0070175
      NUVI = 6                                                             P009B1
      IRVI = 5                                                             P009B2
C*****                                                                     P0070180
      WRITE (NUVI,0090)                                                    P0090360
      READ (IRVI,0091) MVS, IAC2I(2,2),MAVI ,AC2S(4,2),MCA1I(1),LAVI,     P0090370
     1  A2B(1,2),A1B(2), BCVS, MCA1B(2), BVI, CVS,  EVB,A1S(2),EP1S(9),   P0090380
     2A3S(1,1,1),A3B(2,2,1),MCA3I(1,2,3), MCA3I(2,1,2), MCA3I(1,1,3)      P0090390
      WRITE (NUVI,0092) BVI, MVS, CVS, MAVI, EVB, MCA1I(1), EP1S(9), -    P0090400
     1    A1S(2), A1B(2), MCA1B(2), IAC2I(2,2), AC2S(4,2),                P0090410
     2     LAVI, BCVS, A2B(1,2), MCA3I(1,1,3), A3S(1,1,1),                P0090420
     3     MCA3I(2,1,2), MCA3I(1,2,3), A3B(2,2,1)                         P0090430
C*****    FORMATTED READ AND WRITE TO TEST HOLLERITH FIELDS    7.2.3.8/22P0090440
C*****    WHERE FIELD WIDTH IS LESS THAN THE WORD LENGTH       7.2.3.8/28P0090450
C*****    CAPACITY OF THE MACHINE                                          P0090460
      WRITE (NUVI,0093)                                                    P0090470
      READ (IRVI,0094) CMA1S(2), CMA1S(1), LCCVI, AVB, BVI                P0090480
      WRITE (NUVI,0095) BVI, AVB, CMA1S(2), LCCVI, CMA1S(1)               P0090490
C*****    FORMATTED READ AND WRITE TO TEST HOLLERITH FIELDS    7.2.3.8/20P0090500
C*****    WHERE FIELD WIDTH IS GREATER THAN THE WORD LENGTH    7.2.3.8/25P0090510
C*****    CAPACITY OF THE MACHINE                                          P0090520
      WRITE (NUVI,0096)                                                    P0090530
      READ (IRVI,0097) MRRVI                                              P0090540
      WRITE (NUVI,0098) MRRVI                                             P0090550
C*****                                                                     P0090560
C*****                                                                     P0090570
C*****      FORMAT STATEMENTS FOR THE ENTIRE SEGMENT FOLLOW                P0090580
C*****      FORMATS TO TEST A CONVERSION. FIELD WIDTH IS       7.2.3.8/16P0090590
C*****      FROM 1 TO 4 CHARACTERS. SOME A DESCRIPTORS ARE     7.2.3.3/01P0090600
C*****      REPEATED.                                                      P0090610
0090  FORMAT (1H1,1X,26HAFRMT - (009) A-CONVERSION//2X,                   P0090620
     117HASA REF - 7.2.3.8//40H  EACH PAIR OF LINES SHOULD BE IDENTICAL/P0090630
     28X,26HFOR COMPUTERS STORING FOUR/8X,27HOR MORE CHARACTERS PER WORDP0090640
     3)                                                                   P0090650
0091  FORMAT ( 2(A1), 2(A2), 3(A3), 3(A4), A1, A2, A3, A4, 6(A3))         P0090660
0092  FORMAT (// 29H  ABCDEFGHIJKLMNOPQRSTUVWX YZ/ 2X, 2(A1), 2(A2),      P0090670
     1  3(A3), 3(A4)//12H  =-*/()+,.$/ 2X, A1, A2, A3, A4 //              P0090680
     2  20H  0123456789+AB2$(C)/ 2X, 6 A3 )                              P0090690
C*****      FORMATS TO TEST A CONVERSION WHERE FIELD WIDTH     7.2.3.8/22P0090700
C*****      IS LESS THAN THE WORD LENGTH CAPACITY OF MACHINE   7.2.3.8/28P0090710
0093  FORMAT (//35H  TEST A CONVERSION - ADDING BLANKS/40H  EACH PAIR OFP0090720
     1 LINES SHOULD BE IDENTICAL)                                         P0090730
0094  FORMAT ( 5(A1))                                                     P0090740
0095  FORMAT (//4H  A  / 3X, A3//4H   */ 3X, A3  //4H    Q/ 3X, A3//      P0090750
     1 4H    1/3X, A3 //4H    Z/ 3X,A3)                                   P0090760
C*****      FORMATS TO TEST A CONVERSION WHERE FIELD WIDTH     7.2.3.8/20P0090770
C*****      IS GREATER THAN WORD LENGTH CAPACITY OF MACHINE    7.2.3.8/25P0090780
```

```
0096    FORMAT(/25H   TEST A FIELD TRUNCATION/37H   2ND LINE SHOULD PARTIALLP0090790
       1Y MATCH 1ST)                                                       P0090800
0097    FORMAT ( A26 )                                                     P0090810
0098    FORMAT (// 28H  ABCDEFGHIJKLMNOPQRSTUVWXYZ/ 2X, A26)               P0090820
C*****     END OF TEST SEGMENT 009                                         P0090830
C*****  WHEN EXECUTING ONLY SEGMENT 009 , THE STOP AND END CARDS           P0090840
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C= IN COLUMNS          P0090850
C*****  1 AND 2 REMOVED                                                    P0090860
C=      STOP                                                               P0090870
C=      END                                                                P0090880
        STOP                                                               P009C1
        ENO                                                                P009C2
B=EF-*JKL/()012TUVW+,.$X YZACDGHIPQRSMN0678(C)BZ$9+A345
Q21*A
ABCDEFGHIJKLMNOPQRSTUVWXYZ
C***********************************************************************P0100010
C*****                                                                     P0100020
C*****                       DATA2 - (010)                                 P0100030
C****                                                                      P0100040
C***********************************************************************P0100050
C*****                                                                     P0100060
C*****   GENERAL PURPOSE                                                   P0100070
C*****      TO TEST CONTENTS OF VARIABLES THAT WERE FORMEO BY              P0100080
C*****      DATA STATEMENTS IN SEG. OATA1 - (003)                          P0100090
C***********************************************************************P0030010
C*****                                                                     P0030020
C*****                       OATA1 - (003)                                 P0030030
C*****                           COMPLETE WITH DATA2 - (010)               P0030040
C*****                                                                     P0030050
C***********************************************************************P0030060
C*****   GENERAL PURPOSE                                        ASA REFSP0030070
C*****      TO TEST FORMAT OF OATA STATEMENT                    7.2.2   P0030080
C*****   RESTRICTIONS OBSERVEO                                             P0030090
C*****      NO DUMMY ARGUMENTS OR EXTERNAL FUNCTION NAMES       7.2.2/27P0030100
C*****      APPEAR IN OATA STATEMENTS                           8.4.1.1/40P0030110
C*****                                                          10.1.2/08P0030120
C*****      NO INITIALY DEFINED ITEMS APPEAR IN BLANK COMMON    7.2.2/39P0030130
C*****                                                          10.2.4/47P0030140
C*****      STORAGE UNITS INITIALIZEO ONLY ONCE                 10.1.2/10P0030150
C*****      SUBSCRIPTS ARE INTEGER CONSTANTS                    7.2.2/28P0030160
C*****   EXPLICIT VARIABLES                                                P0030170
C*****      AVI  IS INTEGER                                                P0030180
C*****      JVS IS REAL                                                    P0030190
C*****                                                                     P0030200
C*****    S P E C I F I C A T I O N S   SEGMENTS 003 ANO 010               P0030210
C*****                                                                     P0030220
C*****   WHEN EXECUTING ONLY SEGMENTS 003 ANO 010, THE SPECIFICATION       P0010140
C*****   STATEMENTS WHICH APPEAR AS COMMENT CAROS MUST HAVE THE C=         P0010145
C*****   IN COLUMNS  1  ANO  2  REMOVEO.                                   P0010150
C*****                                                                     P0010155
C=      DIMENSION IAC2I(2,7), EP1S(33), AC2S(5,6)                          P0010160
C=     1,AC3S(1,1,3)                                                       P0010165
C=      INTEGER AVI ,MCA3I(2,3,3), I1I(5)                                  P0010170
C=      REAL JVS                                                           P0010175
C=      LOGICAL MAVB,MBVB,MCVB,    MCA1B(7),GH2B(1,2),GI3B(1,1,2),GG1B(2)  P0010180
C=      DOUBLE PRECISION AVD,BVO,CVO,OVO                                   P0010185
C=     1,DPA2O(2,2),MCA3D(1,4,2),A1D(4)                                    P0010190
C=      COMPLEX AOSVC,BCVC,CHEVC,OCVC,LL1C(32),LM2C(8,4),LN3C(9,2,2)       P0010195
C*****                                                                     P0010200
        DIMENSION IAC2I(2,7), EP1S(33), AC2S(5,6)                          P003A1
       1,AC3S(1,1,3)                                                       P003A2
        INTEGER AVI ,MCA3I(2,3,3), I1I(5)                                  P003A3
        REAL JVS                                                           P003A4
        LOGICAL MAVB,MBVB,MCVB,    MCA1B(7),GH2B(1,2),GI3B(1,1,2),GG1B(2)  P003A5
        DOUBLE PRECISION AVD,BVO,CVO,OVO                                   P003A6
       1,DPA2D(2,2),MCA30(1,4,2),A10(4)                                    P003A7
        COMPLEX AOSVC,BCVC,CHEVC,OCVC,LL1C(32),LM2C(8,4),LN3C(9,2,2)       P003A8
C*****      TEST DATA INITIALIZATION OF INTEGER CONSTANTS TO     5.1.1.1 P0030230
```

```
C*****     INTEGER VARIABLES                                              P0030240
      DATA  I1I(1),MCA3I(1,2,1),MCA3I(2,2,2),IAC2I(2,5),IAC2I(2,6),       P0030250
     AMCA3I(2,1,1)/0,2*10,3*246/                                         P0030260
C*****     TEST DATA INITIALIZATION OF REAL CONSTANTS TO       5.1.1.2    P0030270
C*****     REAL VARIABLES                                                 P0030280
      DATA EP1S(8),EP1S(10),EP1S(12),AC2S(5,5),EP1S(11),AC2S(5,3),        P0030290
     AAC2S(5,2)/2*0.,2*-750.05,.24615E3,2.4615E2,3.54674E+3/             P0030300
C*****     TEST DATA INITIALIZATION OF DP CONTANTS TO          5.1.1.3    P0030310
C*****     DP VARIABLES                                                   P0030320
      DATA BVD ,DPA2D(2,1),CVD,DPA2D(1,2),  DVD,DPA2D(2,2)/+34567890.1D-  P0030330
     A3,345.678901D+2,112233.5D-08,11.22335D-4,3.4D12,0.34D13/           P0030340
C*****     TEST DATA INITIALIZATION OF COMPLEX CONSTANTS TO    5.1.1.4    P0030350
C*****     COMPLEX VARIABLES                                              P0030360
      DATA ADSVC,LN3C(9,1,2),LL1C(30),LN3C(8,2,2),LM2C(8,3),LN3C(9,1,1),  P0030370
     ALL1C(32),LN3C(8,1,2)/2*(11.1,22.22),(-3.45E1,-67.8E-1),            P0030380
     B(-34.5E0,-6.78E0),(10.E0,-20.E0),(1.0E1,-2.0E1),(-20.0E1,+4.E3),    P0030390
     C(-200.E0,+4000.E0)/                                                P0030400
C*****     TEST DATA INITIALIZATION OF LOGICAL CONSTANTS TO    5.1.1.5    P0030410
C*****     LOGICAL VARIABLES                                              P0030420
      DATA MAVB ,MCA1B(6), MBVB/2*.TRUE.,.FALSE./                         P0030430
C*****     TEST DATA INITIALIZATION OF HOLLERITH CONSTANTS     5.1.1.6    P0030440
      DATA GI3B(1,1,2),GG1B(1),EP1S(15)/2HNO,2*2HAD/                      P0030450
C*****     TEST DATA INITIALIZATION OF A MIXTURE OF ALL TYPES OF          P0030460
C*****     CONSTANTS AND VARIABLES IN ONE DATA STATEMENT                  P0030470
      DATA  I1I(2),IAC2I(1,5),IAC2I(1,3), I1I(5),IAC2I(2,4),              P0030480
     AMCA3I(1,1,2), AVI,EP1S(13),AC2S(2,6),AC2S(1,6),AC3S(1,1,1),         P0030490
     BAC2S(3,6),AC3S(1,1,2),AC2S(4,6), AVD,A1D(1),DPA2D(1,1),             P0030500
     CMCA3D(1,1,1),A1D(2),MCA3D(1,1,2),LL1C(29),LN3C(8,2,1),BCVC,         P0030510
     DLM2C(8,4),GH2B(1,1),GI3B(1,1,1), MCVB/3*0,4*-750,2*0.,2*246.15,     P0030520
     E354674.E-2,354.674E+ 1,35467.4E-01,3*-.295D5,-29.5D+3,             P0030530
     F3456.78901D+01,0.345678901D+5,2*(1.11E1,+222.2E-1),(-34.5,-6.78),   P0030540
     G(-.345E2,-678.E-2),2*.TRUE.,.FALSE./, I1I(3), I1I(4),              P0030550
     HMCA3I(1,2,2),AC2S(5,6),JVS          ,EP1S(14),AC3S(1,1,3),IAC2I(1,4),P0030560
     ICHEVC,LL1C(31),DCVC,LM2C(8,2),A1D(3),MCA3D(1,3,1),A1D(4),           P0030570
     JMCA3D(1,4,1),              MCA1B(7),GH2B(1,2)            / 2*10,+246,P0030580
     K-.75005E03,-7.5005E+02,2HBC,2H*=,2H P,2*(10.,-20.),                 P0030590
     L(-200.,+4000.),(-2000.E-1,+400.E1),+1122.335D-6,0.00001122335D+2,   P0030600
     M34.0D11,0.034D14,2*.FALSE./                                        P0030610
C*****     END OF SEGMENT 003                                             P0030620
C*****                                                                    P0100100
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.   NO INPUT TAPE.   P0100110
C*****                                                                    P0100120
C*****   WHEN EXECUTING ONLY SEGMENTS 003 AND 010 THE FOLLOWING STATEMENTP0070190
C*****   NUVI = 6   MUST HAVE THE C=  IN COLUMNS 1  AND  2 REMOVED.       P0070195
C=    NUVI = 6                                                            P0070200
      NUVI = 6                                                            P010B1
C*****                                                                    P0070205
      WRITE (NUVI,100)                                                    P0100130
100   FORMAT (1H1,1X,                 32HDATA2 - (010) DATA STATEMENT USE/ P0100140
     A   /2X,17HASA REFS. - 7.2.2//2X,7HRESULTS)                          P0100150
      WRITE (NUVI,101)                                                    P0100160
101   FORMAT(/35H  LINE 1 OF EACH GROUP IS HOLLERITH/36H  INFORMATION. TP0100170
     AEST IS SUCCESSFUL IF/37H  EACH GROUP CONTAINS THE SAME VALUES)      P0100180
      WRITE (NUVI,102) I1I(1),      I1I(2), IAC2I(1,5), IAC2I(1,3),       P0100190
     A                 MCA3I(1,2,1), MCA3I(2,2,2),  I1I(3),  I1I(4),      P0100200
     B                 IAC2I(2,5), IAC2I(2,6), MCA3I(2,1,1),              P0100210
     C                 MCA3I(1,2,2), I1I(5), IAC2I(2,4), MCA3I(1,1,2),    P0100220
     D                 AVI                                                P0100230
102   FORMAT   ( /25X,1H0/4(I26/)//                                      P0100240
     A              24X,2H10/4(I26/)//                                   P0100250
     B              23X,3H246/4(I26/)///                                 P0100260
     C              22X,4H-750/4(I26/))                                  P0100270
      WRITE (NUVI,103) EP1S(8),  EP1S(10), EP1S(13), AC2S(2,6),           P0100280
     A                 AC2S(1,6),AC3S(1,1,1),EP1S(11),AC2S(5,3),          P0100290
     B                 AC2S(3,6), AC2S(5,2), AC3S(1,1,2), AC2S(4,6),      P0100300
     C                 EP1S(12), AC2S(5,5), AC2S(5,6), JVS               P0100310
103   FORMAT   ( /22X,4H0.00/4(F26.2/)//                                 P0100320
     A              20X,6H246.15/4(F26.2/)//                             P0100330
```

NBS FORTRAN Test Programs Version 1   17

```
     B           19X,7H3546.74/4(F26.2/),                           P0100340
     C           1H1,18X,7H-750.05/4(F26.2/))                        P0100350
         WRITE (NUVI,104)ADSVC, LL1C(29), LN3C(9,1,2), LN3C(8,2,1),  P0100360
     A              BCVC, LL1C(30), LM2C(8,4), LN3C(8,2,2),          P0100370
     B              CHEVC, LL1C(31), LM2C(8,3), LN3C(9,1,1),         P0100380
     C              DCVC, LL1C(32), LM2C(8,2), LN3C(8,1,2)           P0100390
104  FORMAT    ( /9X,17H 11.1          22.22/4(F14.1,F12.2/)//       P0100400
     A           8X,18H-34.50         -6.78/4(F14.2,F12.2/)//        P0100410
     B           8X,18H 10.00        -20.00/4(F14.2,F12.2/)//        P0100420
     C           5X,21H  -200.00       4000.00/4(F14.2,F12.2/))      P0100430
         WRITE (NUVI,105) AVD, A1D(1), DPA2D(1,1), MCA3D(1,1,1),     P0100440
     A              BVD, A1D(2), DPA2D(2,1), MCA3D(1,1,2),           P0100450
     B              CVD, A1D(3),DPA2D(1,2), MCA3D(1,3,1),            P0100460
     C              DVD, A1D(4), DPA2D(2,2), MCA3D(1,4,1)            P0100470
105  FORMAT    ( /16X,10H-0.295D+05/4(D26.3/)//                     P0100480
     A           11X,15H0.345678901D+05/4(D26.9/)//                 P0100490
     B           13X,13H0.1122335D-02/4(D26.7/),                    P0100500
     C        1H1,17X,8H0.34D+13/4(D26.2/))                         P0100510
         WRITE (NUVI,106) MAVB, MCA1B(6), GH2 B(1,1), GI3B(1,1,1),   P0100520
     A              MBVB, MCVB, MCA1B(7), GH2B(1,2), GG1B(1),        P0100530
     B              EP1S(15), GI3B(1,1,2),                          P0100540
     C              EP1S(14), AC3S(1,1,3), IAC2I(1,4)                P0100550
106  FORMAT    (//20X,4H   T/  4(L24/)//                            P0100560
     A           20X,4H   F/  4(L24/)//                             P0100570
     B           22X,2HAD /2(22X,A2/)/                              P0100580
     C           22X,2HND /  22X,A2//                               P0100590
     D           22X,2HBC /  22X,A2//                               P0100600
     E           22X,2H*= /  22X,A2//                               P0100610
     F           22X,2H P /  22X,A2)                                P0100620
C*****    END OF SEGMENT 010                                        P0100630
C*****  WHEN EXECUTING ONLY SEGMENTS 003 AND 010, THE   STOP   AND   END   P0100640
C*****  CARDS WHICH APPEAR AS COMMENTS MUST HAVE THE   C=        /   P0100650
C*****  IN COLUMNS  1  AND  2  REMOVED                              P0100660
C=    STOP                                                          P0100670
C=    END                                                          P0100680
      STOP                                                          P010C1
      END                                                          P010C2
C*******************************************************************P0110010
C*****                                                              P0110020
C*****                    AASGN - (011)                             P0110030
C*****                                                              P0110040
C*******************************************************************P0110050
C*****    GENERAL PURPOSE                               ASA REF P0110060
C*****    * TO TEST VERY SIMPLE ARITHMETIC ASSIGNMENT      7.1.1.1 P0110070
C*****      STATEMENTS, SO THAT THIS STATEMENT MAY BE               P0110080
C*****      USED IN LATER SEGMENTS                                  P0110090
C*****    * TO TEST THAT ALL TYPES OF INTEGER AND REAL CONSTANTS   5.1.1P0110100
C*****      MAY BE FORMED                                 5.1.1.1P0110110
C*****                                                    5.1.1.2P0110120
C*****    GENERAL COMMENTS                                          P0110130
C*****    * ONLY REAL AND INTEGER TYPES ARE INCLUDED IN             P0110140
C*****      THIS SEGMENT - NO MIXING OF TYPES                       P0110150
C*****    * IN ORDER NOT TO EXCEED THE WORD LENGTH CAPACITY OF      P0110160
C*****      SOME COMPUTERS, INTEGER CONSTANTS ARE LIMITED TO        P0110170
C*****      5 DIGITS AND REAL CONSTANTS TO 7 DIGITS.                P0110180
C*****                                                              P0110190
C*****    S P E C I F I C A T I O N S  SEGMENT 011                  P0110200
C*****                                                              P0010210
C*****  WHEN EXECUTING ONLY SEGMENT 011, THE SPECIFICATION STATEMENT P0010215
C*****  WHICH APPEARS AS A COMMENT MUST HAVE THE C= REMOVED         P0010220
C=    DIMENSION IAC1I(5),IAC2I(2,7),AC1S(25),AC2S(5,6),A2S(2,2)     P0010225
      DIMENSION IAC1I(5),IAC2I(2,7),AC1S(25),AC2S(5,6),A2S(2,2)     P011A1
C*****                                                              P0010230
C*****    O U T P U T  T A P E  ASSIGNMENT - NO INPUT DATA          P0110210
C*****                                                              P0070210
C*****  WHEN EXECUTING ONLY SEGMENT 011, THE FOLLOWING STATEMENT    P0070215
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS  1 AND  2  REMOVED.   P0070220
C*****                                                              P0070225
```

```
C=      NUVI = 6                                                                      P0070230
        NUVI = 6                                                                      P011B1
C*****                                                                                P0070235
        WRITE (NUVI,110)                                                              P0110220
110     FORMAT (1H1,1X, 37HAASGN - (011) SIMPLE REAL AND INTEGER/10X,32HARP0110230
       1ITHMETIC ASSIGNMENT STATEMENTS/2X,16HASA REF. - 7.1.1//34H  LINE 1P0110240
       2 OF EACH PAIR IS HOLLERITH/13H  INFORMATION//17H  INTEGER RESULTS)P0110250
C*****       HEADER FOR SEGMENT 011 WRITTEN                                           P0110260
C*****       TEST ASSIGNMENT OF UNSIGNED INTEGER CONSTANTS          7.1.1.1/40P0110270
C*****       TO VARIABLES                                           5.1.1.1/15P0110280
        MRRVI = 1                                                                     P0110290
        JACVI = 12345                                                                 P0110300
        KBCVI = 000                                                                   P0110310
C*****       TEST ASSIGNMENT OF SIGNED INTEGER CONSTANTS TO         7.1.1.1/40P0110320
C*****       VARIABLES                                              5.1.1/11P0110330
        MCAVI = +2                                                                    P0110340
        LCCVI = -3                                                                    P0110350
        MDCVI = - 8765                                                                P0110360
        NECVI = + 6912                                                                P0110370
C*****       TEST ASSIGNMENT OF UNSIGNED INTEGER CONSTANTS          7.1.1.1/40P0110380
C*****       TO ARRAYS                                              5.1.1.1/15P0110390
        IAC1I(1)   = 0                                                                P0110400
        IAC2I(2,1) = 02468                                                            P0110410
        IAC2I(2,2) = 00                                                               P0110420
        IAC1I(3)   = 4444                                                             P0110430
C*****       TEST ASSIGNMENT OF SIGNED INTEGER CONSTANTS            7.1.1.1/40P0110440
C*****       TO ARRAYS                                              5.1.1/11P0110450
        IAC2I(1,1) = +45                                                              P0110460
        IAC1I(4)   = + 4321                                                           P0110470
        IAC1I(2)   = -23                                                              P0110480
        IAC2I(1,2) = - 3123                                                           P0110490
C*****       TEST ASSIGNMENT OF UNSIGNED REAL CONSTANTS             7.1.1.1/40P0110500
C*****       TO VARIABLES (BASIC REAL CONSTANTS)                    5.1.1.2/18P0110510
        ACVS  = 1.0                                                                   P0110520
        BCVS  = 358.6724                                                              P0110530
C*****       TEST ASSIGNMENT OF SIGNED REAL CONSTANTS               7.1.1.1/40P0110540
C*****       TO VARIABLES (BASIC REAL CONSTANTS)                    5.1.1.2/18P0110550
C*****                                                              5.1.1/11P0110560
        CCVS  = -2.0                                                                  P0110570
        DCVS  = +3.0                                                                  P0110580
        ECVS = -2714.250                                                              P0110590
        FCVS = +29.30542                                                              P0110600
C*****       TEST ASSIGNMENT OF UNSIGNED REAL CONSTANTS             7.1.1.1/40P0110610
C*****       TO ARRAYS (BASIC REAL CONSTANTS)                       5.1.1.2/18P0110620
C*****                                                              5.1.1/11P0110630
        AC1S(2)   = 86.27                                                             P0110640
        AC2S(1,2) = 1034.2                                                            P0110650
        AC1S(1)   = 0.0                                                               P0110660
        AC2S(1,1) = 0.00000                                                           P0110670
C*****       TEST ASSIGNMENT OF SIGNED REAL CONSTANTS               7.1.1.1/40P0110680
C*****       TO ARRAYS (BASIC REAL CONSTANTS)                       5.1.1.2/18P0110690
C*****                                                              5.1.1/11P0110700
        AC2S(2,2) = +345.678                                                          P0110710
        AC1S(3)   = -2.5                                                              P0110720
        AC2S(2,1) = -5.66                                                             P0110730
        AC1S(4)   = +1.111111                                                         P0110740
C*****       TEST ASSIGNMENT OF UNSIGNED AND SIGNED REAL            5.1.1.2/22P0110750
C*****       CONSTANTS WITH NO DECIMAL DIGITS TO BOTH                         P0110760
C*****       VARIABLES AND ARRAYS                                             P0110770
        GCVS  =  1.                                                                   P0110780
        HCVS  = -2.                                                                   P0110790
        AADVS = +3.                                                                   P0110800
        AC2S(3,1) =  4.                                                               P0110810
        AC2S(1,3) = +5.                                                               P0110820
        AC1S(5)   = -6.                                                               P0110830
C*****       TEST ASSIGNMENT OF UNSIGNED AND SIGNED REAL            5.1.1.2/22P0110840
C*****       CONSTANTS WITH NO INTEGER PART TO BOTH                           P0110850
C*****       VARIABLES AND ARRAYS                                             P0110860
```

```
              BBDVS = .0                                                        P0110870
              CCDVS = +.23                                                      P0110880
              DDDVS = -.716                                                     P0110890
              AC1S(6)   = -.7                                                   P0110900
              AC2S(4,1) = .81                                                   P0110910
              AC1S(7)   = +.9                                                   P0110920
C*****        TEST ASSIGNMENT OF UNSIGNED AND SIGNED REAL       5.1.1.2/25P0110930
C*****          CONSTANTS WITH UNSIGNED AND SIGNED DECIMAL      5.1.1.2/32P0110940
C*****          EXPONENTS TO BOTH VARIABLES AND ARRAYS                    P0110950
              EEDVS =  1.05E02                                                  P0110960
              FFDVS = -7.6E1                                                    P0110970
              GGDVS = +332.4E0                                                  P0110980
              HHDVS = 51.32E-1                                                  P0110990
              OODVS = +5.34E-3                                                  P0111000
              PPDVS = -14.19E-2                                                 P0111010
              QQDVS = -9.9E+2                                                   P0111020
              RRDVS = +10.5210E+3                                               P0111030
              SSDVS = 4.56E+1                                                   P0111040
              AC2S(1,4) = 665.2E0                                               P0111050
              AC1S(11) =-52.9E01                                                P0111060
              AC1S(9) = +78.564E2                                               P0111070
              AC2S(5,1) = -3.4567E+3                                            P0111080
              AC2S(1,5) = 61.62E+2                                              P0111090
              AC1S(10) = +0.023E+1                                             P0111100
              AC1S(8) =  94.333E-1                                              P0111110
              AC1S(12) = +0.3524E-2                                            P0111120
              AC2S(3,2) = -743.2E-3                                            P0111130
C*****        TEST ASSIGNMENT OF UNSIGNED AND SIGNED REAL       5.1.1.2/22P0111140
C*****          CONSTANTS (NO DECIMAL PART) WITH DECIMAL        5.1.1.2/26P0111150
C*****          EXPONENTS TO BOTH VARIABLES AND ARRAYS                    P0111160
              TTDVS = 1.E0                                                      P0111170
              UUDVS = +123.E2                                                   P0111180
              VVDVS = -11.E3                                                    P0111190
              WWDVS = 144.E-1                                                   P0111200
              XXDVS = -12.E-2                                                   P0111210
              YYDVS = +3645.E-3                                                 P0111220
              ZZDVS = 1.E+4                                                     P0111230
              CMAVS = -200.E+1                                                  P0111240
              CMBVS = +99.E+2                                                   P0111250
              AC1S(13) = +0.E00                                                 P0111260
              AC2S(2,5) = -1512.E2                                              P0111270
              AC2S(4,3) = 214.E3                                                P0111280
              AC1S(15) = 34.E-1                                                 P0111290
              AC1S(14) = -4.E-2                                                 P0111300
              AC2S(3,4) = +53214.E-4                                            P0111310
              AC2S(4,4) = +6.E+3                                                P0111320
              AC2S(2,3) = 72.E+4                                                P0111330
              AC1S(16) = -813.E+1                                               P0111340
C*****        TEST ASSIGNMENT OF UNSIGNED AND SIGNED REAL       5.1.1.2/22P0111350
C*****          CONSTANTS (NO INTEGER PART) WITH DECIMAL        5.1.1.2/26P0111360
C*****          EXPONENTS TO BOTH VARIABLES AND ARRAYS                    P0111370
              CMCVS = .234E0                                                    P0111380
              CMDVS = -.3E2                                                     P0111390
              CMEVS = +.44E1                                                    P0111400
              CMFVS = .36E-3                                                    P0111410
              CMGVS = +.9E-4                                                    P0111420
              CMHVS = -.10E-2                                                   P0111430
              CMOVS = .777E+1                                                   P0111440
              CMPVS = -.29E+3                                                   P0111450
              CMQVS = +.04E+2                                                   P0111460
              AC1S(17) = .90E1                                                  P0111470
              AC2S(4,2) = +.810E0                                               P0111480
              AC1S(19) = -.7E3                                                  P0111490
              AC2S(3,3) = .62E+3                                                P0111500
              AC1S(21) = +.5310E+1                                              P0111510
              A2S(1,2) = -.442E+2                                               P0111520
              AC1S(18) = .3E-4                                                  P0111530
              AC2S(2,4) = +.25E-03                                             P0111540
```

```
      A2S(2,1) = -.163E-2                                             P0111550
C*****      TEST ASSIGNMENT OF UNSIGNED AND SIGNED REAL      5.1.1.2/34P0111560
C*****      CONSTANTS (FORMED BY PLACING DECIMAL EXPONENT              P0111570
C*****      AFTER INTEGER CONSTANT) TO BOTH VARIABLES AND              P0111580
C*****      ARRAYS                                                     P0111590
      AVS = 709E3                                                     P0111600
      BVS = +81842E0                                                  P0111610
      CVS = -9E5                                                      P0111620
      DVS = 627E+2                                                    P0111630
      EVS = +53E+3                                                    P0111640
      FVS = -4E+04                                                    P0111650
      GVS = 1463E-2                                                   P0111660
      HVS = +2E-3                                                     P0111670
      PVS = -355E-1                                                   P0111680
      AC1S(24) = 29E5                                                 P0111690
      AC1S(20) = +4072E3                                              P0111700
      AC2S(5,4) = -61835E2                                            P0111710
      AC2S(3,5) = 829E+1                                              P0111720
      AC1S(22) = +03E+2                                               P0111730
      AC1S(25) = -1E+3                                                P0111740
      AC2S(4,5) = 3404E-4                                             P0111750
      A2S(2,2) = +55E-5                                               P0111760
      AC1S(23) = -761E-1                                              P0111770
C*****      VERIFY CORRECTNESS OF ASSIGNMENT BY WRITING               P0111780
C*****      THE INFORMATION                                           P0111790
      WRITE (NUVI,111) MRRVI, JACVI, KBCVI, MCAVI, LCCVI, MDCVI, NECVI,P0111800
     1      (IAC1I(IVI),IVI=1,4),((IAC2I(IVI,JVI),IVI=1,2),JVI=1,2)    P0111810
      WRITE (NUVI,112)                                                P0111820
      WRITE (NUVI,113) ACVS, BCVS, CCVS, DCVS, ECVS, FCVS, AC1S(2),   P0111830
     1               AC2S(1,2), AC1S(1), AC2S(1,1), AC2S(2,2),        P0111840
     2               AC1S(3), AC2S(2,1), AC1S(4), GCVS, HCVS,         P0111850
     3               AADVS, AC2S(3,1)                                 P0111860
      WRITE (NUVI,114) AC2S(1,3), AC1S(5), BBDVS, CCDVS, DDDVS, AC1S(6),P0111870
     1               AC2S(4,1), AC1S(7), EEDVS, FFDVS, GGDVS, HHDVS,  P0111880
     2               OODVS, PPDVS, QQDVS, RRDVS, SSDVS                P0111890
      WRITE (NUVI,115) AC2S(1,4), AC1S(11), AC1S(9), AC2S(5,1),       P0111900
     1               AC2S(1,5), AC1S(10), AC1S(8), AC1S(12),          P0111910
     2               AC2S(3,2), TTDVS, UUDVS, VVDVS, WWDVS, XXDVS,    P0111920
     3               YYDVS                                            P0111930
      WRITE (NUVI,116) CMAVS, CMBVS, AC1S(13), AC2S(2,5), AC2S(4,3),  P0111940
     1               AC1S(15), AC1S(14), AC2S(3,4), AC2S(4,4),        P0111950
     2               AC2S(2,3), AC1S(16), CMCVS, CMDVS, CMEVS,ZZDVS   P0111960
      WRITE (NUVI,117) CMFVS, CMGVS, CMHVS, CMOVS, CMPVS, CMQVS,      P0111970
     1               AC1S(17), AC2S(4,2), AC1S(19), AC2S(3,3),        P0111980
     1               AC1S(21),A2S(1,2),AC1S(18), AC2S(2,4),A2S(2,1)   P0111990
      WRITE (NUVI,118) AVS, BVS, CVS, DVS, EVS, FVS, GVS, HVS, PVS,   P0112000
     1               AC1S(24), AC1S(20), AC2S(5,4), AC2S(3,5),        P0112010
     2               AC1S(22),AC1S(25),AC2S(4,5),A2S(2,2)  ,          P0112020
     3               AC1S(23)                                         P0112030
111   FORMAT(/7X,1H1,7X,5H12345,13X,1H0/1X,I7,5X,I7,7X,I7//           P0112040
     1 7X, 1H2, 10X, 2H-3,8X, 6H -8765/1X, I7, 5X, I7,  7X, I7//      P0112050
     2 3X, 5H 6912, 11X, 1H0, 11X, 3H-23/ 1X, I7, 5X, I7, 7X,I7//     P0112060
     3 4X, 4H4444, 7X, 5H 4321, 12X, 2H45/ 1X, I7, 5X, I7, 7X, I7//   P0112070
     4 4X, 4H2468, 6X, 6H -3123, 13X, 1H0/ 1X, I7, 5X, I7, 7X, I7)    P0112080
112   FORMAT (/14H   REAL RESULTS)                                    P0112090
113   FORMAT(/3X,3H1.0, 10X, 8H358.6724, 6X, 4H-2.0/1X,F5.1,6X,F12.4,2X,P0112100
     1 F8.1//3X,3H3.0,8X,9H-2714.250,7X,8H29.30542/1X,F5.1,6X,F11.3,3X,P0112110
     2 F12.5//2X,5H86.27,8X,6H1034.2,10X,3H0.0/1X,F6.2,5X,F9.1,5X,F8.1//P0112120
     3 3X, 3H0.0, 10X,7H345.678,7X, 4H-2.5/1X,F5.1,6X,F11.3,3X,F8.1//  P0112130
     4 2X,5H-5.66,11X,8H1.111111,5X,3H1.0/1X,F6.2,5X,F14.6,F8.1//      P0112140
     5 2X,4H-2.0,12X,3H3.0,10X,3H4.0/1X,F5.1,6X,F9.1,5X,F8.1)         P0112150
114   FORMAT(/3X,3H5.0,11X,4H-6.0,10X,3H0.0/1X,F5.1,6X,F9.1,5X,F8.1// P0112160
     1 3X,4H0.23,10X,6H-0.716,7X,4H-0.7/1X,F6.2,5X,F11.3,3X,F8.1//    P0112170
     2 3X,4H0.81,11X,3H0.9/1X,F6.2,5X,F9.1/1H1,2X,9H0.105E+03,3X,     P0112180
     3 9H-0.76E+02,5X,10H0.3324E+03/E12.3,E12.2,E15.4//              P0112190
     4 3X,10H0.5132E+01,3X,9H0.534E-02,3X,11H-0.1419E+00/E13.4,E12.3, P0112200
     5 E14.4//2X,9H-0.99E+03,5X,12H0.105210E+05,10H 0.456E+02/E11.2,  P0112210
     6 E17.6,E10.3)                                                   P0112220
```

```
115    FORMAT(/3X,10H0.6652E+03,2X,10H-0.529E+03,4X,11H0.78564E+04/E13.4,P0112230
      1 E12.3,E15.5//2X,12H-0.34567E+04,2X,10H0.6162E+04,3X,8H0.23E+00/  P0112240
      2 E14.5,E12.4,E11.2//3X,11H0.94333E+01,2X,10H0.3524E-02,2X,        ·P0112250
      3 11H-0.7432E+00/E14.5,E12.4,E13.4//3X,7H0.1E+01,6X,9H0.123E+05,   P0112260
      4 3X,9H-0.11E+05/E10.1,E15.3,E12.2//3X,9H0.144E+02,3X,9H-0.12E+00, P0112270
      5 5X,10H0.3645E+01/E12.3,E12.2,E15.4)                              P0112280
116    FORMAT(/12H   -0.200E+04,4X,8H0.99E+04,5X,7H0.0E+00/E12.3,E12.2,  P0112290
      1 E12.1//2X,11H-0.1512E+06,3X,9H0.214E+06,4X,8H0.34E+01/E13.4,     P0112300
      2 E12.3,E12.2//2X,8H-0.4E-01,6X,11H0.53214E+01,2X,7H0.6E+04/E10.1, P0112310
      3 E17.5,E9.1//3X,8H0.72E+06,4X,10H-0.813E+04,4X,9H0.234E+00/E11.2, P0112320
      4 E14.3,E13.3//2X,8H-0.3E+02,6X,8H0.44E+01,5X,7H0.1E+05/E10.1,     P0112330
      5 E14.2,E12.1)                                                     P0112340
117    FORMAT(/3X,8H0.36E-03,5X,7H0.9E-04,5X,9H-0.10E-02/E11.2,E12.1,    P0112350
      1 E14.2//3X,9H0.777E+01,3X,9H-0.29E+03,5X,7H0.4E+01/E12.3,E12.2,   P0112360
      2 E12.1//3X,8H0.90E+01,5X,9H0.810E+00,3X,8H-0.7E+03/E11.2,E14.3,   P0112370
      3 E11.1//3X,8H0.62E+03,5X,10H0.5310E+01,2X,10H-0.442E+02/E11.2,    P0112380
      4 E15.4,E12.3//3X,7H0.3E-04,6X,8H0.25E-03,4X,10H-0.163E-02/E10.1,  P0112390
      5 E14.2,E14.3/1H1)                                                 P0112400
118    FORMAT(3X,9H0.709E+06,4X,11H0.81842E+05,1X,8H-0.9E+06/E12.3,E15.5,P0112410
      1 E9.1//3X,9H0.627E+05,4X,8H0.53E+05,4X,8H-0.4E+05/E12.3,E12.2,    P0112420
      2 E12.1//3X,10H0.1463E+02,3X,7H0.2E-02,5X,10H-0.355E+02/E13.4,     P0112430
      3 E10.1,E15.3//3X,8H0.29E+07,5X,10H0.4072E+07,2X,12H-0.61835E+07/  P0112440
      4 E11.2,E15.4,E14.5//3X,9H0.829E+04,4X,7H0.3E+03,5X,8H-0.1E+04/    P0112450
      5 E12.3,E11.1,E13.1//3X,10H0.3404E+00,3X,8H0.55E-03,4X,10H-0.761E+0P0112460
      62/E13.4,E11.2,E14.3)                                             P0112470
C*****      END OF TEST SEGMENT 011                                     P0112480
C*****  WHEN EXECUTING ONLY SEGMENT 011, THE STOP  AND  END CARDS       P0112490
C***  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                   P0112500
C*****  IN COLUMNS  1  AND  2  REMOVED                                  P0112510
C=    STOP                                                              P0112520
C=    END                                                              P0112530
      STOP                                                              P011C1
      END                                                              P011C2
C********************************************************************P0130010
C*****                                                                  P0130020
C*****                        DASGN - (013)                            P0130030
C*****                                                                  P0130040
C********************************************************************P0130050
C*****  GENERAL PURPOSE                                      ASA REF P0130060
C*****  * TO TEST ALL POSSIBLE METHODS OF FORMING DOUBLE      5.1.1 THRUP0130070
C*****    PRECISION CONSTANTS                                           P0130080
C*****  * TO TEST THAT D.P. VARIABLES AND ARRAY               5.1.2 /5  P0130090
C*****    ELEMENTS MAY BE REFERENCED                          5.1.3.1/16P0130100
C*****  * TO TEST VERY SIMPLE ARITHMETIC ASSIGNMENT           7.1.1.1   P0130110
C*****    STATEMENTS, SO THAT THIS FEATURE CAN BE USED        TABLE 1   P0130120
C*****    FOR INITIALIZATION IN LATER SEGMENTS                          P0130130
C*****  S P E C I F I C A T I O N S  SEGMENT 013                        P0130140
C*****                                                                  P0010240
C*****  WHEN EXECUTING ONLY SEGMENT 013, THE SPECIFICATION STATEMENTS   P0010245
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                  P0010250
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 P0010255
C*****                                                                  P0010260
C=    DDOUBLE PRECISION  MCAVD,MCBVD,MCCVD,MCDVD,MCEVD,MCFVD,MCGVD,     P0010265
C=    1MCHVD,MCIVD,EEDVD,ACVD,BCVD,CCVD,DCVD,DDDVD,CCDVD,FFDVD,GGDVD,   P0010270
C=    2 HHDVD,EP1D(43),AC1D(10),BC2D(7,4),CC3D(7,2,2),FC2D(5,5)        P0010275
C=    DOUBLE PRECISION DPAVD,DPBVD,DPCVD,DPDVD,DPEVD,DPFVD,DPGVD,DPHVD, P0010280
C=    1 DPIVD,DPJVD,DPKVD,DPLVD,DPMVD,DPNVD,DPOVD,DPPVD,                P0010285
C=    2 AADVD,BBDVD,PPDVD,RRDVD,SSDVD,TTDVD,UUDVD,VVDVD,WWDVD,XXDVD,    P0010290
C=    3 YYDVD,ZZDVD,ECVD,FCVD,GCVD,HCVD,RC3D(3,3,3),MCJVD,MCKVD         P0010295
C*****                                                                  P0010300
      DOUBLE PRECISION  MCAVD,MCBVD,MCCVD,MCDVD,MCEVD,MCFVD,MCGVD,      P013A1
      1MCHVD,MCIVD,EEDVD,ACVD,BCVD,CCVD,DCVD,DDDVD,CCDVD,FFDVD,GGDVD,   P013A2
      2 HHDVD,EP1D(43),AC1D(10),BC2D(7,4),CC3D(7,2,2),FC2D(5,5)        P013A3
      DOUBLE PRECISION DPAVD,DPBVD,DPCVD,DPDVD,DPEVD,DPFVD,DPGVD,DPHVD, P013A4
      1 DPIVD,DPJVD,DPKVD,DPLVD,DPMVD,DPNVD,DPOVD,DPPVD,                P013A5
      2 AADVD,BBDVD,PPDVD,RRDVD,SSDVD,TTDVD,UUDVD,VVDVD,WWDVD,XXDVD,    P013A6
      3 YYDVD,ZZDVD,ECVD,FCVD,GCVD,HCVD,RC3D(3,3,3),MCJVD,MCKVD         P013A7
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     P0130150
```

```
C*****                                                            P0130160
C*****   WHEN EXECUTING DNLY SEGMENT 013, THE FOLLDWING STATEMENT  P0070240
C*****   NUVI = 6   MUST HAVE THE C=  IN CDLUMNS 1 AND 2 REMOVED.  P0070245
C*****                                                            P0070250
C=      NUVI = 6                                                   P0070255
        NUVI = 6                                                   P013B1
        WRITE (NUVI,130)                                           P0130170
        WRITE(NUVI,131)                                            P0130180
130     FDRMAT(1H1,1X,36HDASGN - (013) SIMPLE D.P. ARITHMETIC/     P0130190
      1 16X,18HASSIGNMENT STMNTS./2X,28HASA REFS. - 7.1.1.1  5.1.1.3//  P0130200
      2  2X,7HRESULTS)                                             P0130210
131     FORMAT(/2X,23HLINE 1 DF EACH GROUP IS/                     P0130220
      A 2X,21HHDLLERITH INFDRMATIDN)                               P0130230
C*****      HEADER FDR THIS SEGMENT WRITTEN                        P0130240
C*****      TEST ASSIGNMENT DF UNSIGNED DP CONSTANTS WITH          7.1.1.1/41P0130250
C*****      UNSIGNED EXPONENTS TO VARIABLES AND ARRAY ELEMENTS     5.1.1.3/40P0130260
C*****                                                            5.1.1  /14P0130270
C*****                                                            5.1.1.3/36P0130280
C*****                                                            5.1.1.2/26P0130290
        MCAVD = 3.4D1                                              P0130300
        MCBVD = 123456.7891011D02                                 P0130310
        AC1D(1)    = 3.4D1                                         P0130320
        AC1D(2)    = 123456.7891011D02                            P0130330
        BC2D(1,1)  = 3.4D1                                         P0130340
        BC2D(2,1)  = 123456.7891011D02                            P0130350
        CC3D(1,1,1) = 3.4D1                                        P0130360
        CC3D(2,1,1) = 123456.7891011D2                            P0130370
C*****      ASSIGNMENT DF UNSIGNED DP CDNSTANTS WITH               5.1.1.3/36P0130380
C*****      SIGNED EXPONENTS TO VARIABLES AND ARRAY ELEMENTS       5.1.1.2/26P0130390
        MCCVD =  29.8765234D-3                                     P0130400
        MCDVD =  345.10000555D+4                                   P0130410
        AC1D(3)    = 29.8765234D-3                                 P0130420
        AC1D(4)    = 345.10000555D+4                               P0130430
        BC2D(3,1)  = 29.8765234D-3                                 P0130440
        BC2D(4,1)  = 345.10000555D+4                               P0130450
        CC3D(3,1,1) = 29.8765234D-3                                P0130460
        CC3D(4,1,1) = 345.10000555D+4                              P0130470
C*****      ASSIGNMENT OF UNSIGNED DP CONSTANTS (ND DECIMAL        5.1.1.2/22P0130480
C*****      PART) WITH UNSIGNED EXPONENTS TO VARIABLES            P0130490
C*****      AND ARRAY ELEMENTS                                    P0130500
        MCEVD = 22232425.D00                                      P0130510
        AC1D(5)    = 22232425.D00                                 P0130520
        BC2D(5,1)  = 22232425.D00                                 P0130530
        CC3D(5,1,1) = 22232425.D00                                P0130540
C*****      ASSIGNMENT OF UNSIGNED DP CONSTANTS (ND               5.1.1.2/22P0130550
C*****      INTEGER PART) WITH UNSIGNED EXPONENTS TO              P0130560
C*****      VARIABLES AND ARRAY ELEMENTS                          P0130570
        MCFVD = .281420D5                                         P0130580
        AC1D(6)    = .281420D5                                    P0130590
        BC2D(6,1)  = .281420D5                                    P0130600
        CC3D(6,1,1) = .281420D5                                   P0130610
C*****      ASSIGNMENT OF UNSIGNED DP CONSTANTS (NO DECIMAL       P0130620
C*****      PART) WITH SIGNED EXPONENTS TO VARIABLES AND          P0130630
C*****      ARRAY ELEMENTS                                        P0130640
        MCGVD =  4455667788.D+6                                   P0130650
        MCHVD = 35692483569248.D-02                               P0130660
        AC1D(7)    = 4455667788.D+6                               P0130670
        AC1D(8)    = 35692483569248.D-02                          P0130680
        BC2D(7,1)  = 4455667788.D+6                               P0130690
        BC2D(1,2)  = 35692483569248.D-02                          P0130700
        CC3D(7,1,1) = 4455667788.D+6                              P0130710
        CC3D(1,2,1) = 35692483569248.D-2                          P0130720
C*****      ASSIGNMENT OF UNSIGNED DP CONSTANTS (ND               P0130730
C*****      INTEGER PART) DITH SIGNED EXPDNENTS TD                P0130740
C*****      VARIABLES AND ARRAY ELEMENTS                          P0130750
        ACVD =    .6549876D-3                                     P0130760
        BCVD =    .78D+10                                         P0130770
        AC1D(9)    = .6549876D-3                                  P0130780
```

```
      AC1D(10)      = .78D+10                                                   P0130790
      BC2D(2,2)     = .6549876D-3                                               P0130800
      BC2D(3,2)     = .78D+10                                                   P0130810
      CC3D(2,2,1) = .6549876D-3                                                 P0130820
      CC3D(3,2,1) = .78D+10                                                     P0130830
C*****      ASSIGNMENT OF SIGNED DP CONSTANTS WITH             5.1.1   /12P0130840
C*****      UNSIGNED EXPONENTS TO VARIABLES AND ARRAY                          P0130850
C*****      ELEMENTS                                                           P0130860
      CCVD =     +0.0D0                                                         P0130870
      DCVD =     -17263544.5D3                                                  P0130880
      EP1D(1)       = +0.0D0                                                    P0130890
      EP1D(2)       = -17263544.5D3                                             P0130900
      BC2D(4,2)     = +0.0D00                                                   P0130910
      BC2D(5,2)     = -17263544.5D3                                            P0130920
      CC3D(4,2,1) = +0.0D0                                                      P0130930
      CC3D(5,2,1) = -17263544.5D3                                             P0130940
C*****      ASSIGNMENT OF SIGNED DP CONSTANTS WITH                             P0130950
C*****      SIGNED EXPONENTS TO VARIABLES AND ARRAY                            P0130960
C*****      ELEMENTS                                                           P0130970
      ECVD =     +1987.62D+1                                                    P0130980
      FCVD =     -2.54396621D+2                                                 P0130990
      GCVD =     +34.7865299910234D-7                                          P0131000
      HCVD =     -44.4D-10                                                      P0131010
      EP1D(3)       = +1987.62D+1                                              P0131020
      EP1D(4)       = -2.54396621D+2                                           P0131030
      EP1D(5)       = +34.7865299910234D-7                                     P0131040
      EP1D(6)       = -44.4D-10                                                P0131050
      BC2D(6,2)     = +1987.62D+1                                              P0131060
      BC2D(7,2)     = -2.54396621D+2                                           P0131070
      BC2D(1,3)     = +34.7865299910234D-7                                     P0131080
      BC2D(2,3)     = -44.4D-10                                                P0131090
      CC3D(6,2,1) = +1987.62D+1                                               P0131100
      CC3D(7,2,1) = -2.54396621D+2                                            P0131110
      CC3D(1,1,2) = +34.7865299910234D-07                                     P0131120
      CC3D(2,1,2) = -44.4D-10                                                 P0131130
C*****      ASSIGNMENT OF SIGNED DP CONSTANTS (NO DECIMAL                      P0131140
C*****      PART) WITH SIGNED EXPONENT TO VARIABLES AND                        P0131150
C*****      ARRAY ELEMENTS                                                     P0131160
      AADVD =    +0.D+1                                                         P0131170
      BBDVD =    -123.D+17                                                      P0131180
      CCDVD =    +3692468.D-8                                                   P0131190
      DDDVD =    -147937824967.D-5                                             P0131200
      EP1D(7)       = +0.D+1                                                   P0131210
      EP1D(8)       = -123.D+17                                                P0131220
      EP1D(9)       = +3692468.D-8                                             P0131230
      EP1D(10)      = -147937824967.D-5                                        P0131240
      BC2D(3,3)     = +0.D+1                                                   P0131250
      BC2D(4,3)     = -123.D+17                                                P0131260
      BC2D(5,3)     = +3692468.D-8                                             P0131270
      BC2D(6,3)     = -147937824967.D-5                                        P0131280
      CC3D(3,1,2) = +0.D+1                                                     P0131290
      CC3D(4,1,2) = -123.D+17                                                  P0131300
      CC3D(5,1,2) = +3692468.D-8                                               P0131310
      CC3D(6,1,2) = -147937824967.D-5                                          P0131320
C*****      ASSIGNMENT OF SIGNED DP CONSTANTS (NO INTEGER                      P0131330
C*****      PART) WITH SIGNED EXPONENTS TO VARIABLES AND                       P0131340
C*****      ARRAY ELEMENTS                                                     P0131350
      EEDVD = +.927786174985D+2                                                P0131360
      FFDVD = -.593549142223619D+0                                             P0131370
      GGDVD = +.98663271D-03                                                    P0131380
      HHDVD = -.1D-15                                                           P0131390
      EP1D(11)      = +.927786174985D+2                                        P0131400
      EP1D(12)      = -.593549142223619D+0                                     P0131410
      EP1D(13)      = +.98663271D-03                                           P0131420
      EP1D(14)      = -.1D-15                                                  P0131430
      BC2D(7,3)     = +.927786174985D+2                                        P0131440
      BC2D(1,4)     = -.593549142223619D+0                                     P0131450
      BC2D(2,4)     = +.98663271D-03                                           P0131460
```

```
      BC2D(3,4)    = -.1D-15                                              P0131470
      CC3D(7,1,2) = +.9277861749850+2                                     P0131480
      CC3D(1,2,2) = -.593549142223619D+0                                  P0131490
      CC3D(2,2,2) = +.98663271D-3                                         P0131500
      CC3D(3,2,2) = -.1D-15                                               P0131510
C*****      ASSIGNMENT OF SIGNED DP CONSTANTS (NO DECIMAL                 P0131520
C*****      PART) WITH UNSIGNED EXPONENTS TO VARIABLES                    P0131530
C*****      AND ARRAY ELEMENTS                                           P0131540
      PPDVD = +3261294675.D12                                             P0131550
      RRDVD = -969492909.D4                                               P0131560
      EP1D(15)     = +3261294675.D12                                      P0131570
      EP1D(16)     = -969492909.D4                                        P0131580
      BC2D(4,4)    = +3261294675.D12                                      P0131590
      BC2D(5,4)    = -969492909.D4                                        P0131600
      CC3D(4,2,2) = +3261294675.D12                                       P0131610
      CC3D(5,2,2) = -969492909.D4                                         P0131620
C*****      ASSIGNMENT OF SIGNED DP CONSTANTS (NO INTEGER                 P0131630
C*****      PART) WITH UNSIGNED EXPONENTS TO VARIABLES                    P0131640
C*****      AND ARRAY ELEMENTS                                           P0131650
      SSDVD = +.001246085D3                                               P0131660
      TTDVD = -.59D2                                                      P0131670
      EP1D(17)     = +.001246085D3                                        P0131680
      EP1D(18)     = -.59D2                                               P0131690
      BC2D(6,4)    = +.001246085D3                                        P0131700
      BC2D(7,4)    = -.59D2                                               P0131710
      CC3D(6,2,2) = +.001246085D3                                         P0131720
      CC3D(7,2,2) = -.59D2                                                P0131730
C*****      ASSIGNMENT OF DP CONSTANTS FORMED BY ADDING       5.1.1.3/42P0131740
C*****      UNSIGNED EXPONENTS TO UNSIGNED INTEGERS                       P0131750
      UUDVD = 79828139225300                                              P0131760
      EP1D(19)     = 79828139225300                                       P0131770
      FC2D(1,1)    = 79828139225300                                       P0131780
      RC3D(1,1,1) = 79828139225300                                        P0131790
C*****      ASSIGNMENT OF DP CONSTANTS FORMED BY ADDING                   P0131800
C*****      SIGNED EXPONENTS TO UNSIGNED INTEGERS                         P0131810
      VVDVD = 42921D+6                                                    P0131820
      WWDVD = 793685443D-4                                                P0131830
      EP1D(20)     = 42921D+6                                             P0131840
      EP1D(21)     = 793685443D-4                                         P0131850
      FC2D(2,1)    = 42921D+6                                             P0131860
      FC2D(3,1)    = 793685443D-4                                         P0131870
      RC3D(2,1,1) = 42921D+6                                              P0131880
      RC3D(3,1,1) = 793685443D-4                                          P0131890
C*****      ASSIGNMENT OF DP CONSTANTS FORMED BY ADDING                   P0131900
C*****      UNSIGNED EXPONENTS TO SIGNED INTEGERS                         P0131910
      XXDVD = +33344455566D2                                              P0131920
      YYDVD = -222333444D1                                                P0131930
      EP1D(22)     = +33344455566D2                                       P0131940
      EP1D(23)     = -222333444D1                                         P0131950
      FC2D(4,1)    = +33344455566D2                                       P0131960
      FC2D(5,1)    = -222333444D1                                         P0131970
      RC3D(1,2,1) = +33344455566D2                                        P0131980
      RC3D(2,2,1) = -222333444D1                                          P0131990
C*****      ASSIGNMENT OF DP CONSTANTS FORMED BY ADDING                   P0132000
C*****      SIGNED EXPONENTS TO SIGNED INTEGERS                           P0132010
      ZZDVD = +1D+1                                                       P0132020
      MCIVD = -2D+2                                                       P0132030
      MCJVD = +33333333333333D-3                                          P0132040
      MCKVD = -444444444D-4                                               P0132050
      EP1D(24)     = +1D+1                                                P0132060
      EP1D(25)     = -2D+2                                                P0132070
      EP1D(26)     = +33333333333333D-3                                   P0132080
      EP1D(27)     = -444444444D-4                                        P0132090
      FC2D(1,2)    = +1D+1                                                P0132100
      FC2D(2,2)    = -2D+2                                                P0132110
      FC2D(3,2)    = +33333333333333D-3                                   P0132120
      FC2D(4,2)    = -444444444D-4                                        P0132130
      RC3D(3,2,1) = +1D+1                                                 P0132140
```

```
      RC3D(1,3,1) = -2D+2                                              P0132150
      RC3D(2,3,1) = +333333333333333D-3                               P0132160
      RC3D(3,3,1) = -444444444D-4                                     P0132170
C*****    ASSIGNMENT OF UNSIGNED DP VARIABLES AND ARRAY      7.1.1.1/41P0132180
C*****    ELEMENTS TO DP VARIABLES AND ARRAY ELEMENTS                 P0132190
C*****    (BOTH PLUS AND MINUS VALUES ARE ASSIGNED IN THIS            P0132200
C*****    WAY)                                                        P0132210
      DPAVD = MCAVD                                                   P0132220
      DPBVD = DCVD                                                    P0132230
      DPCVD = EP1D(1)                                                 P0132240
      DPDVD = EP1D(2)                                                 P0132250
      DPEVD = BC2D(2,2)                                               P0132260
      DPFVD = BC2D(4,2)                                               P0132270
      DPGVD = CC3D(3,1,1)                                             P0132280
      DPHVD = CC3D(7,2,1)                                             P0132290
      EP1D(28) = DPAVD                                                P0132300
      EP1D(29) = DPBVD                                                P0132310
      EP1D(30) = EP1D(1)                                              P0132320
      EP1D(31) = EP1D(2)                                              P0132330
      EP1D(32) = BC2D(2,2)                                            P0132340
      EP1D(33) = BC2D(4,2)                                            P0132350
      EP1D(34) = CC3D(3,1,1)                                          P0132360
      EP1D(35) = CC3D(7,2,1)                                          P0132370
      FC2D(5,2) = DPAVD                                               P0132380
      FC2D(1,3) = DPBVD                                               P0132390
      FC2D(2,3) = EP1D(1)                                             P0132400
      FC2D(3,3) = EP1D(2)                                             P0132410
      FC2D(4,3) = BC2D(2,2)                                           P0132420
      FC2D(5,3) = BC2D(4,2)                                           P0132430
      FC2D(1,4) = CC3D(3,1,1)                                         P0132440
      FC2D(2,4) = CC3D(7,2,1)                                         P0132450
      RC3D(1,1,2) = MCAVD                                             P0132460
      RC3D(2,1,2) = DCVD                                              P0132470
      RC3D(3,1,2) = EP1D(1)                                           P0132480
      RC3D(1,2,2) = EP1D(2)                                           P0132490
      RC3D(2,2,2) = BC2D(2,2)                                         P0132500
      RC3D(3,2,2) = BC2D(4,2)                                         P0132510
      RC3D(1,3,2) = CC3D(3,1,1)                                       P0132520
      RC3D(2,3,2) = CC3D(7,2,1)                                       P0132530
C*****    ASSIGNMENT OF SIGNED DP VARIABLES AND ARRAY                 P0132540
C*****    ELEMENTS TO DP VARIABLES AND ARRAY ELEMENTS                 P0132550
C*****    (UNARY MINUS USED TO REVERSE BOTH PLUS AND        6.4    /44P0132560
C*****    MINUS VALUES)                                               P0132570
      DPIVD = -GCVD                                                   P0132580
      DPJVD = -DDDVD                                                  P0132590
      DPKVD = -AC1D(3)                                                P0132600
      DPLVD = -EP1D(10)                                               P0132610
      DPMVD = -BC2D(3,1)                                              P0132620
      DPNVD = -BC2D(2,4)                                              P0132630
      DPOVD = -CC3D(2,1,1)                                            P0132640
      DPPVD = -CC3D(2,1,2)                                            P0132650
      EP1D(36) = -GCVD                                                P0132660
      EP1D(37) = -DDDVD                                               P0132670
      EP1D(38) = -AC1D(3)                                             P0132680
      EP1D(39) = -EP1D(10)                                            P0132690
      EP1D(40) = -BC2D(3,1)                                           P0132700
      EP1D(41) = -BC2D(2,4)                                           P0132710
      EP1D(42) = -CC3D(2,1,1)                                         P0132720
      EP1D(43) = -CC3D(2,1,2)                                         P0132730
      FC2D(3,4) = -GCVD                                               P0132740
      FC2D(4,4) = -DDDVD                                              P0132750
      FC2D(5,4) = -AC1D(3)                                            P0132760
      FC2D(1,5) = -EP1D(10)                                           P0132770
      FC2D(2,5) = -BC2D(3,1)                                          P0132780
      FC2D(3,5) = -BC2D(2,4)                                          P0132790
      FC2D(4,5) = -CC3D(2,1,1)                                        P0132800
      FC2D(5,5) = -CC3D(2,1,2)                                        P0132810
      RC3D(3,3,2) = -GCVD                                             P0132820
```

```
      RC3D(1,1,3) = -DDDVD                                             P0132830
      RC3D(2,1,3) = -AC1D(3)                                           P0132840
      RC3D(3,1,3) = -EP1D(10)                                          P0132850
      RC3D(1,2,3) = -BC2D(3,1)                                         P0132860
      RC3D(2,2,3) = -BC2D(2,4)                                         P0132870
      RC3D(3,2,3) = -CC3D(2,1,1)                                       P0132880
      RC3D(1,3,3) = -CC3D(2,1,2)                                       P0132890
C*****    WRITE RESULTS FOR THIS SEGMENT                               P0132900
      WRITE (NUVI,132) MCAVD, AC1D(1), BC2D(1,1), CC3D(1,1,1), MCBVD,  P0132910
     A   AC1D(2), BC2D(2,1), CC3D(2,1,1), MCCVD, AC1D(3), BC2D(3,1),   P0132920
     B   CC3D(3,1,1), MCDVD, AC1D(4), BC2D(4,1), CC3D(4,1,1), MCEVD,   P0132930
     C   AC1D(5), BC2D(5,1), CC3D(5,1,1), MCFVD, AC1D(6), BC2D(6,1),   P0132940
     D   CC3D(6,1,1), MCGVD, AC1D(7), BC2D(7,1), CC3D(7,1,1), MCHVD,   P0132950
     E   AC1D(8), BC2D(1,2), CC3D(1,2,1), ACVD, AC1D(9), BC2D(2,2),    P0132960
     F   CC3D(2,2,1), BCVD, AC1D(10), BC2D(3,2), CC3D(3,2,1), CCVD,    P0132970
     G   EP1D(1) , BC2D(4,2), CC3D(4,2,1), DCVD, EP1D(2) , BC2D(5,2),  P0132980
     H   CC3D(5,2,1), ECVD, EP1D(3) , BC2D(6,2), CC3D(6,2,1), FCVD,    P0132990
     I   EP1D(4) , BC2D(7,2), CC3D(7,2,1), GCVD, EP1D(5) , BC2D(1,3),  P0133000
     J   CC3D(1,1,2), HCVD, EP1D(6) , BC2D(2,3), CC3D(2,1,2), AADVD,   P0133010
     K   EP1D(7) , BC2D(3,3), CC3D(3,1,2), BBDVD, EP1D(8) , BC2D(4,3), P0133020
     L   CC3D(4,1,2), CCDVD, EP1D(9) , BC2D(5,3), CC3D(5,1,2), DDDVD,  P0133030
     M   EP1D(10), BC2D(6,3), CC3D(6,1,2)                              P0133040
      WRITE (NUVI,133) EEDVD, EP1D(11), BC2D(7,3), CC3D(7,1,2), FFDVD, P0133050
     1   EP1D(12), BC2D(1,4), CC3D(1,2,2),GGDVD, EP1D(13), BC2D(2,4),  P0133060
     2   CC3D(2,2,2), HHDVD, EP1D(14), BC2D(3,4), CC3D(3,2,2), PPDVD,  P0133070
     3   EP1D(15),  BC2D(4,4), CC3D(4,2,2), RRDVD, EP1D(16),BC2D( 5,4),P0133080
     4   CC3D(5,2,2),SSDVD, EP1D(17), BC2D(6,4), CC3D(6,2,2), TTDVD,   P0133090
     5   EP1D(18), BC2D(7,4), CC3D(7,2,2)                              P0133100
      WRITE (NUVI,134) UUDVD, EP1D(19), FC2D(1,1), RC3D(1,1,1), VVDVD, P0133110
     1   EP1D(20), FC2D(2,1), RC3D(2,1,1), WWDVD, EP1D(21), FC2D(3,1), P0133120
     2   RC3D(3,1,1), XXDVD, EP1D(22), FC2D(4,1), RC3D(1,2,1), YYDVD,  P0133130
     3   EP1D(23), FC2D(5,1), RC3D(2,2,1), ZZDVD, EP1D(24), FC2D(1,2), P0133140
     4   RC3D(3,2,1), MCIVD, EP1D(25), FC2D(2,2), RC3D(1,3,1), MCJVD,  P0133150
     5   EP1D(26), FC2D(3,2), RC3D(2,3,1), MCKVD, EP1D(27), FC2D(4,2), P0133160
     6   RC3D(3,3,1)                                                   P0133170
      WRITE (NUVI,135) MCAVD, DPAVD, EP1D(28), FC2D(5,2), RC3D(1,1,2), P0133180
     A   DCVD, DPBVD, EP1D(29), FC2D(1,3), RC3D(2,1,2), EP1D(1),       P0133190
     B   DPCVD, EP1D(30), FC2D(2,3), RC3D(3,1,2), EP1D(2), DPDVD,      P0133200
     C   EP1D(31), FC2D(3,3), RC3D(1,2,2), BC2D(2,2), DPEVD, EP1D(32), P0133210
     D   FC2D(4,3), RC3D(2,2,2), BC2D(4,2), DPFVD, EP1D(33), FC2D(5,3),P0133220
     E   RC3D(3,2,2), CC3D(3,1,1), DPGVD, EP1D(34), FC2D(1,4),         P0133230
     F   RC3D(1,3,2), CC3D(7,2,1), DPHVD, EP1D(35), FC2D(2,4),         P0133240
     G   RC3D(2,3,2), GCVD, DPIVD, EP1D(36), FC2D(3,4), RC3D(3,3,2),   P0133250
     H   DDDVD, DPJVD, EP1D(37), FC2D(4,4), RC3D(1,1,3), AC1D(3),      P0133260
     I   DPKVD, EP1D(38), FC2D(5,4), RC3D(2,1,3), EP1D(10), DPLVD,     P0133270
     J   EP1D(39), FC2D(1,5), RC3D(3,1,3), BC2D(3,1), DPMVD, EP1D(40), P0133280
     K   FC2D(2,5), RC3D(1,2,3), BC2D(2,4), DPNVD, EP1D(41), FC2D(3,5),P0133290
     L   RC3D(2,2,3), CC3D(2,1,1), DPOVD, EP1D(42), FC2D(4,5),         P0133300
     M   RC3D(3,2,3), CC3D(2,1,2), DPPVD, EP1D(43), FC2D(5,5),         P0133310
     N   RC3D(1,3,3)                                                   P0133320
132   FORMAT    (/ 6X,8H0.34D+02/4(D14.2/)/                            P0133330
     A           6X,19H0.1234567891011D+08/4(D25.13/)/                P0133340
     B           6X,15H0.298765234D-01/4(D21.9/)/                     P0133350
     C           6X,17H0.34510000555D+07/4(D23.11/)/                  P0133360
     D           6X,14H0.22232425D+08/4(D20.8/)/                      P0133370
     E           6X,12H0.281420D+05/4(D18.6/)/                        P0133380
     F           6X,16H0.4455667788D+16/4(D22.10/),                   P0133390
     G      1H1,5X,20H0.35692483569248D+12/4(D26.14/)/                P0133400
     H           6X,13H0.6549876D-03/4(D19.7/)/                       P0133410
     I           6X,8H0.78D+10/4(D14.2/)/                             P0133420
     J           6X,7H0.0D+00/4(D13.1/)/                              P0133430
     K           5X,16H-0.172635445D+11/4(D21.9/)/                    P0133440
     L           6X,12H0.198762D+05/4(D18.6/)/                        P0133450
     M           5X,16H-0.254396621D+03/4(D21.9/)/                    P0133460
     N           6X,20H0.347865299910234D-05/4(D26.14/)/              P0133470
     O           5X,10H-0.444D-08/4(D15.3/),                          P0133480
     P      1H1,5X,7H0.0D+00/4(D13.1/)/                               P0133490
     Q           5X,10H-0.123D+20/4(D15.3/)/                          P0133500
```

```
       R              6X,13H0.3692468D-01/4(D19.7/)/                    P0133510
       S              5X,19H-0.147937824967D+07/4(D24.12/),1H )         P0133520
133    FORMAT   (  6X,18H0.927786174985D+02/4(D24.12/)/                 P0133530
       T              5X,21H-0.593549142223619D+00/4(D26.14/)/          P0133540
       U              6X,14H0.98663271D-03/4(D20.8/)/                   P0133550
       V              5X,8H-0.1D-15/4(D13.1/)/                          P0133560
       W              6X,16H0.3261294675D+22/4(D22.10/),                P0133570
       X            1H1,4X,16H-0.969492909D+13/4(D21.9/)/               P0133580
       Y              6X,13H0.1246085D+01/4(D19.7/)/                    P0133590
       Z              5X,9H-0.59D+02/4(D14.2/),1H )                     P0133600
134    FORMAT   (  6X,18H0.798281392253D+12/4(D24.12/)/                 P0133610
       1              6X,11H0.42921D+11/4(D17.5/)/                      P0133620
       2              6X,15H0.793685443D+05/4(D21.9/)/                  P0133630
       3              6X,17H0.333444555566D+13/4(D23.11/)/              P0133640
       4              5X,16H-0.222333444D+10/4(D21.9/)/                 P0133650
       5              6X,7H0.1D+02/4(D13.1/),                           P0133660
       6            1H1,4X,8H-0.2D+03/4(D13.1/)/                        P0133670
       7              6X,20H0.33333333333333D+11/4(D26.14/)/            P0133680
       8              5X,16H-0.444444444D+05/4(D21.9/),1H )             P0133690
135    FORMAT(  6X,20H0.34000000000000D+02/5(D26.14/)/                  P0133700
       1          5X,21H-0.17263544500000D+11/5(D26.14/)/               P0133710
       2          6X,20H0.00000000000000D+00/5(D26.14/)/                P0133720
       3          5X,21H-0.17263544500000D+11/5(D26.14/)/               P0133730
       4          6X,20H0.65498760000000D-03/5(D26.14/),                P0133740
       5        1H1,5X,20H0.00000000000000D+00/5(D26.14/)/              P0133750
       6          6X,20H0.29876523400000D-01/5(D26.14/)/                P0133760
       7          5X,21H-0.25439662100000D+03/5(D26.14/),               P0133770
       8 39H1 EACH GROUP SHOULD BE IDENTICAL EXCEPT/                    P0133780
       9 38H  FOR THE SIGNS OF THE FIRST TWO LINES//                    P0133790
       A          6X,20H0.34786529910234D-05/5(D26.14/)/                P0133800
       B          5X,21H-0.14793782496700D+07/5(D26.14/)/               P0133810
       C          6X,20H0.29876523400000D-01/5(D26.14/)/                P0133820
       D          5X,21H-0.14793782496700D+07/5(D26.14/)/               P0133830
       E          6X,20H0.29876523400000D-01/5(D26.14/)/                P0133840
       F          6X,20H0.98663271000000D-03/5(D26.14/)/                P0133850
       G          6X,20H0.12345678910110D+08/5(D26.14/),                P0133860
       H        1H1,4X,21H-0.44400000000000D-08/5(D26.14/))             P0133870
C*****      END OF SEGMENT 013                                          P0133880
C*****   WHEN EXECUTING ONLY SEGMENT 013, THE STOP AND END CARDS        P0133890
C*****   WHICH APPEAR AS COMMENTS MUST HAVE THE  C=                     P0133900
C*****   IN COLUMNS  1  AND  2  REMOVED                                 P0133910
C=     STOP                                                             P0133920
C=     END                                                             P0133930
       STOP                                                             P013C1
       END                                                             P013C2
C*****************************************************************************P0150010
C*****                                                                  P0150020
C*****                          CASGN - (015)                           P0150030
C*****                                                                  P0150040
C*****************************************************************************P0150050
C*****   GENERAL PURPOSE                                     ASA REF P0150060
C*****   * TO TEST METHODS OF FORMING COMPLEX CONSTANTS         5.1.1    P0150070
C*****   * TO TEST THAT COMPLEX VARIABLES AND ARRAY             5.1.2 /5 P0150080
C*****     ELEMENTS MAY BE REFERENCED.                          5.1.3 /16 P0150090
C*****   * TO TEST SIMPLE ARITHMETIC ASSIGNMENT STATEMENTS      7.1.1.1  P0150100
C*****     SO THAT THIS FEATURE CAN BE USED FOR INITIALIZATION TABLE 1  P0150110
C*****     IN LATER SEGMENTS                                            P0150120
C*****   S P E C I F I C A T I O N S  SEGMENT 015                       P0150130
C*****                                                                  P0010310
C*****   WHEN EXECUTING ONLY SEGMENT 015, THE SPECIFICATION STATEMENTS  P0010315
C*****   WHICH APPEAR AS COMMENTS MUST HAVE THE C= IN COLUMNS           P0010320
C*****   1  AND  2  REMOVED.                                            P0010325
C*****                                                                  P0010330
C=     COMPLEX QEVC,QFVC,QGVC,QHVC,QIVC,QJVC,QKVC,QLVC,QMVC,QNVC,QOVC,  P0010335
C=   1 QPVC,QRVC,QSVC,QTVC,QUVC,QVVC,KVC,LVC,MVC,NVC,OVC,PVC,QVC,VVC,   P0010340
C=   2 MEVC,MFVC,MGVC,MHVC,MIVC,QQVC,MJVC,MKVC,MLVC,        MNVC,MOVC,  P0010345
C=   3 MPVC,MQVC,MRVC,MSVC,MTVC,MUVC,MVVC,BCVC,DCVC,DDVC                P0010350
C=     COMPLEX AVC,BVC,CVC,DVC,EVC,FVC,GVC,HVC,IVC,JVC,AAVC,            P0010355
```

```
C=    1          ABVC,BAVC,BBVC,CCVC,CDVC,CAVC,DAVC,ASVC,BSVC,CSVC,        P0010360
C=    2          DSVC,AAAVC,ABAVC,ACAVC,ADAVC,CHCVC                        P0010365
C=    COMPLEX NUMVC,       QAVC,QBVC,QCVC,QDVC,RVC,SVC,TVC,UVC             P0010370
C=    1 ,        MAVC,MBVC,MCVC,MDVC,B1C(8),B2C(4,2),B3C(2,2,2)            P0010375
C=    COMPLEX LL1C(32),LM2C(8,4),LN3C(9,2,2),A1C(12),A2C(2,2),A3C(2,2,1)P0010380
C*****                                                                    P0010385
      COMPLEX QEVC,QFVC,QGVC,QHVC,QIVC,QJVC,QKVC,QLVC,QMVC,QNVC,QOVC,     P015A1
     1 QPVC,QRVC,QSVC,QTVC,QUVC,QVVC,KVC,LVC,MVC,NVC,OVC,PVC,QVC,VVC,     P015A2
     2  MEVC,MFVC,MGVC,MHVC,MIVC,QQVC,MJVC,MKVC,MLVC,       MNVC,MOVC,    P015A3
     3  MPVC,MQVC,MRVC,MSVC,MTVC,MUVC,MVVC,BCVC,DCVC,DDVC                 P015A4
      COMPLEX AVC,BVC,CVC,DVC,EVC,FVC,GVC,HVC,IVC,JVC,AAVC,               P015A5
     1         ABVC,BAVC,BBVC,CCVC,CDVC,CAVC,DAVC,ASVC,BSVC,CSVC,         P015A6
     2         DSVC,AAAVC,ABAVC,ACAVC,ADAVC,CHCVC                         P015A7
      COMPLEX NUMVC,       QAVC,QBVC,QCVC,QDVC,RVC,SVC,TVC,UVC            P015A8
     1 ,       MAVC,MBVC,MCVC,MDVC,B1C(8),B2C(4,2),B3C(2,2,2)            P015A9
      COMPLEX LL1C(32),LM2C(8,4),LN3C(9,2,2),A1C(12),A2C(2,2),A3C(2,2,1)P015AA
C*****  O U T P U T   T A P E   ASSIGNMENT STATEMENT.  NO INPUT TAPE.    P0150140
C*****                                                                    P0070260
C*****  WHEN EXECUTING ONLY SEGMENT 015, THE FOLLOWING STATEMENT          P0070265
C*****  NUVI = 6   MUST HAVE THE C= IN COLUMNS 1  AND  2  REMOVED.        P0070270
C*****                                                                    P0070275
C=    NUVI = 6                                                            P0070280
C*****                                                                    P0070285
      NUVI = 6                                                            P015B1
      WRITE (NUVI,150)                                                    P0150150
      WRITE (NUVI,151)                                                    P0150160
150   FORMAT(1H1,1X,32HCASGN - (015) COMPLEX ASSIGNMENT/                  P0150170
     1 16X,  10HSTATEMENTS/2X,28HASA REFS. - 5.1.1.4  7.1.1.1//           P0150180
     2 2X,  7HRESULTS//2X,23HLINE 1 OF EACH GROUP IS/                     P0150190
     3 2X,21HHOLLERITH INFORMATION/)                                      P0150200
151   FORMAT(2X,36HVALUES IN A GROUP SHOULD BE THE SAME)                  P0150210
C*****     HEADER FOR SEGMENT 015 WRITTEN                                 P0150220
C*****  BEGINNING OF TEST OF COMPLEX CONSTANT ASSIGNMENTS. IN             P0150230
C*****   THE FOLLOWING 22 BLOCKS, BOTH PARTS OF THE CONSTANT              P0150240
C*****  HAVE THE SAME METHOD OF FORMATION                                 P0150250
C*****     TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM               P0150260
C*****     UNSIGNED BASIC REAL CONSTANTS                                  P0150270
      QAVC = (22.2,33.33)                                                 P0150280
      LL1C(1)    = (22.2,33.33)                                           P0150290
      LM2C(1,1)  = (22.2,33.33)                                           P0150300
      LN3C(1,1,1) = (22.2,33.33)                                          P0150310
C*****     TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM               P0150320
C*****     SIGNED BASIC REAL CONSTANTS                                    P0150330
      QBVC = (+395.6,+4106.7)                                            P0150340
      QCVC  = (-12345.67,-1234.567)                                      P0150350
      QDVC  = (+8.9,-9.1)                                                 P0150360
      QEVC  = (-2635.12,+46.21)                                          P0150370
      LL1C(2)    = (+395.6,+4106.7)                                      P0150380
      LL1C(3)    = (-12345.67,-1234.567)                                 P0150390
      LL1C(4)    = (+8.9,-9.1)                                           P0150400
      LL1C(5)    = (-2635.12,+46.21)                                     P0150410
      LM2C(2,1)  = (+395.6,+4106.7)                                      P0150420
      LM2C(3,1)  = (-12345.67,-1234.567)                                 P0150430
      LM2C(4,1)  = (+8.9,-9.1)                                           P0150440
      LM2C(5,1)  = (-2635.12,+46.21)                                     P0150450
      LN3C(2,1,1) = (+395.6,+4106.7)                                     P0150460
      LN3C(3,1,1) = (-12345.67,-1234.567)                                P0150470
      LN3C(4,1,1) = (+8.9,-9.1)                                          P0150480
      LN3C(5,1,1) = (-2635.12,+46.21)                                    P0150490
C*****     TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM               P0150500
C*****     UNSIGNED AND SIGNED REAL CONSTANTS (INTEGER PART               P0150510
C*****     ONLY)                                                          P0150520
      QFVC  = (10.,20.)                                                  P0150530
      QGVC  = (+300.,+4000.)                                             P0150540
      QHVC  = (-50.,-600.)                                               P0150550
      QIVC  = (+71.,-92.)                                                P0150560
      QJVC  = (-883.,+1414.)                                             P0150570
      QKVC  = (10.,+562.)                                                P0150580
```

```
      QLVC   = (2002.,-983.)                                    P0150590
      QMVC   = (+461.,-165.)                                     P0150600
      QNVC   = (-21.,+122.)                                      P0150610
      LL1C(6)       = (10.,20.)                                  P0150620
      LM2C(6,1)     = (+300.,+4000.)                             P0150630
      LN3C(6,1,1) = (-50.,-600.)                                 P0150640
      LL1C(7)       = (+71.,-92.)                                P0150650
      LM2C(7,1)     = (-883.,+1414.)                             P0150660
      LN3C(7,1,1) = (10.,+562.)                                  P0150670
      LL1C(8)       = (2002.,-983.)                              P0150680
      LM2C(8,1)     = (+461.,-165.)                              P0150690
      LN3C(8,1,1) = (-21.,+122.)                                 P0150700
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM       P0150710
C*****    UNSIGNED AND SIGNED REAL CONSTANTS (DECIMAL PART       P0150720
C*****    ONLY                                                   P0150730
      QOVC   = (.001,.00200)                                     P0150740
      QPVC   = (+.562,+.562)                                     P0150750
      QQVC   = (-.3,-.3333333)                                   P0150760
      QRVC   = (+.4,-.445)                                       P0150770
      QSVC   = (-.95,+.95)                                       P0150780
      QTVC   = (.0164239,+.36)                                   P0150790
      QUVC   = (.21,-.3963)                                      P0150800
      QVVC   = (+.3398,.3398)                                    P0150810
      NUMVC = (-.6,.6)                                           P0150820
      LL1C(9)       = (.001,.00200)                              P0150830
      LM2C(1,2)     = (+.562,+.562)                              P0150840
      LN3C(1,2,1) = (-.3,-.3333333)                              P0150850
      LL1C(10)      = (+.4,-.445)                                P0150860
      LM2C (2,2) = (-.95, +.95)                                  P0150870
      LN3C(2,2,1) = (.0164239,+.36)                             P0150880
      LL1C(11)      = (.21,-.3963)                               P0150890
      LM2C(3,2)     = (+.3398,.3398)                             P0150900
      LN3C(3,2,1) = (-.6,.6)                                     P0150910
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM       P0150920
C*****    UNSIGNED REAL CONSTANTS WITH UNSIGNED EXPONENTS        P0150930
      AVC   = (0.0E0,1.0E0)                                      P0150940
      LL1C(12)      = (456231.1E1,789.453E3)                     P0150950
      LM2C(4,2)     = (44.9E4,2.5E3)                             P0150960
      LN3C(4,2,1) = (2222.3E3,333.2E2)                          P0150970
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM       P0150980
C*****    UNSIGNED REAL CONSTANTS WITH SIGNED EXPONENTS          P0150990
      BVC   = (3.0E+0,3.0E+0)                                    P0151000
      CVC   = (987654.3E-1,876543.2E-2)                          P0151010
      DVC   = (4.444E+3,55.555E-4)                               P0151020
      EVC   = (6.0E-5,7.7E+6)                                    P0151030
      LL1C(13)      = (3.0E+0,3.0E+0)                            P0151040
      LM2C(5,2)     = (987654.3E-1,876543.2E-2)                 P0151050
      LN3C(5,2,1) = (4.444E+3,55.555E-4)                        P0151060
      LL1C(14)      = (6.0E-5,7.7E+6)                            P0151070
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM       P0151080
C*****    SIGNED REAL CONSTANTS WITH UNSIGNED EXPONENTS          P0151090
      FVC   = (+14.2E1,+26.67E0)                                 P0151100
      GVC   = (-36.923E4,-0.234E03)                              P0151110
      HVC   = (+2.1E2,-2.1E2)                                    P0151120
      IVC   = (-595.9E00,+4.967E2)                               P0151130
      LM2C(6,2)     = (+14.2E1,+26.67E0)                         P0151140
      LN3C(6,2,1) = (-36.923E4,-0.234E03)                       P0151150
      LL1C(15)      = (+2.1E2,-2.1E2)                            P0151160
      LM2C(7,2)     = (-595.9E00,+4.967E2)                       P0151170
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM       P0151180
C*****    SIGNED REAL CONSTANTS WITH SIGNED EXPONENTS            P0151190
      JVC   = (+1.0E+0,+1.0E+0)                                  P0151200
      KVC   = (-2.0E-0,-2.0E-0)                                  P0151210
      LVC   = (+49.2E-1,-65.27E+2)                               P0151220
      MVC   = (-737.1E+3,+99.8E-3)                               P0151230
      NVC   = (+4774.47E+03,-9362.4E-4)                          P0151240
      OVC   = (-846.2E-5,+13.33E+1)                              P0151250
      LN3C(7,2,1) = (+1.0E+0,+1.0E+0)                           P0151260
```

```
      LL1C(16)      = (-2.0E-0,-2.0E-0)                               P0151270
      LM2C(1,3)     = (+49.2E-1,-65.27E+2)                            P0151280
      LN3C(1,1,2) = (-737.1E+3,+99.8E-3)                              P0151290
      LL1C(17)      = (+4774.47E+03,-9362.4E-4)                       P0151300
      LM2C(2,3)     = (-846.2E-5,+13.33E+1)                           P0151310
C*****     TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM           P0151320
C*****     UNSIGNED REAL CONSTANTS (NO DECIMAL PART) WITH             P0151330
C*****     UNSIGNED EXPONENTS                                         P0151340
      PVC  = (77.E7,816248.E2)                                        P0151350
      LL1C(18)      = (77.E7,816248.E2)                               P0151360
      LM2C(3,3)     = (1334.E01,379.E03)                              P0151370
      LN3C(2,1,2) = (1334.E01,379.E03)                                P0151380
C*****     TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM           P0151390
C*****     UNSIGNED REAL CONSTANTS (NO DECIMAL PART) WITH             P0151400
C*****     SIGNED EXPONENTS                                           P0151410
      QVC  = (3.E+5,3.E+05)                                           P0151420
      RVC  = (299.E-4,299.E-1)                                        P0151430
      SVC  = (1419.E+2,1419.E-2)                                      P0151440
      TVC  = (76.E-3,987.E+0)                                         P0151450
      LL1C(19)      = (3.E+05,3.E+5)                                  P0151460
      LM2C(4,3)     = (299.E-4,299.E-1)                               P0151470
      LN3C(3,1,2) = (1419.E+2,1419.E-2)                               P0151480
      LL1C(20) = (76.E-3, 987.E+0)                                    P0151490
C*****     TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM           P0151500
C*****     SIGNED REAL CONSTANTS (NO DECIMAL PART) WITH               P0151510
C*****     UNSIGNED EXPONENTS                                         P0151520
      UVC  = (+31.E0,+4659.E1)                                        P0151530
      VVC  = (-728.E2,-93296.E3)                                      P0151540
      MAVC = (+6.E6,-6.E6)                                            P0151550
      MBVC = (-7914.E3,+16.E5)                                        P0151560
      LM2C(5,3)     = (+31.E0,+4659.E1)                               P0151570
      LN3C(4,1,2) = (-728.E2,-93296.E3)                               P0151580
      LL1C(21)      = (+6.E6,-6.E6)                                   P0151590
      LM2C(6,3)     = (-7914.E3,+16.E5)                               P0151600
C*****     TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM           P0151610
C*****     SIGNED REAL CONSTANTS (NO DECIMAL PART) WITH               P0151620
C*****     SIGNED EXPONENTS                                           P0151630
      MCVC = (+1.E+1,+1.E+1)                                          P0151640
      MDVC = (-2.E-2,-2.E-2)                                          P0151650
      MEVC = (+3.E-3,-3.E+3)                                          P0151660
      MFVC = (-4.E+4,+4.E-4)                                          P0151670
      MGVC = (+5.E+5,-5.E-5)                                          P0151680
      MHVC = (-6.E-6,+6.E+6)                                          P0151690
      LN3C(5,1,2) = (+1.E+1,+1.E+1)                                   P0151700
      LL1C(22)      = (-2.E-2,-2.E-2)                                 P0151710
      LM2C(7,3)     = (+3.E-3,-3.E+3)                                 P0151720
      LN3C(6,1,2) = (-4.E+4,+4.E-4)                                   P0151730
      LL1C(23)      = (+5.E+5,-5.E-5)                                 P0151740
      LM2C(1,4)     = (-6.E-6,+6.E+6)                                 P0151750
C*****     TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM           P0151760
C*****     UNSIGNED REAL CONSTANTS (NO INTEGER PART) WITH             P0151770
C*****     UNSIGNED EXPONENTS                                         P0151780
      MIVC = (.39393E01,.62E04)                                       P0151790
      LL1C(24)      = (.39393E01,.62E04)                              P0151800
      LM2C(2,4)     = (.009E2,.765765E3)                              P0151810
      LN3C(7,1,2) = (.009E2,.765765E3)                                P0151820
C*****     TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM           P0151830
C*****     UNSIGNED REAL CONSTANTS (NO INTEGER PART) WITH             P0151840
C*****     SIGNED EXPONENTS                                           P0151850
      MJVC =(.352E+09,.352E+3)                                        P0151860
      MKVC =(.147626E+0,.891E-14)                                     P0151870
      MLVC =(.9E-7,.9999E+8)                                          P0151880
      MNVC =(.13E-04,.13E-04)                                         P0151890
      LL1C(25)      =(.352E+09,.352E+3)                               P0151900
      LM2C(3,4)     =(.147626E+0,.891E-14)                            P0151910
      LN3C(1,2,2) =(.9E-7,.9999E+8)                                   P0151920
      LN3C(2,2,2) =(.13E-4,.13E-4)                                    P0151930
C*****     TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM           P0151940
```

```
C*****      SIGNED REAL CONSTANTS (NO INTEGER PART) WITH           P0151950
C*****         UNSIGNED EXPONENTS                                  P0151960
      MOVC =(+.77E00,+.77E00)                                      P0151970
      MPVC =(+.878E1,-.878E1)                                      P0151980
      MQVC =(-.9797E2,+.9797E2)                                    P0151990
      MRVC =(-.10101E15,-.10101E15)                                P0152000
      LL1C(26)    =(+.77E00,+.77E00)                               P0152010
      LM2C(4,4)   =(+.878E1,-.878E1)                               P0152020
      LN3C(3,2,2) =(-.9797E2,+.9797E2)                             P0152030
      LN3C(4,2,2) =(-.10101E15,-.10101E15)                         P0152040
C*****      TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM       P0152050
C*****      SIGNED REAL CONSTANTS (NO INTEGER PART) WITH           P0152060
C*****         SIGNED EXPONENTS                                    P0152070
      MSVC =(+.68E+12,+.357628E+0)                                 P0152080
      MTVC =(+.798E-3,+.76444E-00)                                 P0152090
      MUVC =(-.3247E+20,-.2594E+5)                                 P0152100
      MVVC =(-.43599E-19,-.12E-4)                                  P0152110
      AAVC =(-.6E-9,-.6E+9)                                        P0152120
      ABVC =(-.9119E+6,+.9119E-6)                                  P0152130
      BAVC =(+.39426E+2,-.39426E-2)                                P0152140
      BBVC =(+.45E-12,+.45E+12)                                    P0152150
      LL1C(27)    =(+.68E+12,+.357628E+0)                          P0152160
      LM2C(5,4)   =(+.798E-3,+.76444E-00)                          P0152170
      LN3C(5,2,2) =(-.3247E+20,-.2594E+5)                          P0152180
      LL1C(28)    =(-.43599E-19,-.12E-4)                           P0152190
      LM2C(6,4)   =(-.6E-9,-.6E+9)                                 P0152200
      LN3C(6,2,2) =(-.9119E+6,+.9119E-6)                           P0152210
      LM2C(7,4)   =(+.39426E+2,-.39426E-2)                         P0152220
      LN3C(7,2,2) =(+.45E-12,+.45E+12)                             P0152230
C*****   ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM SIGNED AND UNSIGNED P0152240
C*****   INTEGER CONSTANTS WITH SIGNED AND UNSIGNED EXPONENTS      P0152250
      BCVC = (+4793E+2,3479E2)                                     P0152260
      OOVC = (3682E-3,8236E-2)                                     P0152270
      OCVC = (-2571E5,+1752E+5)                                    P0152280
      CHCVC = (+1460E-4,-1064E+01)                                 P0152290
      A1C(5) = (4793E2,3479E+2)                                    P0152300
      A1C(6) = (3682E-03,+8236E-02)                                P0152310
      A1C(7) = (-2571E+5,1752E+05)                                 P0152320
      A1C(8) = (1460E-4,-1064E1)                                   P0152330
      LM2C(8,2) = (4793E+2,+3479E+2)                               P0152340
      LN3C(8,2,1) = (+3682E-3,8236E-02)                            P0152350
      LN3C(8,2,2) = (-2571E+05,1752E5)                             P0152360
      LN3C(8,1,2) = (1460E-04,-1064E+1)                            P0152370
C*****      ASSIGNMENT OF COMPLEX VARIABLES AND ARRAY ELEMENTS     P0152380
C*****      TO COMPLEX VARIABLES ANO ARRAY ELEMENTS                P0152390
      CCVC = QTVC                                                  P0152400
      CDVC = LL1C(12)                                              P0152410
      CAVC = LM2C(1,4)                                             P0152420
      OAVC = LN3C(6,2,2)                                           P0152430
      A1C(1) = CCVC                                                P0152440
      A1C(2) = LL1C(12)                                            P0152450
      A1C(3) = LM2C(1,4)                                           P0152460
      A1C(4) = LN3C(6,2,2)                                         P0152470
      A2C(1,1) = QTVC                                              P0152480
      A2C(2,1) = LL1C(12)                                          P0152490
      A2C(1,2) = LM2C(1,4)                                         P0152500
      A2C(2,2) = LN3C(6,2,2)                                       P0152510
      A3C(1,1,1) = CCVC                                            P0152520
      A3C(2,1,1) = LL1C(12)                                        P0152530
      A3C(1,2,1) = LM2C(1,4)                                       P0152540
      A3C(2,2,1) = LN3C(6,2,2)                                     P0152550
C*****      ASSIGNMENT OF COMPLEX VARIABLES AND ARRAY ELEMENTS     P0152560
C*****      TO COMPLEX VARIABLES AND ARRAY ELEMENTS (UNARY    6.4/44P0152570
C*****      MINUS USEO TO REVERSE BOTH PLUS AND MINUS VALUES)      P0152580
      ASVC = - QGVC                                                P0152590
      BSVC = - QHVC                                                P0152600
      CSVC = - LL1C(26)                                            P0152610
      OSVC = - LL1C(23)                                            P0152620
```

```
      AAAVC = - LM2C(1,3)                                              P0152630
      AABVC = - LM2C(1,3)                                              P0152640
      ABAVC = - LM2C(1,4)                                              P0152650
      ACAVC = - LN3C(5,2,1)                                            P0152660
      ADAVC = - LN3C(6,2,1)                                            P0152670
      B1C(1) = - QGVC                                                  P0152680
      B1C(2) = - QHVC                                                  P0152690
      B1C(3) = - LL1C(26)                                              P0152700
      B1C(4) = - LL1C(23)                                              P0152710
      B1C(5) = - LM2C(1,3)                                             P0152720
      B1C(6) = - LM2C(1,4)                                             P0152730
      B1C(7) = - LN3C(5,2,1)                                           P0152740
      B1C(8) = - LN3C(6,2,1)                                           P0152750
      B2C(1,1) = - QGVC                                                P0152760
      B2C(2,1) = - QHVC                                                P0152770
      B2C(3,1) = - LL1C(26)                                            P0152780
      B2C(4,1) = - LL1C(23)                                            P0152790
      B2C(1,2) = - LM2C(1,3)                                           P0152800
      B2C(2,2) = - LM2C(1,4)                                           P0152810
      B2C(3,2) = - LN3C(5,2,1)                                         P0152820
      B2C(4,2) = - LN3C(6,2,1)                                         P0152830
      B3C(1,1,1) = - QGVC                                              P0152840
      B3C(2,1,1) = - QHVC                                              P0152850
      B3C(1,2,1) = - LL1C(26)                                          P0152860
      B3C(2,2,1) = - LL1C(23)                                          P0152870
      B3C(1,1,2) = - LM2C(1,3)                                         P0152880
      B3C(2,1,2) = - LM2C(1,4)                                         P0152890
      B3C(1,2,2) = - LN3C(5,2,1)                                       P0152900
      B3C(2,2,2) = - LN3C(6,2,1)                                       P0152910
C*****     WRITE RESULTS FOR THIS TEST SEGMENT                        P0152920
      WRITE (NUVI, 152) QAVC, LL1C(1), LM2C(1,1), LN3C(1,1,1), QBVC,   P0152930
     1    LL1C(2), LM2C(2,1), LN3C(2,1,1), QCVC, LL1C(3), LM2C(3,1),   P0152940
     2    LN3C(3,1,1), QDVC, LL1C(4), LM2C(4,1), LN3C(4,1,1), QEVC,    P0152950
     3    LL1C(5), LM2C(5,1), LN3C(5,1,1), QFVC, LL1C(6), QGVC,        P0152960
     4    LM2C(6,1), QHVC, LN3C(6,1,1), QIVC, LL1C(7), QJVC, LM2C(7,1), P0152970
     5    QKVC, LN3C(7,1,1), QLVC, LL1C(8), QMVC, LM2C(8,1), QNVC,     P0152980
     6    LN3C(8,1,1), QOVC, LL1C(9), QPVC, LM2C(1,2), QQVC,           P0152990
     7    LN3C(1,2,1), QRVC, LL1C(10), QSVC, LM2C(2,2), QTVC,          P0153000
     8    LN3C(2,2,1)                                                  P0153010
      WRITE (NUVI,153) QUVC, LL1C(11), QVVC, LM2C(3,2), NUMVC,         P0153020
     1    LN3C(3,2,1), AVC, LL1C(12), LM2C(4,2), LN3C(4,2,1), BVC,     P0153030
     2    LL1C(13), CVC, LM2C(5,2), DVC, LN3C(5,2,1), EVC, LL1C(14),   P0153040
     3    FVC, LM2C(6,2), GVC, LN3C(6,2,1), HVC, LL1C(15), IVC,        P0153050
     4    LM2C(7,2), JVC, LN3C(7,2,1), KVC, LL1C(16), LVC, LM2C(1,3),  P0153060
     5    MVC, LN3C(1,1,2), NVC, LL1C(17)                              P0153070
      WRITE(NUVI,8873)  OVC, LM2C(2,3), PVC,                           P0153080
     1    LL1C(18), LM2C(3,3), LN3C(2,1,2), QVC, LL1C(19)              P0153090
      WRITE (NUVI,154) RVC, LM2C(4,3), SVC, LN3C(3,1,2), TVC,          P0153100
     1    LL1C(20), UVC, LM2C(5,3), VVC, LN3C(4,1,2), MAVC, LL1C(21),  P0153110
     2    MBVC, LM2C(6,3), MCVC, LN3C(5,1,2), MDVC, LL1C(22), MEVC,    P0153120
     3    LM2C(7,3), MFVC, LN3C(6,1,2), MGVC, LL1C(23), MHVC,          P0153130
     4    LM2C(1,4), MIVC, LL1C(24), LM2C(2,4), LN3C(7,1,2)            P0153140
      WRITE (NUVI,8870) MJVC, LL1C(25), MKVC, LM2C(3,4), MLVC,         P0153150
     -               LN3C(1,2,2), MNVC, LN3C(2,2,2), MOVC, LL1C(26),   P0153160
     +               MPVC, LM2C(4,4), MQVC, LN3C(3,2,2), MRVC,         P0153170
     =               LN3C(4,2,2), MSVC, LL1C(27), MTVC, LM2C(5,4),     P0153180
     $               MUVC, LN3C(5,2,2), MVVC, LL1C(28), AAVC,          P0153190
     .               LM2C(6,4), ABVC, LN3C(6,2,2), BAVC, LM2C(7,4),    P0153200
     +               BBVC, LN3C(7,2,2)                                 P0153210
      WRITE(NUVI,8872) BCVC,A1C(5),LM2C(8,2),DDVC, A1C(6),LN3C(8,2,1), P0153220
     1       DCVC,A1C(7),LN3C(8,2,2),CHCVC,A1C(8),LN3C(8,1,2)          P0153230
0WRITE (NUVI,8871) QTVC, CCVC, A1C(1), A2C(1,1), A3C(1,1,1),          P0153240
     1    LL1C(12), CDVC, A1C(2), A2C(2,1), A3C(2,1,1), LM2C(1,4),     P0153250
     2    CAVC, A1C(3), A2C(1,2), A3C(1,2,1), LN3C(6,2,2), DAVC,       P0153260
     3    A1C(4), A2C(2,2), A3C(2,2,1), QGVC, ASVC, B1C(1), B2C(1,1),  P0153270
     4    B3C(1,1,1), QHVC, BSVC, B1C(2), B2C(2,1), B3C(2,1,1),        P0153280
     5    LL1C(26), CSVC, B1C(3), B2C(3,1), B3C(1,2,1), LL1C(23),      P0153290
     6    DSVC, B1C(4), B2C(4,1), B3C(2,2,1), LM2C(1,3), AAAVC, B1C(5),P0153300
```

```
      7       B2C(1,2), B3C(1,1,2), LM2C(1,4), ABAVC, B1C(6), B2C(2,2),       P0153310
      8       B3C(2,1,2), LN3C(5,2,1), ACAVC, B1C(7), B2C(3,2), B3C(1,2,2),   P0153320
      9       LN3C(6,2,1), ADAVC, B1C(8), B2C(4,2), B3C(2,2,2)                P0153330
C*****        FORMAT STATEMENTS FOR THIS SEGMENT                             P0153340
152   FORMAT    (/ 6X,9H0.222E+02,9X,10H0.3333E+02/4(E15.3,E19.4/)/          P0153350
     A      6X,10H0.3956E+03,8X,11H0.41067E+04/4(E16.4,E19.5/)/              P0153360
     B      5X,14H-0.1234567E+05,4X,14H-0.1234567E+04/4(E19.7,E18.7/)/       P0153370
     C      6X,8H0.89E+01,9X,9H-0.91E+01/4(E14.2,E18.2/)/                    P0153380
     D      5X,13H-0.263512E+04,6X,10H0.4621E+02/4(E18.6,E16.4/)/            P0153390
     E      6X,7H0.1E+02,11X,7H0.2E+02/2(E13.1,E18.1/)/                      P0153400
     F      6X,7H0.3E+03,11X,7H0.4E+04/2(E13.1,E18.1/)/                      P0153410
     G      5X,8H-0.5E+02,10X,8H-0.6E+03/2(E13.1,E18.1/)/                    P0153420
     H      6X,8H0.71E+02,9X,9H-0.92E+02/2(E14.2,E18.2/)/                    P0153430
     I1H1,4X,10H-0.883E+03,9X,10H0.1414E+04/2(E15.3,E19.4/)/                 P0153440
     J      6X,7H0.1E+02,11X,9H0.562E+03/2(E13.1,E20.3/)/                    P0153450
     K      6X,10H0.2002E+04,7X,10H-0.983E+03/2(E16.4,E17.3/)/               P0153460
     L      6X,9H0.461E+03,8X,10H-0.165E+03/2(E15.3,E18.3/)/                 P0153470
     M      5X,9H-0.21E+02,10X,9H0.122E+03/2(E14.2,E19.3/)/                  P0153480
     N      6X,7H0.1E-02,11X,7H0.2E-02/2(E13.1,E18.1/)/                      P0153490
     O      6X,9H0.562E+00,9X,9H0.562E+00/2(E15.3,E18.3/)/                   P0153500
     P      5X,8H-0.3E+00,10X,14H-0.333333E+00/2(E13.1,E24.7/)/              P0153510
     Q      6X,7H0.4E+00,10X,10H-0.445E+00/2(E13.1,E20.3/)/                  P0153520
     R      5X,9H-0.95E+00,10X,8H0.95E+00/2(E14.2,E18.2/)/                   P0153530
     S      6X,12H0.164239E-01,6X,8H0.36E+00/2(E18.6,E14.2/),1H )            P0153540
153   FORMAT    (  6X,8H0.21E+00,9X,11H-0.3963E+00/2(E14.2,E20.4/)/          P0153550
     A      6X,10H0.3398E+00,8X,10H0.3398E+00/2(E16.4,E18.4/)/               P0153560
     B      5X,8H-0.6E+00,11X,7H0.6E+00/2(E13.1,E18.1/)/                     P0153570
     C1H1,5X,7H0.0E+00,11X,7H0.1E+01/E13.1,E18.1//                          P0153580
     D      6X,13H0.4562311E+07,5X,12H0.789453E+06/E19.7,E17.6//            P0153590
     E      6X,9H0.449E+06,9X,8H0.25E+04/E15.3,E17.2//                       P0153600
     F      6X,11H0.22223E+07,7X,10H0.3332E+05/E17.5,E17.4//                 P0153610
     G      6X,7H0.3E+01,11X,7H0.3E+01/2(E13.1,E18.1/)/                      P0153620
     H      6X,13H0.9876543E+05,5X,13H0.8765432E+04/2(E19.7,E18.7/)/         P0153630
     I      6X,10H0.4444E+04,8X,11H0.55555E-02/2(E16.4,E19.5/)/              P0153640
     J      6X,7H0.6E-04,11X,8H0.77E+07/2(E13.1,E19.2/)/                     P0153650
     K      6X,9H0.142E+03,9X,10H0.2667E+02/2(E15.3,E19.4/)/                 P0153660
     L      5X,12H-0.36923E+06,6X,10H-0.234E+03/2(E17.5,E16.3/)/             P0153670
     M      6X,8H0.21E+03,9X,9H-0.21E+03/2(E14.2,E18.2/)/                    P0153680
     N      5X,11H-0.5959E+03,8X,10H0.4967E+03/2(E16.4,E18.4/)/              P0153690
     O      6X,7H0.1E+01,11X,7H0.1E+01/2(E13.1,E18.1/)/                      P0153700
     P      5X,8H-0.2E+01,10X,8H-0.2E+01/2(E13.1,E18.1/)/                    P0153710
     Q      6X,9H0.492E+01,8X,11H-0.6527E+04/2(E15.3,E19.4/),               P0153720
     R1H1,4X,11H-0.7371E+06,8X,9H0.998E-01/2(E16.4,E17.3/)/                  P0153730
     S      6X,12H0.477447E+07,5X,12H-0.93624E+00/2(E18.6,E17.5/),1H )       P0153740
8873  FORMAT(5X,13H-0.846200E-02,6X,11H0.13330E+03/2(E18.6,E17.5/)/          P0153750
     U          6X,12H0.770000E+09,6X,11H0.81625E+08/2(E18.6,E17.5/)/        P0153760
     V          6X,12H0.133400E+05,6X,11H0.37900E+06/2(E18.6,E17.5/)/        P0153770
     W          6X,12H0.300000E+06,6X,11H0.30000E+06/2(E18.6,E17.5/),1H )    P0153780
154   FORMAT (  6X,9H0.299E-01,9X,9H0.299E+02/2(E15.3,E18.3/)/               P0153790
     A      6X,10H0.1419E+06,8X,10H0.1419E+02/2(E16.4,E18.4/)/               P0153800
     B      6X,8H0.76E-01,10X,9H0.987E+03/2(E14.2,E19.3/)/                   P0153810
     C      6X,8H0.31E+02,10X,10H0.4659E+05/2(E14.2,E20.4/)/                 P0153820
     D      5X,10H-0.728E+05,8X,12H-0.93296E+08/2(E15.3,E20.5/)/             P0153830
     E      6X,7H0.6E+07,10X,8H-0.6E+07/2(E13.1,E18.1/)/                     P0153840
     F      5X,11H-0.7914E+07,8X,8H0.16E+07/2(E16.4,E16.2/)/                 P0153850
     G      6X,7H0.1E+02,11X,7H0.1E+02/2(E13.1,E18.1/),                      P0153860
     H1H1,4X,8H-0.2E-01,10X,8H-0.2E-01/2(E13.1,E18.1/)/                      P0153870
     I      6X,7H0.3E-02,10X,8H-0.3E+04/2(E13.1,E18.1/)/                     P0153880
     J      5X,8H-0.4E+05,11X,7H0.4E-03/2(E13.1,E18.1/)/                     P0153890
     K      6X,7H0.5E+06,10X,8H-0.5E-04/2(E13.1,E18.1/)/                     P0153900
     L      5X,8H-0.6E-05,11X,7H0.6E+07/2(E13.1,E18.1/)/                     P0153910
     M      6X,11H0.39393E+01,7X,8H0.62E+04/2(E17.5,E15.2/)/                 P0153920
     N      6X,7H0.9E+00,11X,12H0.765765E+03/2(E13.1,E23.6/),1H )           P0153930
8870  FORMAT (  6X,9H0.352E+09,9X,8H0.35E+03/2(E15.3,E17.2/)/                P0153940
     (          6X,12H0.147626E+00,6X,9H0.891E-14/2(E18.6,E15.3/)/           P0153950
     *          6X,7H0.9E-07,11X,10H0.9999E+08/2(E13.1,E21.4/)/              P0153960
     )          6X,8H0.13E-04,10X,8H0.13E-04/2(E14.2,E18.2/)/                P0153970
     /          6X,8H0.77E+00,10X,8H0.77E+00/2(E14.2,E18.2/)/                P0153980
```

```
      /           6X,9H0.878E+01,8X,10H-0.878E+01/2(E15.3,E18.3/)/       P0153990
      A           5X,11H-0.9797E+02,8X,10H0.9797E+02/2(E16.4,E18.4/),    P0154000
      .        1H1,4X,12H-0.10101E+15,6X,12H-0.10101E+15/2(E17.5,E18.5/)/ P0154010
      ,           6X,8H0.68E+12,10X,12H0.357628E+00/2(E14.2,E22.6/)/     P0154020
      -           6X,9H0.798E-03,9X,11H0.76444E+00/2(E15.3,E20.5/)/      P0154030
      +           5X,11H-0.3247E+20,7X,11H-0.2594E+05/2(E16.4,E18.4/)/   P0154040
      1           5X,12H-0.43599E-19,6X,9H-0.12E-04/2(E17.5,E15.2/)/     P0154050
      2           5X,8H-0.6E-09,10X,8H-0.6E+09/2(E13.1,E18.1/)/          P0154060
      3           5X,11H-0.9119E+06,8X,10H0.9119E-06/2(E16.4,E18.4/)/    P0154070
      4           6X,11H0.39426E+02,6X,12H-0.39426E-02/2(E17.5,E18.5/)/  P0154080
      5           6X,8H0.45E-12,10X,8H0.45E+12/2(E14.2,E18.2/),1H )      P0154090
 8872 FORMAT(                                                            P0154100
      6           6X,10H0.4793E+06,8X,10H0.3479E+06/3(E16.4,E18.4/)/     P0154110
      7           6X,10H0.3682E+01,8X,10H0.8236E+02/3(E16.4,E18.4/)/     P0154120
      8           5X,11H-0.2571E+09,8X,10H0.1752E+09/3(E16.4,E18.4/)/    P0154130
      9           6X,10H0.1460E+00,7X,11H-0.1064E+05/3(E16.4,E18.4/))    P0154140
 8871 FORMAT(1H1,5X,13H0.1642390E-01,5X,13H0.3600000E+00/5(E19.7,E18.7/))P0154150
      1         /6X,13H0.4562311E+07,5X,13H0.7894530E+06/5(E19.7,E18.7/)/ P0154160
      2          5X,14H-0.6000000E-05,5X,13H0.6000000E+07/5(E19.7,E18.7/)/ P0154170
      3          5X,14H-0.9119000E+06,5X,13H0.9119000E-06/5(E19.7,E18.7/), P0154180
      4 39H1 EACH GROUP SHOULO BE IOENTICAL EXCEPT/                      P0154190
      5 38H  FOR THE SIGN  OF THE FIRST TWO LINES//                      P0154200
      6          6X,13H0.3000000E+03,5X,13H0.4000000E+04/5(E19.7,E18.7/)/ P0154210
      7          5X,14H-0.5000000E+02,4X,14H-0.6000000E+03/5(E19.7,E18.7/)/ P0154220
      8          6X,13H0.7700000E+00,5X,13H0.7700000E+00/5(E19.7,E18.7/)/ P0154230
      9          6X, 13H0.5000000E+06,4X,14H-0.5000000E-04/5(E19.7,E18.7/)/ P0154240
      A          6X,13H0.4920000E+01,4X,14H-0.6527000E+04/5(E19.7,E18.7/)/ P0154250
      B          5X,14H-0.6000000E-05,5X,13H0.6000000E+07/5(E19.7,E18.7/)/ P0154260
      C          6X,13H0.4444000E+04,5X,13H0.5555500E-02/5(E19.7,E18.7/)/ P0154270
      D  1H1,4X,14H-0.3692300E+06,4X,14H-0.2340000E+03/5(E19.7,E18.7/)) P0154280
C*****      END OF TEST SEGMENT 015                                      P0154290
C*****  WHEN EXECUTING ONLY SEGMENT 015, THE STOP AND END CARDS          P0154300
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE C= IN COLUMNS             P0154310
C*****  1  AND  2  REMOVEO.                                              P0154320
C=     STOP                                                              P0154330
C=     END                                                               P0154340
       STOP                                                             P015C1
       END                                                              P015C2
C****************************************************************************P0160010
C*****                                                                   P0160020
C*****                       LASGN - (016)                               P0160030
C*****                                                                   P0160040
C****************************************************************************P0160050
C*****     GENERAL PURPOSE                                      ASA REFP0160060
C*****     TO TEST LOGICAL ASSIGNMENTS                          7.1.1.2P0160070
C*****     CONSTANTS USED IN THIS SEGMENT                                P0160080
C***** S P E C I F I C A T I O N S   SEGMENT 016                         P0160090
C*****                                                                   P0160100
C*****  WHEN EXECUTING ONLY SEGMENT 016, THE SPECIFICATION STATEMENTS    P0010390
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                   P0010395
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  P0010400
C*****                                                                   P0010405
C=     DIMENSION IAC1I(5)                                                P0010410
C=     LOGICAL MCAVB,MCBVB,MCCVB,MCDVB,MCEVB,MCFVB,MCGVB,MCHVB,MCIVB,    P0010415
C=   1   MCJVB, MCKVB, MCLVB, MCMVB, MCNVB ,MCA1B(7)                     P0010420
C=     LOGICAL A1B(2),A2B(2,2),A3B(2,2,2),AVB,BVB,CVB                    P0010425
C*****                                                                   P0010430
       DIMENSION IAC1I(5)                                               P016A1
       LOGICAL MCAVB,MCBVB,MCCVB,MCDVB,MCEVB,MCFVB,MCGVB,MCHVB,MCIVB,   P016A2
      1   MCJVB, MCKVB, MCLVB, MCMVB, MCNVB ,MCA1B(7)                   P016A3
       LOGICAL A1B(2),A2B(2,2),A3B(2,2,2),AVB,BVB,CVB                   P016A4
C*****  O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     P0160110
C*****  WHEN EXECUTIHG ONLY SEGMENT 016, THE FOLLOWING STATEMENT         P0070290
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS 1 AND 2 REMOVED.          P0070295
C*****                                                                   P0070300
C=     NUVI = 6                                                          P0070305
       NUVI = 6                                                        P016B1
C*****                                                                   P0160120
```

```
        IAC1I(1) = 25                                                   P0160130
        IAC1I(2) = 10                                                   P0160140
        IAC1I(3) = 15                                                   P0160150
        IAC1I(4) = 25                                                   P0160160
C*****     WRITE HEADER FOR THIS SEGMENT                                P0160170
        WRITE (NUVI,160)                                                P0160180
160     FORMAT (1H1,28H LASGN - (016) ASSIGNMENT OF/ 16X,17HLOGIGAL VARIABP0160190
       ALES/21H  ASA REFS. - 7.1.1.2//9H  RESULTS)                      P0160200
C*****     TEST THE ASSIGNMENT OF RELATIONAL EXPRESSIONS          6.2   P0160210
C*****     TO LOGICAL VARIABLES AND ARRAYS                              P0160220
        MCAVB = IAC1I(2) .LT. IAC1I(3)                                  P0160230
        MCBVB = IAC1I(3) .LT. IAC1I(2)                                  P0160240
        MCCVB = IAC1I(1) .EQ. IAC1I(4)                                  P0160250
        MCDVB = IAC1I(2) .EQ. IAC1I(1)                                  P0160260
        MCEVB = IAC1I(1) .LE. IAC1I(4)                                  P0160270
        MCFVB = IAC1I(2) .LE. IAC1I(1)                                  P0160280
        MCGVB = IAC1I(1) .LE. IAC1I(2)                                  P0160290
        MCHVB = IAC1I(1) .EQ. 25                                        P0160300
        MCIVB = IAC1I(2) .EQ. IAC1I(4)                                  P0160310
        MCA1B(1) = IAC1I(2) .NE. IAC1I(3)                               P0160320
        MCA1B(2) = IAC1I(1) .NE. IAC1I(4)                               P0160330
        MCA1B(3) = IAC1I(1) .GT. IAC1I(2)                               P0160340
        MCA1B(4) = IAC1I(2) .GT. IAC1I(1)                               P0160350
        MCA1B(5) = IAC1I(1) .GE. IAC1I(2)                               P0160360
        A1B(1) = IAC1I(1) .GE. IAC1I(4)                                 P0160370
        A1B(2) = IAC1I(2) .GE. IAC1I(1)                                 P0160380
C*****     TEST THE ASSIGNMENT OF A MIXTURE OF RELATIONAL AND           P0160390
C*****     LOGICAL EXPRESSIONS TO LOGICAL VARIABLES AND ARRAYS    6.3   P0160400
        A2B(1,1) = .TRUE.                                               P0160410
        A2B(1,2) = .FALSE.                                              P0160420
        AVB = A2B(1,2) .AND. .NOT. A2B(1,1)                             P0160430
        BVB = A2B(1,2) .OR. .NOT. A2B(1,1)                              P0160440
        CVB = IAC1I(2).LT.IAC1I(3).AND.(A2B(1,1).OR..NOT.A2B(1,2)).OR.A2B(P0160450
       A1,1).AND..NOT.A2B(1,2).AND.IAC1I(1).GT.IAC1I(4)                 P0160460
        A2B(2,1) = .NOT. (CVB.AND.MCIVB).AND. IAC1I(2) .NE. IAC1I(3) .AND.P0160470
       1        IAC1I(2) .LT. IAC1I(3) .AND. IAC1I(1) .EQ. IAC1I(4)     P0160480
        A2B(2,2) = A2B(1,2) .AND. IAC1I(1) .EQ. IAC1I(4)                P0160490
        A3B(1,1,1) = IAC1I(2) .LT. IAC1I(3) .AND. A2B(1,2)              P0160500
        A3B(1,1,2) = IAC1I(2) .GT. IAC1I(3) .AND. A2B(1,1)              P0160510
        A3B(1,2,1) = .NOT. MCA1B(5) .AND.                              P0160520
       1            A2B(1,1) .OR. IAC1I(1) .EQ. IAC1I(4)                P0160530
        A3B(1,2,2) = .NOT. (A2B(1,2) .AND. IAC1I(1) .EQ. IAC1I(4)).OR.  P0160540
       1            A2B(1,1) .OR. A2B(1,2)                              P0160550
        A3B(2,1,1) = A2B(1,2) .OR. IAC1I(1) .EQ. IAC1I(4)               P0160560
        A3B(2,2,1) = .NOT.MCCVB.AND.MCHVB .OR. IAC1I(1) .NE. IAC1I(4) .OR.P0160570
       1            IAC1I(1) .LT. IAC1I(4) .OR. A2B(1,2)                P0160580
        A3B(2,1,2) = .NOT. A3B(1,1,2) .AND.                            P0160590
       1            ( A2B(1,1) .AND. .NOT. A2B(1,2) )                   P0160600
        A3B(2,2,2) = IAC1I(1) .LT. IAC1I(4) .OR. .NOT. A2B(1,2)         P0160610
        MCJVB=IAC1I(2).GT.IAC1I(3).AND.(A2B(1,1).OR..NOT.A2B(1,2)).OR.A2B(P0160620
       A1,2).AND..NOT.A2B(1,2).AND.IAC1I(1).GT.IAC1I(4)                 P0160630
        MCKVB = IAC1I(2).LT.IAC1I(3).AND.A2B(1,1).OR.A2B(1,2)           P0160640
        MCLVB = (IAC1I(2) .LT. IAC1I(3) .AND. A2B(1,2)) .OR. A2B(1,1)   P0160650
        MCMVB = A2B(1,2) .OR. IAC1I(2) .LT. IAC1I(3) .AND. A2B(1,1)     P0160660
        MCNVB = A2B(1,2) .OR. (IAC1I(2) .LT. IAC1I(3) .AND. A2B(1,1))   P0160670
C*****     WRITE VARIABLES THAT ARE TRUE                                P0160680
        WRITE (NUVI,161) MCAVB, MCCVB, MCEVB, MCFVB, MCHVB, MCA1B(1),   P0160690
       A            MCA1B(3), MCA1B(5), A1B(1), A2B(1,1), A2B(2,1),     P0160700
       B            A3B(1,2,1), A3B(1,2,2), A3B(2,1,1), A3B(2,1,2),     P0160710
       C            A3B(2,2,2), CVB, MCKVB, MCLVB, MCMVB, MCNVB         P0160720
161     FORMAT (//32H  ALL ANSWERS BELOW MUST BE TRUE//21(L16/)//)      P0160730
C*****     WRITE VARIABLES THAT ARE FALSE                               P0160740
        WRITE (NUVI,162) MCBVB, MCDVB, MCGVB, MCIVB, MCA1B(2), MCA1B(4),P0160750
       A            A1B(2), A2B(1,2), A2B(2,2),A3B(1,1,1),A3B(1,1,2),   P0160760
       B            A3B(2,2,1), AVB, BVB, MCJVB                         P0160770
162     FORMAT (33H  ALL ANSWERS BELOW MUST BE FALSE//15(L16/))         P0160780
C*****     END OF SEGMENT 016                                           P0160790
C*****                                                                  P0160800
```

```
C*****   WHEN EXECUTING ONLY SEGMENT 016, THE  STOP   AND   END        P0160810
C*****   CARDS, WHICH APPEAR AS COMMENTS, MUST HAVE THE   C=            P0160820
C*****   IN COL  1  AND  2  REMOVED.                                    P0160830
C*****                                                                  P0160840
C=      STOP                                                            P0160850
C=      END                                                            P0160860
        STOP                                                            P016C1
        END                                                            P016C2
C*****************************************************************************P0170010
C*****                                                                  P0170020
C*****                          INTRL - (017)                          P0170030
C*****                                                                  P0170040
C*****************************************************************************P0170050
C*****   GENERAL PURPOSE                                      ASA REF   P0170060
C*****      TO TEST ARITHMETIC ASSIGNMENT STATEMENTS WHERE     TABLE 1,PG13P0170070
C*****      REAL CONSTANTS AND VARIABLES, INTEGER VARIABLES    (LINES 2,3, P0170080
C*****      AND ARRAY ELEMENTS, AND DOUBLE PRECISION CON-          5,6, P0170090
C*****      STANTS AND VARIABLES ARE ASSIGNED TO EACH OTHER       9,10)P0170100
C*****                                                                  P0170110
C*****   S P E C I F I C A T I O N S   SEGMENT 017                      P0170120
C*****                                                                  P0010440
C*****   WHEN EXECUTING ONLY SEGMENT 017, THE SPECIFICATION STATEMENTS  P0010445
C*****   WHICH APPEAR AS COMMENTS MUST HAVE THE   C=   IN               P0010450
C*****   COL  1  AND  2  REMOVED                                        P0010455
C=      DIMENSION A1S(5),A2S(2,2),A3S(3,3,3),IAC1I(5),IAC2I(2,7)        P0010460
C=      INTEGER MCA3I(2,3,3)                                            P0010465
C=      DOUBLE PRECISION AC1D(10),BC2D(7,4),CC3D(7,2,2),DPAVD           P0010470
C*****                                                                  P0010475
        DIMENSION A1S(5),A2S(2,2),A3S(3,3,3),IAC1I(5),IAC2I(2,7)        P017A1
        INTEGER MCA3I(2,3,3)                                            P017A2
        DOUBLE PRECISION AC1D(10),BC2D(7,4),CC3D(7,2,2),DPAVD           P017A3
C*****   O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.   P0170130
C*****                                                                  P0070310
C*****   WHEN EXECUTING ONLY SEGMENT 017, THE STATEMENT   NUVI = 6      P0070315
C*****   MUST HAVE THE   C=   IN COL 1  AND  2  REMOVED.                P0070320
C*****                                                                  P0070325
C=      NUVI = 6                                                        P0070330
C*****                                                                  P0070335
        NUVI = 6                                                        P017B1
        WRITE (NUVI,170)                                                P0170140
170     FORMAT(1H1,1X,39HINTRL - (017) ASSIGN INTEGER, REAL, AND/       P0170150
       1 16X,23HDOUBLE PRECISION VALUES/2X,29HASA REFS. - 7.1.1.1.  5.1.1.P0170160
       22/2X,7HRESULTS/)                                                P0170170
C*****      TEST ASSIGNMENT OF INTEGER VARIABLES          TABLE 1/LN 5,9P0170180
        JACVI = 1                                                       P0170190
        IAC1I(3) = +111                                                 P0170200
        IAC2I(2,3) = -1111                                              P0170210
        MCA3I(2,1,2) = -11111                                           P0170220
        ACVS = IAC1I(3)                                                 P0170230
        A1S(2) = IAC2I(2,3)                                             P0170240
        A2S(2,1) = MCA3I(2,1,2)                                         P0170250
        A3S(2,1,2) = JACVI                                              P0170260
        DPAVD = MCA3I(2,1,2)                                            P0170270
        AC1D(7) = JACVI                                                 P0170280
        BC2D(7,4) = IAC1I(3)                                            P0170290
        CC3D(5,1,2) = IAC2I(2,3)                                        P0170300
        WRITE (NUVI,171)                                                P0170310
171     FORMAT (/2X,24HASSIGN INTEGER VARIABLES//3X,           21H1 - TO P0170320
       1REAL VARIABLES)                                                 P0170330
        WRITE (NUVI,172)ACVS,A1S(2),A2S(2,1),A3S(2,1,2),DPAVD,AC1D(7),BC2DP0170340
       1(7,4),CC3D(5,1,2)                                               P0170350
172     FORMAT(/8X,8H 111.0 */F14.1//                                   P0170360
       1       7X,9H-1111.0 */F14.1//                                   P0170370
       2       4X,12H  -11111.0 */F14.1//                               P0170380
       3      11X,5H1.0 */F14.1//3X,33H2 - TO DOUBLE PRECISION VARIABLESP0170390
       4      //4X,16H  -0.11111D 05 */D18.5//                          P0170400
       5      11X,9H0.1D 01 */D18.1//                                   P0170410
       6      9X,11H0.111D 03 */D18.3//                                 P0170420
```

```
      7          7X,13H-0.1111D 04 */D18.4/)                               P0170430
C*****        TEST ASSIGNMENT OF INTEGER CONSTANTS                         P0170440
      ACVS = -2222                                                         P0170450
      A1S(2) = +222                                                        P0170460
      A2S(2,1) = -22222                                                    P0170470
      A3S(2,1,2) = 2                                                       P0170480
      DPAVD = 2                                                            P0170490
      AC1D(7) = -22222                                                     P0170500
      BC2D(7,4) = -2222                                                    P0170510
      CC3D(5,1,2) = +222                                                   P0170520
      WRITE (NUVI,173)                                                     P0170530
173   FORMAT (/2X,24HASSIGN INTEGER CONSTANTS//3X,          21H1 - TO RP0170540
     1EAL VARIABLES)                                                       P0170550
      WRITE (NUVI,174)ACVS,A1S(2),A2S(2,1),A3S(2,1,2),DPAVD,AC1D(7),BC2DP0170560
     1(7,4),CC3D(5,1,2)                                                    P0170570
174   FORMAT(/6X,9H-2222.0 */F13.1//                                      P0170580
     1       8X,7H222.0 */F13.1//                                         P0170590
     2       3X,12H -22222.0 */F13.1//                                    P0170600
     3      10X,5H2.0 */F13.1/  35H1 2 - TO DOUBLE PRECISION VARIABLES/P0170610
     4       /12X,9H0.2D 01 */D19.1//                                     P0170620
     5        5X,16H  -0.22222D 05 */D19.5//                              P0170630
     6        8X,13H-0.2222D 04 */D19.4//                                 P0170640
     7       10X,11H0.222D 03 */D19.3/)                                   P0170650
C*****        TEST ASSIGNMENT OF BASIC REAL CONSTANTS          TABLE 1/LN 2,10P0170660
      JACVI = 3.3                                                          P0170670
      IAC1I(3) = +333.3E-2                                                 P0170680
      IAC2I(2,3) = .3333E+1                                                P0170690
      MCA3I(2,1,2) = -.0033333E3                                           P0170700
      DPAVD = +3.3333                                                      P0170710
      AC1D(7) = .3333333E1                                                 P0170720
      BC2D(7,4) = -333.3333E-2                                             P0170730
      CC3D(5,1,2) = -.0333333E+2                                           P0170740
      WRITE (NUVI,7173)                                                    P0170750
7173  FORMAT (/2X,27HASSIGN BASIC REAL CONSTANTS//3X,          24H1 - P0170760
     1TO INTEGER VARIABLES)                                                P0170770
      WRITE(NUVI,7172)JACVI,IAC1I(3),IAC2I(2,3),MCA3I(2,1,2),DPAVD,AC1D(P0170780
     17),BC2D(7,4),CC3D(5,1,2)                                             P0170790
7172  FORMAT(/9X,3H3 */3(I10/)/8X,4H-3 */I10//3X,33H2 - TO DOUBLE PRECISP0170800
     1ION VARIABLES//                                                     P0170810
     2        8X,13H0.33333D 01 */D19.5//                                 P0170820
     3        6X,15H0.3333333D 01 */D19.7//                               P0170830
     4        5X,16H-0.3333333D 01 */D19.7//                              P0170840
     5        6X,15H-0.333333D 01 */D19.6/)                               P0170850
C*****        TEST ASSIGNMENT OF REAL VARIABLES                            P0170860
      ACVS = +.0044444E4                                                   P0170870
      A1S(2) = -4444.E-2                                                   P0170880
      A2S(2,1) = -44.4                                                     P0170890
      A3S(2,1,2) = 4.4444E+1                                               P0170900
      JACVI = A2S(2,1)                                                     P0170910
      IAC1I(3) = A1S(2)                                                    P0170920
      IAC2I(2,3) = A3S(2,1,2)                                              P0170930
      MCA3I(2,1,2) = ACVS                                                  P0170940
      DPAVD = A2S(2,1)                                                     P0170950
      AC1D(7) = A1S(2)                                                     P0170960
      BC2D(7,4) = A3S(2,1,2)                                               P0170970
      CC3D(5,1,2) = ACVS                                                   P0170980
      WRITE (NUVI,175)                                                     P0170990
175   FORMAT (/23H  ASSIGN REAL VARIABLES//          27H   1 - TO INTEGP0171000
     1ER VARIABLES)                                                        P0171010
      WRITE (NUVI,176)JACVI,IAC1I(3),IAC2I(2,3),MCA3I(2,1,2),DPAVD,AC1D(P0171020
     17),BC2D(7,4),CC3D(5,1,2)                                            P0171030
176   FORMAT(    /7X,5H-44 */2(I10/)/8X,4H44 */2(I10/), 35H1 2 - TO DOUBLP0171040
     1E PRECISION VARIABLES//                                             P0171050
     2        6X,12H-0.444D 02 */D16.3//                                  P0171060
     3        5X,13H-0.4444D 02 */D16.4//                                 P0171070
     4        5X,13H0.44444D 02 */D16.5//                                 P0171080
     5        5X,13H0.44444D 02 */D16.5/)                                 P0171090
C*****        TEST ASSIGNMENT OF D.P. VARIABLES             TABLE 1/LN 3,6P0171100
```

```
            DPAVD=5555.55                                                  P0171110
            AC1D(7) = +55555555555555.D-13                                 P0171120
            BC2D(7,4) = -.0000055555555D6                                  P0171130
            CC3D(5,1,2) = -.05555555555555D+2                              P0171140
            JACVI = DPAVD                                                  P0171150
            IAC1I(3) = AC1D(7)                                             P0171160
            IAC2I(2,3) = BC2D(7,4)                                         P0171170
            MCA3I(2,1,2) = CC3D(5,1,2)                                     P0171180
            ACVS = CC3D(5,1,2)                                             P0171190
            A1S(2) = BC2D(7,4)                                             P0171200
            A2S(2,1) = AC1D(7)                                             P0171210
            A3S(2,1,2) = DPAVD                                             P0171220
            WRITE (NUVI,177)                                               P0171230
      177   FORMAT (/2X,33HASSIGN DOUBLE PRECISION VARIABLES/              P0171240
           1/3X,24H1 - TO INTEGER VARIABLES)                              P0171250
            WRITE (NUVI,178)JACVI,IAC1I(3),IAC2I(2,3),MCA3I(2,1,2),ACVS,A1S(2)P0171260
           1,A2S(2,1),A3S(2,1,2)                                          P0171270
      178   FORMAT(/3X,9H    5555 */I10//9X,3H5 */I10//8X,4H-5 */2(I10/)/3X,21HP0171280
           12 - TO REAL VARIABLES//                                       P0171290
           2       3X,16H-0.5555556E 01 */E17.7//                         P0171300
           3       3X,16H-0.5555556E 01 */E17.7//                         P0171310
           4       3X,16H 0.5555556E 01 */E17.7//                         P0171320
           5       3X,16H  0.555555E 04 */E17.6/)                         P0171330
C*****        TEST ASSIGNMENT OF DOUBLE PRECISION CONSTANTS               P0171340
            JACVI = 66666.D-4                                             P0171350
            IAC1I(3) = -.00000066666666D7                                 P0171360
            IAC2I(2,3) = -.06666666666666D+2                              P0171370
            MCA3I(2,1,2)=66666.6666666666D-1                              P0171380
            ACVS = 66666666666666.D0                                      P0171390
            A1S(2) = +66666.D-4                                           P0171400
            A2S(2,1) = -.000000066666666D8                                P0171410
            A3S(2,1,2) = -.06666666666666D+2                              P0171420
            WRITE (NUVI,179)                                              P0171430
      179   FORMAT (    35H1 ASSIGN DOUBLE PRECISION CONSTANTS/           P0171440
           1/3X,24H1 - TO INTEGER VARIABLES)                             P0171450
            WRITE(NUVI,7170)JACVI,IAC1I(3),IAC2I(2,3),MCA3I(2,1,2),ACVS,A1S(2)P0171460
           1,A2S(2,1),A3S(2,1,2)                                          P0171470
     7170   FORMAT(  / 9X,3H6 */I10//8X,4H-6 */2(I10/)/3X,9H    6666 */I10//  P0171480
           1 3X,21H2 - TO REAL VARIABLES//                               P0171490
           2       3X,16H 0.6666667E 14 */E17.7//                         P0171500
           3       3X,16H   0.66666E 01 */E17.5//                         P0171510
           4       3X,16H-0.6666666E 01 */E17.7//                         P0171520
           5       3X,16H-0.6666667E 01 */E17.7/)                         P0171530
            WRITE (NUVI,7171)                                             P0171540
     7171   FORMAT(//34H ALL TEST OUTPUT SHOULD BE CHECKED/               P0171550
           1        34H AGAINST THE ASTERISKED (*) FIGURE/                 P0171560
           2        18H WHICH PRECEDES IT)                                P0171570
C*****      END OF TEST SEGMENT 017                                       P0171580
C*****                                                                    P0171590
C*****    WHEN EXECUTING ONLY SEGMENT 017, THE  STOP  AND  END            P0171600
C*****    CARDS WHICH APPEAR AS COMMENTS MUST HAVE THE   C=               P0171610
C*****    IN COL 1 AND 2 REMOVED.                                         P0171620
C*****                                                                    P0171630
C=        STOP                                                            P0171640
C=        END                                                            P0171650
          STOP                                                            P017C1
          END                                                            P017C2
C***************************************************************************P0200010
C*****                                                                    P0200020
C*****                        UGOTO - (020)                               P0200030
C*****                                                                    P0200040
C***************************************************************************P0200050
C*****    GENERAL PURPOSE                                       ASA REF P0200060
C*****       TO TEST UNCONDITIONAL GO TO STATEMENTS             7.1.2.1.1P0200070
C*****    RESTRICTION OBSERVED                                            P0200080
C*****       GO TO STATEMENTS CAUSE BRANCHES ONLY TO            7.1.2 /54P0200090
C*****       EXECUTABLE STATEMENTS                                        P0200100
C*****    GENERAL COMMENTS                                                P0200110
```

```
C*****        GO TO STATEMENTS ALSO TESTED IN SEGMENT 193              P0200120
C*****                                                                 P0200130
C*****    O U T P U T   T A P E  ASSIGNMENT STATEMENT.   NO INPUT TAPE. P0200140
C*****                                                                 P0070340
C*****    WHEN EXECUTING ONLY SEGMENT 020, THE STATEMENT   NUVI = 6    P0070345
C*****    MUST HAVE THE C= IN COL 1 AND 2 REMOVED.                     P0070350
C*****                                                                 P0070355
C=    NUVI = 6                                                         P0070360
C*****                                                                 P0070365
      NUVI = 6                                                         P020B1
      WRITE (NUVI,200)                                                 P0200150
200   FORMAT (1H1,1X,33HUGOTO - (020) UNCONDITIONAL GO TO/16X,         P0200160
     1 19HSTATEMENT//2X,                                               P0200170
     2 21HASA REFS. - 7.1.2.1.1//2X,7HRESULTS)                         P0200180
C*****    HEADER FOR SEGMENT 020 WRITTEN                               P0200190
C*****    TEST BRANCH FORWARD                                          P0200200
      GO TO 201                                                        P0200210
203   MRRVI = 3                                                        P0200220
      WRITE (NUVI,7200) MRRVI                                          P0200230
7200  FORMAT (/4X,I1)                                                  P0200240
      GO TO 204                                                        P0200250
207   MRRVI = 7                                                        P0200260
      WRITE (NUVI,7200) MRRVI                                          P0200270
      GO TO 208                                                        P0200280
202   MRRVI = 2                                                        P0200290
      WRITE (NUVI,7200) MRRVI                                          P0200300
C*****    TEST BRANCH BACKWARD                                         P0200310
      GO TO 203                                                        P0200320
201   MRRVI = 1                                                        P0200330
      WRITE (NUVI,7200) MRRVI                                          P0200340
      GO TO 202                                                        P0200350
208   MRRVI = 8                                                        P0200360
      WRITE (NUVI,7200) MRRVI                                          P0200370
      GO TO 209                                                        P0200380
206   MRRVI = 6                                                        P0200390
      WRITE (NUVI,7200) MRRVI                                          P0200400
      GO TO 207                                                        P0200410
204   MRRVI = 4                                                        P0200420
      WRITE (NUVI,7200) MRRVI                                          P0200430
C*****    TEST BRANCH TO STATEMENT IMMEDIATELY AFTER                   P0200440
C*****    UNCONDITIONAL GO TO                                          P0200450
      GO TO 205                                                        P0200460
205   MRRVI = 5                                                        P0200470
      WRITE (NUVI,7200) MRRVI                                          P0200480
      GO TO 206                                                        P0200490
209   WRITE (NUVI,7201)                                                P0200500
7201  FORMAT (//2X,35HTHIS TEST IS SUCCESSFUL ONLY IF THE/             P0200510
     1 12X,37HNUMBERS LISTED ABOVE ARE SEQUENTIALLY/                   P0200520
     2 22X,20HIN ORDER FROM 1 TO 8)                                    P0200530
C*****    END OF TEST SEGMENT 020                                      P0200540
C*****                                                                 P0200550
C*****    WHEN EXECUTING ONLY SEGMENT 020, THE  STOP  AND  END         P0200560
C*****    CARDS, WHICH APPEAR AS COMMENTS, MUST HAVE THE   C=          P0200570
C*****    IN COL  1  AND  2  REMOVED.                                  P0200580
C=    STOP                                                             P0200590
C=    END                                                             P0200600
      STOP                                                             P020C1
      END                                                             P020C2
C************************************************************************P0210010
C*****                                                                 P0210020
C*****                          AGOTO - (021)                          P0210030
C*****                                                                 P0210040
C************************************************************************P0210050
C*****    GENERAL PURPOSE                                   ASA REF P0210060
C*****      TO TEST GO TO.ASSIGNMENT STATEMENTS              7.1.1.3  P0210070
C*****      AND ASSIGNED GO TO STATEMENTS                  7.1.2.1.2P0210080
C*****    RESTRICTIONS OBSERVED                                       P0210090
C*****      INTEGER VARIABLE USED IN ASSIGN STATEMENTS       7.1.1.3  /06P0210100
```

```
C*****     IS NEVER REFERENCED ELSEWHERE IN THIS SEGMENT        10.2.3   /12P0210110
C*****        ASSIGNED GO TO STATEMENTS CAUSE BRANCHES ONLY      7.1.1.3  /03P0210120
C*****        TO EXECUTABLE STATEMENTS                           7.1.2    /54P0210130
C*****        INTEGER VARIABLE ALWAYS CONTAINS STATEMENT         7.1.2.1.2/20P0210140
C*****        LABEL FROM THE ASSIGNED GO TO LIST                          P0210150
C*****   GENERAL COMMENTS                                                 P0210160
C*****     IGVI AND KGVI ARE IMPLICITLY DEFINED                  5.3      /07P0210170
C*****     GTVI IS EXPLICITLY DEFINED                            7.2.1.6  /55P0210180
C*****     ASSIGN AND ASSIGNED GO TO ALSO TESTED IN                      P0210190
C*****     SEGMENT 190                                                    P0210200
C*****                                                                    P0210210
C*****   S P E C I F I C A T I O N S   SEGMENT 021                        P0210220
C*****                                                                    P0010480
C*****   WHEN EXECUTING ONLY SEGMENT 021, THE SPECIFICATION STATEMENTS    P0010485
C*****   WHICH APPEAR AS COMMENTS, MUST HAVE THE C= IN COL               P0010490
C*****   1  AND  2  REMOVED                                               P0010495
C=    INTEGER GTVI                                                        P0010500
C*****                                                                    P0010505
      INTEGER GTVI                                                        P021A1
C*****   O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     P0210230
C*****                                                                    P0070370
C*****   WHEN EXECUTING ONLY SEGMENT 021, THE STATEMENT   NUVI = 6       P0070375
C*****   MUST HAVE THE C= IN COL 1 AND 2 REMOVED.                        P0070380
C*****                                                                    P0070385
C=    NUVI = 6                                                            P0070390
C*****                                                                    P0070395
      NUVI = 6                                                            P021B1
      WRITE (NUVI,210)                                                    P0210240
210   FORMAT (1H1,1X,33HAGOTO - (021) ASSIGN AND ASSIGNED/16X,           P0210250
     15HGO TO//2X,                                                       P0210260
     231HASA REFS. - 7.1.1.3 AND 7.1.2.1//2X,7HRESULTS)                  P0210270
C*****     HEADER FOR SEGMENT 021 WRITTEN                                 P0210280
C*****     TEST FORWARD BRANCHING GO TO WITH ONLY ONE                     P0210290
C*****     LABEL IN THE BRANCH LIST                                       P0210300
      ASSIGN 211 TO IGVI                                                  P0210310
      GO TO IGVI, (211)                                                   P0210320
C*****     TEST FORWARD BRANCHING GO TO WHICH BRANCHES                    P0210330
C*****     TO IMMEDIATELY FOLLOWING STATEMENT                             P0210340
212   MRRVI = 2                                                          P0210350
      WRITE (NUVI,8212) MRRVI                                            P0210360
      ASSIGN 213 TO GTVI                                                  P0210370
      GO TO GTVI, (213)                                                   P0210380
C*****     TEST FORWARD BRANCHING GO TO WHERE ALL BRANCHES                P0210390
C*****     ARE IDENTICAL                                                  P0210400
213   MRRVI = 3                                                          P0210410
      WRITE (NUVI,8212) MRRVI                                            P0210420
      ASSIGN 214 TO GTVI                                                  P0210430
      GO TO GTVI, (214,214,214)                                           P0210440
C*****     TEST FORWARD BRANCHING GO TO WITH SEVERAL UNIQUE               P0210450
C*****     BRANCHES IN THE LIST                                           P0210460
215   MRRVI = 5                                                          P0210470
      WRITE (NUVI,8212) MRRVI                                            P0210480
      ASSIGN 217 TO KGVI                                                  P0210490
      ASSIGN 216 TO IGVI                                                  P0210500
      GO TO IGVI, (217,218,216,219)                                       P0210510
C*****     TEST BACKWARD BRANCHING GO TO WHERE BRANCHES                   P0210520
C*****     ARE IDENTICAL                                                  P0210530
214   MRRVI = 4                                                          P0210540
      WRITE (NUVI,8212) MRRVI                                            P0210550
      ASSIGN 215 TO IGVI                                                  P0210560
      GO TO IGVI, (215,215)                                               P0210570
C*****     TEST BACKWARD BRANCHING GO TO WITH ONLY ONE LABEL              P0210580
C*****     IN THE BRANCH LIST                                             P0210590
211   MRRVI = 1                                                          P0210600
      WRITE (NUVI,8212) MRRVI                                            P0210610
      ASSIGN 212 TO GTVI                                                  P0210620
      GO TO GTVI, (212)                                                   P0210630
C*****     IN THE FIRST PART OF THIS TEST, ALL GO TO STATEMENTS           P0210640
```

```
C*****      WERE EXECUTED ONLY ONCE, IMMEOIATELY AFTER THE              P0210650
C*****      INTEGER VARIABLE WAS OEFINEO.  ALL GO TO STATEMENTS         P0210660
C*****      WHICH FOLLOW WILL BE EXECUTEO MORE THAN ONCE.               P0210670
C*****      VALUE OF IGVI IS ALWAYS 8216 IN THIS PART OF THE            P0210680
C*****      TEST UNTIL FINAL MESSAGE IS TO BE WRITTEN                   P0210690
216    MRRVI = 6                                                       P0210700
       WRITE (NUVI,8212) MRRVI                                         P0210710
       ASSIGN 8216 TO IGVI                                             P0210720
8216   GO TO KGVI, (217,219,7210,7214,8210)                           P0210730
217    MRRVI = 7                                                       P0210740
       ASSIGN 218 TO GTVI                                              P0210750
       GO TO 8211                                                      P0210760
218    MRRVI = 8                                                       P0210770
       ASSIGN 219 TO KGVI                                              P0210780
       GO TO 8213                                                      P0210790
219    MRRVI = 9                                                       P0210800
       ASSIGN 7210 TO KGVI                                             P0210810
       GO TO 8213                                                      P0210820
7210   MRRVI = 10                                                      P0210830
       ASSIGN 7211 TO GTVI                                             P0210840
       GO TO 8211                                                      P0210850
7211   MRRVI = 11                                                      P0210860
       ASSIGN 7212 TO GTVI                                             P0210870
       GO TO 8211                                                      P0210880
7212   MRRVI = 12                                                      P0210890
       ASSIGN 7213 TO GTVI                                             P0210900
       GO TO 8211                                                      P0210910
7213   MRRVI = 13                                                      P0210920
       ASSIGN 7214 TO KGVI                                             P0210930
       GO TO 8213                                                      P0210940
7214   MRRVI = 14                                                      P0210950
       ASSIGN 7215 TO GTVI                                             P0210960
       GO TO 8211                                                      P0210970
7215   MRRVI =. 15                                                     P0210980
       ASSIGN 7216 TO GTVI                                             P0210990
       GO TO 8211                                                      P0211000
7216   MRRVI = 16                                                      P0211010
       ASSIGN 7217 TO GTVI                                             P0211020
       GO TO 8211                                                      P0211030
7217   MRRVI = 17                                                      P0211040
       ASSIGN 7218 TO GTVI                                             P0211050
       GO TO 8211                                                      P0211060
7218   MRRVI = 18                                                      P0211070
       ASSIGN 7219 TO GTVI                                             P0211080
       GO TO 8211                                                      P0211090
7219   MRRVI = 19                                                      P0211100
       ASSIGN 8210 TO KGVI                                             P0211110
       GO TO 8213                                                      P0211120
8210   MRRVI = 20                                                      P0211130
       ASSIGN 8214 TO IGVI                                             P0211140
       GO TO 8213                                                      P0211150
8211   WRITE (NUVI,8212) MRRVI                                         P0211160
8212   FORMAT (/6X,I2)                                                 P0211170
C*****      TEST GO TO WITH CONTINUATION CARD                          P0211180
       GO TO GTVI, (218, 7211, 7212, 7213, 7215, 7216, 7217, 7218,     P0211190
      1          7219)                                                 P0211200
8213   WRITE (NUVI,8212) MRRVI                                         P0211210
       GO T´ IGVI, (8216,8214)                                         P0211220
8214   WRI    IUVI,8215)                                               P0211230
8215   FO  AT (1H0,2X,35HTHIS TEST IS SUCCESSFUL ONLY IF THE/          P0211240
      1   .37HNUMBERS LISTED ABOVE ARE SEQUENTIALLY/                   P0211250
      2 .X,21HIN OROER FROM 1 TO 20)                                   P0211260
C****       END OF TEST SEGMENT 021                                    P0211270
C***..                                                                 P0211280
C*****  WHEN EXECUTING ONLY SEGMENT 021, THE   STOP   ANO   ENO        P0211290
C*****  CAROS, WHICH APPEAR AS COMMENTS, MUST HAVE THE   C=            P0211300
C*****  IN COL  1  ANO  2  REMOVEO.                                    P0211310
C=     STOP                                                            P0211320
```

```
C=      END                                                                  P0211330
        STOP                                                                 P021C1
        END                                                                  P021C2
C**************************************************************************** P0220010
C*****                                                                       P0220020
C*****                          CGOTD - (022)                                P0220030
C*****                                                                       P0220040
C**************************************************************************** P0220050
C*****     GENERAL PURPOSE                                         ASA REF   P0220060
C*****        TO TEST COMPUTED GO TO STATEMENTS                  7.1.2.1.3   P0220070
C*****     RESTRICTIONS OBSERVED                                             P0220080
C*****        VALUE OF INTEGER VARIABLE IS NEVER LESS THAN 1     7.1.2.1.3/33P0220090
C*****        AND NEVER LARGER THAN THE NUMBER OF BRANCHES                   P0220100
C*****        INTEGER VARIABLES USED IN COMPUTED GO TO STMNTS.   10.2.8   /09P0220110
C*****        ARE NOT EQUATED TO AVOID SECOND LEVEL              10.3     /13P0220120
C*****        DEFINITION PROBLEMS                                            P0220130
C*****     GENERAL COMMENTS                                                  P0220140
C*****        IGVI AND KGVI ARE IMPLICITLY DEFINED              5.3      /07P0220150
C*****        GTVI IS EXPLICITLY DEFINED                        7.2.1.6  /55P0220160
C*****        COMPUTED GO TO ALSO TESTED IN SEGMENT 162                      P0220170
C*****                                                                       P0220180
C*****   S P E C I F I C A T I O N S   SEGMENT 022                           P0220190
C*****                                                                       P0010510
C*****   WHEN EXECUTING ONLY SEGMENT 022, THE SPECIFICATION STATEMENTS       P0010515
C*****   WHICH APPEAR AS COMMENTS, MUST HAVE THE C= IN COL                   P0010520
C*****   1  AND  2  REMOVED                                                  P0010525
C*****                                                                       P0010530
C=      INTEGER GTVI                                                         P0010535
C*****                                                                       P0010540
        INTEGER GTVI                                                        P022A1
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.  NO INPUT TAPE.       P0220200
C*****                                                                       P0070400
C*****   WHEN EXECUTING ONLY SEGMENT 022, THE STATEMENT   NUVI = 6           P0070405
C*****   MUST HAVE THE C= IN COL 1 AND 2 REMOVED.                            P0070410
C*****                                                                       P0070415
C=      NUVI = 6                                                             P0070420
C*****                                                                       P0070425
        NUVI = 6                                                            P02281
        WRITE (NUVI,220)                                                     P0220210
220     FORMAT (1H1,1X,28HCGOTD - (022) COMPUTED GO TO//2X,                  P0220220
      120HASA REF. - 7.1.2.1.3//2X,7HRESULTS)                               P0220230
C*****        HEADER FOR SEGMENT 022 WRITTEN                                 P0220240
C*****        TEST FORWARD BRANCHING GO TO WITH ONLY ONE                     P0220250
C*****        LABEL IN BRANCH LIST                                           P0220260
        IGVI = 1                                                             P0220270
        GO TO (221), IGVI                                                    P0220280
C*****        TEST FORWARD BRANCHING GO TO WHICH BRANCHES                    P0220290
C*****        TO IMMEDIATELY FOLLOWING STATEMENT                             P0220300
222     MRRVI = 2                                                           P0220310
        WRITE (NUVI,8222) MRRVI                                             P0220320
        GO TO (223), GTVI                                                    P0220330
C*****                                                                       P0220340
C*****        TEST FORWARD BRANCHING GO TO WHERE SOME BRANCHES               P0220350
C*****        ARE IDENTICAL                                                  P0220360
223     MRRVI = 3                                                           P0220370
        WRITE (NUVI,8222) MRRVI                                             P0220380
        GTVI = 2                                                             P0220390
        GO TO (225,224,225), GTVI                                            P0220400
C*****        TEST FORWARD BRANCHING GO TO WITH SEVERAL UNIQUE               P0220410
C*****        BRANCHES IN LIST                                               P0220420
225     MRRVI = 5                                                           P0220430
        WRITE (NUVI,8222) MRRVI                                             P0220440
        KGVI = 1                                                             P0220450
        IGVI = 3                                                             P0220460
        GO TO (227,228,226,229), IGVI                                        P0220470
C*****        TEST BACKWARD BRANCHING GO TO WHERE SOME                       P0220480
C*****        BRANCHES ARE IDENTICAL                                         P0220490
224     MRRVI = 4                                                           P0220500
```

```
      WRITE (NUVI,8222) MRRVI                                    P0220510
      IGVI = 4                                                   P0220520
      GO TO (226,226,226,225), IGVI                              P0220530
C*****     TEST BACKWARD BRANCHING GO TO WITH ONLY ONE           P0220540
C*****     LABEL IN BRANCH LIST                                  P0220550
221   MRRVI = 1                                                  P0220560
      WRITE (NUVI, 8222) MRRVI                                   P0220570
      GTVI = 1                                                   P0220580
      GO TO (222), GTVI                                          P0220590
C*****     IN THE FIRST PART OF THIS TEST, ALL GO TO STATEMENTS  P0220600
C*****     WERE EXECUTED ONLY ONCE, IMMEDIATELY AFTER THE        P0220610
C*****     INTEGER VARIABLE WAS DEFINED.  ALL GO TO STATEMENTS   P0220620
C*****     WHICH FOLLOW WILL BE EXECUTED MORE THAN ONCE.         P0220630
C*****     VALUE OF IGVI IS ALWAYS 1 IN THIS PART OF THE TEST    P0220640
C*****     UNTIL THE FINAL MESSAGE IS TO BE WRITTEN              P0220650
226   MRRVI = 6                                                  P0220660
      IGVI = 1                                                   P0220670
      WRITE (NUVI,8222) MRRVI                                    P0220680
8226  GO TO (227,229,7220,7224,8220), KGVI                      P0220690
227   MRRVI = 7                                                  P0220700
      GTVI = 1                                                   P0220710
      GO TO 8221                                                 P0220720
228   MRRVI = 8                                                  P0220730
      KGVI = 2                                                   P0220740
      GO TO 8223                                                 P0220750
229   MRRVI = 9                                                  P0220760
      KGVI = 3                                                   P0220770
      GO TO 8223                                                 P0220780
7220  MRRVI = 10                                                 P0220790
      GTVI = 2                                                   P0220800
      GO TO 8221                                                 P0220810
7221  MRRVI = 11                                                 P0220820
      GTVI = 5                                                   P0220830
      GO TO 8221                                                 P0220840
7222  MRRVI = 12                                                 P0220850
      GTVI = 4                                                   P0220860
      GO TO 8221                                                 P0220870
7223  MRRVI = 13                                                 P0220880
      KGVI = 4                                                   P0220890
      GO TO 8223                                                 P0220900
7224  MRRVI = 14                                                 P0220910
      GTVI = 6                                                   P0220920
      GO TO 8221                                                 P0220930
7225  MRRVI = 15                                                 P0220940
      GTVI = 7                                                   P0220950
      GO TO 8221                                                 P0220960
7226  MRRVI = 16                                                 P0220970
      GTVI = 9                                                   P0220980
      GO TO 8221                                                 P0220990
7227  MRRVI = 17                                                 P0221000
      GTVI = 8                                                   P0221010
      GO TO 8221                                                 P0221020
7228  MRRVI = 18                                                 P0221030
      GTVI = 3                                                   P0221040
      GO TO 8221                                                 P0221050
7229  MRRVI = 19                                                 P0221060
      KGVI = 5                                                   P0221070
      GO TO 8223                                                 P0221080
8220  MRRVI = 20                                                 P0221090
      IGVI = 2                                                   P0221100
      GO TO 8223                                                 P0221110
8221  WRITE (NUVI,8222) MRRVI                                    P0221120
8222  FORMAT(/6X,I2)                                             P0221130
C*****     TEST GO TO STATEMENT WITH CONTINUATION LINE           P0221140
      GO TO (228, 7221, 7229, 7223, 7222, 7225, 7226, 7228,      P0221150
     1       7227), GTVI                                         P0221160
8223  WRITE (NUVI,8222) MRRVI                                    P0221170
      GO TO (8226,8224), IGVI                                    P0221180
```

```
8224    WRITE (NUVI,8225)                                                    P0221190
8225    FORMAT (1H0,2X,35HTHIS TEST IS SUCCESSFUL ONLY IF THE/               P0221200
        12X,37HNUMBERS LISTED ABOVE ARE SEQUENTIALLY/                        P0221210
        22X,21HIN ORDER FROM 1 TO 20)                                        P0221220
C*****       END OF TEST SEGMENT 022                                         P0221230
C*****                                                                       P0221240
C*****   WHEN EXECUTING ONLY SEGMENT 022, THE   STOP   AND   END             P0221250
C*****   CARDS, WHICH APPEAR AS COMMENTS, MUST HAVE THE   C=                 P0221260
C*****   IN COL  1  AND  2  REMOVED.                                         P0221270
C=      STOP                                                                 P0221280
C=      END                                                                  P0221290
        STOP                                                                 P022C1
        END                                                                  P022C2
C************************************************************************P0300010
C*****                                                                       P0300020
C*****                          ARBAD - (030)                               P0300030
C*****                                                                       P0300040
C************************************************************************P0300050
C*****   GENERAL PURPOSE                                          ASA REF P0300060
C*****      TEST THAT EXPRESSIONS INVOLVING THE ADDITION              6.1 P0300070
C*****      OF INTEGER OR REAL VALUES MAY BE FORMED                          P0300080
C*****   GENERAL COMMENTS                                                    P0300090
C*****      TYPES ARE NEVER MIXED.                                           P0300100
C*****      VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED                 P0300110
C*****      IN A VARIETY OF COMBINATIONS.                                    P0300120
C*****                                                                       P0300130
C*****   S P E C I F I C A T I O N S    SEGMENT 030                          P0300140
C*****                                                                       P0010550
C*****   WHEN EXECUTING ONLY SEGMENT 030, THE SPECIFICATION STATEMENTS  P0010555
C*****   WHICH APPEAR AS COMMENTS, MUST HAVE THE C= IN COL                   P0010560
C*****   1  AND  2  REMOVED                                                  P0010565
C*****                                                                       P0010570
C=      DIMENSION A1S(5),A2S(2,2),IAC1I(5),IAC2I(2,7)                        P0010575
C*****                                                                       P0010580
        DIMENSION A1S(5),A2S(2,2),IAC1I(5),IAC2I(2,7)                        P030A1
C*****   O U T P U T   T A P E  ASSIGNMENT STATEMENT.   NO INPUT TAPE.  P0300150
C*****                                                                       P0070430
C*****   WHEN EXECUTING ONLY SEGMENT 030, THE STATEMENT   NUVI = 6           P0070435
C*****   MUST HAVE THE C= IN COL 1 AND 2 REMOVED.                            P0070440
C*****                                                                       P0070445
C=      NUVI = 6                                                             P0070450
C*****                                                                       P0070455
        NUVI = 6                                                             P030B1
        WRITE (NUVI,301)                                                     P0300160
301     FORMAT (1H1,1X,28HARBAD - (030) BASIC ADDITION//2X,                 P0300170
        -14HASA REF. - 6.1//2X,7HRESULTS)                                    P0300180
C*****      HEADER FOR SEGMENT 030 WRITTEN                                   P0300190
        WRITE (NUVI,302)                                                     P0300200
302     FORMAT (//2X,16HINTEGER ADDITION)                                    P0300210
C*****      TEST 1 - ADD 2 INTEGER VARIABLES (ONE CONTAINS MINUS VALUE) P0300220
        MRRVI=1                                                             P0300230
        JACVI=2                                                             P0300240
        KBCVI = -2                                                          P0300250
        IHDVI=JACVI+KBCVI                                                    P0300260
        WRITE (NUVI,303) MRRVI, IHDVI                                        P0300270
303     FORMAT (/6H  TEST,I3,I6)                                            P0300280
C*****      TEST 2 - REVERSE VARIABLES IN TEST 1                             P0300290
        MRRVI = 2                                                           P0300300
        IGDVI=KBCVI+JACVI                                                    P0300310
        WRITE (NUVI,303) MRRVI, IGDVI                                        P0300320
C*****      TEST 3 - ADD 2 CONSTANTS                                         P0300330
        MRRVI = 3                                                           P0300340
        IAC1I(1) = 2+(-2)                                                    P0300350
        WRITE (NUVI,303) MRRVI, IAC1I(1)                                     P0300360
C*****      TEST 4 - ADD 2 ARRAY ELEMENTS (ONE CONTAINS MINUS VALUE)         P0300370
        MRRVI = 4                                                           P0300380
        IAC1I(3) = 3                                                        P0300390
        IAC2I(1,3) = - 3                                                    P0300400
```

```
      IAC2I(2,2) = IAC1I(3)+IAC2I(1,3)                                    P0300410
      WRITE (NUVI,303) MRRVI, IAC2I(2,2)                                  P0300420
C*****     TEST 5 - ADD 8 INTEGER VARIABLES                              P0300430
      MRRVI = 5                                                          P0300440
      LCCVI = -6.                                                        P0300450
      MDCVI=-2                                                           P0300460
      NECVI = +18                                                        P0300470
      IFDVI = JACVI+KBCVI+LCCVI+MDCVI+MDCVI+LCCVI+KBCVI+NECVI           P0300480
      WRITE (NUVI,303) MRRVI, IFDVI                                      P0300490
C*****     TEST 6 - ADD COMBINATION OF VARIABLES, ARRAY ELEMENTS         P0300500
C*****     AND CONSTANTS                                                 P0300510
      MRRVI = 6                                                          P0300520
      IAC2I(2,2) = -2                                                    P0300530
      IFDVI = IAC1I(3)+IAC2I(1,3)+IAC2I(2,2)+JACVI+KBCVI+LCCVI+7+1      P0300540
      WRITE (NUVI,303) MRRVI, IFDVI                                      P0300550
C*****     TEST 7 - ADD 2 REAL VARIABLES                                 P0300560
      WRITE (NUVI,304)                                                   P0300570
304   FORMAT (//15H  REAL ADDITION)                                     P0300580
      MRRVI = 7                                                          P0300590
      ACVS = -2.0                                                        P0300600
      BCVS = 2.0E0                                                       P0300610
      HHCVS = ACVS+BCVS                                                  P0300620
      WRITE (NUVI,305) MRRVI, HHCVS                                      P0300630
305   FORMAT (/6H  TEST,I3,F7.1)                                        P0300640
C*****     TEST 8 - REVERSE ORDER OF VARIABLES IN TEST 7                 P0300650
      MRRVI = 8                                                          P0300660
      GGCVS = BCVS + ACVS                                                P0300670
      WRITE (NUVI,305) MRRVI, GGCVS                                      P0300680
C*****     TEST 9 - ADD 4 REAL VARIABLES                                 P0300690
      MRRVI = 9                                                          P0300700
      FFCVS = ACVS + BCVS + ACVS + BCVS                                  P0300710
      WRITE (NUVI,305) MRRVI, FFCVS                                      P0300720
C*****     TEST 10 - ADD 2 REAL CONSTANTS                                P0300730
      MRRVI = 10                                                         P0300740
      A2S(1,2) = 3.5 + (-3.5)                                            P0300750
      WRITE (NUVI,305) MRRVI, A2S(1,2)                                   P0300760
C*****     TEST 11 - ADD REAL ARRAY ELEMENTS                             P0300770
      MRRVI = 11                                                         P0300780
      A1S(1) = -25.E-1                                                   P0300790
      ACVS  = 2.5                                                        P0300800
      A2S  (1,1) = -7.0                                                  P0300810
      FFCVS = A1S(1) + A2S(1,1) + 9.5                                    P0300820
      WRITE ( NUVI,305) MRRVI, FFCVS                                     P0300830
C*****     TEST 12 - ADD COMBINATION OF VARIABLES, ARRAY ELEMENTS        P0300840
C*****     AND CONSTANTS                                                 P0300850
      MRRVI = 12                                                         P0300860
      FFCVS = A1S(1) + ACVS + 7.0 + A2S(1,1)                             P0300870
      WRITE (NUVI,305) MRRVI, FFCVS                                      P0300880
      WRITE (NUVI,306)                                                   P0300890
306   FORMAT (//35H  ALL ABOVE ANSWERS SHOULD BE 0 FOR/                 P0300900
     1 31H  THIS SEGMENT TO BE SUCCESSFUL)                              P0300910
C*****     END OF TEST SEGMENT 030                                       P0300920
C*****                                                                   P0300930
C*****  WHEN EXECUTING ONLY SEGMENT 030, THE  STOP  AND  END             P0300940
C*****  CARDS, WHICH APPEAR AS COMMENTS, MUST HAVE THE   C=              P0300950
C*****  IN COL  1  AND  2  REMOVED.                                      P0300960
C=    STOP                                                               P0300970
C=    END                                                                P0300980
      STOP                                                               P030C1
      END                                                                P030C2
C*************************************************************************P0310010
C*****                                                                   P0310020
C*****                    ARFAD - (031)                                  P0310030
C*****                                                                   P0310040
C*************************************************************************P0310050
C*****  GENERAL PURPOSE                                        ASA REF P0310060
C*****     TEST THAT EXPRESSIONS INVOLVING THE ADDITION OF          6.1  P0310070
C*****     DOUBLE PRECISION VALUES MAY BE FORMED                         P0310080
```

```
C***** GENERAL COMMENTS                                                  P0310090
C*****    VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED IN A          P0310100
C*****    VARIETY OF COMBINATIONS                                        P0310110
C*****                                                                   P0310120
C*****  S P E C I F I C A T I O N S    SEGMENT 031                       P0310130
C*****                                                                   P0010590
C***** WHEN EXECUTING ONLY SEGMENT 031, THE SPECIFICATION STATEMENTS     P0010595
C***** WHICH APPEAR AS COMMENTS, MUST HAVE THE C= IN COL                 P0010600
C***** 1 AND 2 REMOVED                                                   P0010605
C*****                                                                   P0010610
C=    DOUBLE PRECISION ACVD,BCVD,FFCVD,GGCVD,HHCVD                       P0010615
C=    1,EP1D(43),BC2D(7,4),CC3D(7,2,2)                                   P0010620
C*****                                                                   P0010625
      DOUBLE PRECISION ACVD,BCVD,FFCVD,GGCVD,HHCVD                       P031A1
     1,EP1D(43),BC2D(7,4),CC3D(7,2,2)                                    P031A2
C***** O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      P0310140
C*****                                                                   P0070460
C***** WHEN EXECUTING ONLY SEGMENT 031, THE STATEMENT   NUVI = 6         P0070465
C***** MUST HAVE THE C= IN COL 1 AND 2 REMOVED.                         P0070470
C*****                                                                   P0070475
C=    NUVI = 6                                                           P0070480
C*****                                                                   P0070485
      NUVI = 6                                                           P031B1
      WRITE (NUVI,310)                                                   P0310150
310   FORMAT (1H1,1X,27HARFAD - (031) D.P. ADDITION//                    P0310160
     -16H  ASA REF. - 6.1//9H  RESULTS)                                  P0310170
C*****    HEADER FOR SEGMENT 031 WRITTEN                                 P0310180
      ACVD =  -.01414213562373095D2                                     P0310190
      BCVD = 14.14213562373095D-1                                       P0310200
      EP1D(20) = -4.12310562561766D0                                    P0310210
      BC2D(6,3) =    .20615528128088831D1                               P0310220
      HHCVD=ACVD+BCVD                                                    P0310230
      GGCVD=BCVD+ACVD                                                    P0310240
      EP1D(34) = .003D3 + (-300.0D-2)                                   P0310250
      FFCVD = BCVD+ACVD+ACVD+BCVD                                       P0310260
      CC3D(7,1,1)=EP1D(20)+BC2D(6,3)+206.155281280883D-2 +41.23105625617P0310270
     166D-1 + EP1D(20)                                                  P0310280
      WRITE (NUVI,312) HHCVD, GGCVD, FFCVD, EP1D(34), CC3D(7,1,1)        P0310290
312   FORMAT (//5(D22.10//)//38H  THE 5 ANSWERS ABOVE SHOULD BE 0 PLUS/  P0310300
     137H  OR MINUS AN ERROR FACTOR OF 0.1D-13)                         P0310310
C*****    END OF TEST SEGMENT 031                                        P0310320
C*****                                                                   P0310330
C***** WHEN EXECUTING ONLY SEGMENT 031, THE  STOP  AND  END              P0310340
C***** CARDS, WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=                P0310350
C***** IN COL 1 AND 2 REMOVED.                                          P0310360
C=    END                                                               P0310370
C=    STOP                                                              P0310380
      STOP                                                              P031C1
      END                                                               P031C2
C***************************************************************************P0320010
C*****                                                                   P0320020
C*****                       ARBSB - (032)                              P0320030
C*****                                                                   P0320040
C***************************************************************************P0320050
C***** GENERAL PURPOSE                                         ASA REF P0320060
C*****    TEST THAT EXPRESSIONS INVOLVING THE SUBTRACTION OF      6.1    P0320070
C*****    INTEGER OR REAL VALUES MAY BE FORMED                          P0320080
C***** GENERAL COMMENTS                                                 P0320090
C*****    TYPES ARE NEVER MIXED                                         P0320100
C*****    VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED IN A         P0320110
C*****    VARIETY OF COMBINATIONS.                                      P0320120
C***** S P E C I F I C A T I O N S    SEGMENT 032                       P0320130
C*****                                                                  P0010630
C***** WHEN EXECUTING ONLY SEGMENT 032, THE SPECIFICATION STATEMENTS    P0010635
C***** WHICH APPEAR AS COMMENTS, MUST HAVE THE C= IN COLUMNS            P0010640
C***** 1 AND 2 REMOVED                                                 P0010645
C*****                                                                  P0010650
C=    DIMENSION A1S(5),A2S(2,2),IAC1I(5),IAC2I(2,7)                     P0010655
```

```
C*****                                                                    P0010660
      DIMENSION A1S(5),A2S(2,2),IAC1I(5),IAC2I(2,7)                        P032A1
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.   NO INPUT TAPE.    P0320140
C*****                                                                    P0070490
C*****   WHEN EXECUTING ONLY SEGMENT 032, THE STATEMENT   NUVI = 6         P0070495
C*****   MUST HAVE THE C= IN COL 1 AND 2 REMOVED.                          P0070500
C*****                                                                    P0070505
C=    NUVI = 6                                                            P0070510
C*****                                                                    P0070515
      NUVI = 6                                                            P032B1
      WRITE (NUVI,320)                                                    P0320150
320   FORMAT (1H1,1X,31HARBSB - (032) BASIC SUBTRACTION//                 P0320160
     1 17H  ASA REFS. - 6.1//2X,7HRESULTS)                                P0320170
C*****     HEADER FOR SEGMENT 032 WRITTEN                                 P0320180
      MRRVI = 1                                                           P0320190
      WRITE (NUVI,321)MRRVI                                               P0320200
321   FORMAT (//2X,4HTEST,I1,1X,19HINTEGER SUBTRACTION)                   P0320210
      JACVI=3                                                             P0320220
      IAC1I(1)=3                                                          P0320230
      IHDVI=JACVI-IAC1I(1)                                                P0320240
      IGDVI=IAC1I(1)-JACVI                                                P0320250
      IFDVI=JACVI-IAC1I(1)-IAC1I(1)+JACVI                                 P0320260
      IAC2I(2,3) = 3-2-1                                                  P0320270
      IAC2I(1,1) = 6 - JACVI - IAC1I(1)                                   P0320280
      WRITE (NUVI,323) IHDVI,IGDVI, IFDVI, IAC2I(2,3), IAC2I(1,1)         P0320290
323   FORMAT (/5(I11/))                                                   P0320300
      MRRVI = 2                                                           P0320310
328   WRITE (NUVI,329)MRRVI                                               P0320320
329   FORMAT (//2X,4HTEST,I1,1X,16HREAL SUBTRACTION)                      P0320330
      ACVS=5.1E1                                                          P0320340
      BCVS=.51E2                                                          P0320350
      HHCVS=ACVS-BCVS                                                     P0320360
      GGCVS=BCVS-ACVS                                                     P0320370
      FFCVS=ACVS-BCVS+BCVS-ACVS                                           P0320380
      A2S(1,2) = 2.1E1                                                    P0320390
      A1S(1) = ACVS - A2S(1,2) - 30.0                                     P0320400
      WRITE (NUVI,324) HHCVS, GGCVS, FFCVS, A1S(1)                        P0320410
324   FORMAT (/4(F11.1/)/34H ALL ABOVE ANSWERS SHOULD BE 0 FOR/           P0320420
     1 31H  THIS SEGMENT TO BE SUCCESSFUL)                               P032A430
C*****     END OF TEST SEGMENT 032                                        P0320440
C*****                                                                    P0320450
C*****   WHEN EXECUTING ONLY SEGMENT 032, THE   STOP   AND   END          P0320460
C*****   CARDS, WHICH APPEAR AS COMMENTS, MUST HAVE THE   C=              P0320470
C*****   IN COL  1  AND  2  REMOVED.                                      P0320480
C=    STOP                                                                P0320490
C=    END                                                                 P0320500
      STOP                                                                P032C1
      END                                                                 P032C2
C************************************************************************P0330010
C*****                                                                    P0330020
C*****                         ARFSB - (033)                             P0330030
C*****                                                                    P0330040
C************************************************************************P0330050
C*****   GENERAL PURPOSE                                         ASA REF P0330060
C*****     TEST THAT EXPRESSIONS INVOLVING THE SUBTRACTION OF       6.1   P0330070
C*****     DOUBLE PRECISION VALUES MAY BE FORMED                          P0330080
C*****   GENERAL COMMENTS                                                 P0330090
C*****     VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED IN A          P0330100
C*****     VARIETY OF COMBINATIONS                                        P0330110
C*****                                                                    P0330120
C*****   S P E C I F I C A T I O N S   SEGMENT 033                        P0330130
C*****                                                                    P0010670
C*****   WHEN EXECUTING ONLY SEGMENT 033, THE SPECIFICATION STATEMENTS    P0010675
C*****   WHICH APPEAR AS COMMENTS, MUST HAVE THE C= IN COLUMNS            P0010680
C*****   1  AND  2  REMOVED                                               P0010685
C*****                                                                    P0010690
C=    DOUBLE PRECISION ACVD,BCVD,CCVD,DCVD,GGCVD,HHCVD,DPCVD,FFCVD         P0010695
C=    1,AC1D(10),A2D(2,2),A3D(2,2,2)                                      P0010700
```

```
C*****                                                             P0010705
      DOUBLE PRECISION ACVD,BCVD,CCVD,DCVD,GGCVD,HHCVD,DPCVD,FFCVD  P033A1
     1,AC1D(10),A2D(2,2),A3D(2,2,2)                                P033A2
C*****   O U T P U T   T A P E  ASSIGNMENT STATEMENT.   NO INPUT TAPE.  P0330140
C*****                                                             P0070520
C*****   WHEN EXECUTING ONLY SEGMENT 033, THE STATEMENT   NUVI = 6  P0070525
C*****   MUST HAVE THE C= IN COL 1 AND 2 REMOVED.                  P0070530
C*****                                                             P0070535
C=    NUVI = 6                                                     P0070540
C*****                                                             P0070545
      NUVI = 6                                                     P033B1
      WRITE (NUVI,330)                                             P0330150
330   FORMAT (1H1,1X,30HARFSB - (033) D.P. SUBTRACTION//           P0330160
     -16H   ASA REF. - 6.1//2X,7HRESULTS)                          P0330170
C*****     HEADER FOR SEGMENT 033 WRITTEN                          P0330180
      ACVD=1.0D2                                                   P0330190
      BCVD=.3D1                                                    P0330200
      CCVD=15.D0                                                   P0330210
      AC1D(1) = 60.D-1                                             P0330220
      A2D(1,1) = -.02D2                                            P0330230
      A3D(1,2,1) = 4000.D-3                                        P0330240
C*****    TWO TERM SUBTRACTION                                     P0330250
      HHCVD= ACVD-BCVD                                             P0330260
      HHCVD= HHCVD-97.0D0                                          P0330270
      GGCVD=1.0D0-AC1D(1)                                          P0330280
      GGCVD=GGCVD+5.0D0                                            P0330290
      DCVD = 4.0D0 - A3D(1,2,1)                                    P0330300
      WRITE (NUVI,331) HHCVD, GGCVD, DCVD                          P0330310
C*****    THREE TERM SUBTRACTION                                   P0330320
      HHCVD= ACVD-BCVD-97.0D0                                      P0330330
      GGCVD = 16.0D0 - CCVD - 1.0D0                                P0330340
      DCVD = A3D(1,2,1)-A2D(1,1) -6.0D0                            P0330350
      WRITE (NUVI,331) HHCVD, GGCVD, DCVD                          P0330360
C*****    FOUR TERM SUBTRACTION                                    P0330370
      DPCVD = 6.85565460040104D0                                  P0330380
      FFCVD = (+.342782730020052D1)                               P0330390
      GGCVD = DPCVD - FFCVD - 42.782730020052D-2 - 300D-2          P0330400
      HHCVD=ACVD-AC1D(1)-AC1D(1)-8.8D1                             P0330410
      DCVD = CCVD - A2D(1,1) - 110.D-1 - AC1D(1)                   P0330420
      WRITE (NUVI,332) HHCVD, DCVD   , GGCVD                       P0330430
331   FORMAT (//3(D22.10/))                                       P0330440
332   FORMAT (//3(D22.10/)//36H   THE ANSWERS ABOVE SHOULD BE 0 PLUS/  P0330450
     137H   OR MINUS AN ERROR FACTOR OF 0.1D-13)                  P0330460
C*****     END OF TEST SEGMENT 033                                P0330470
C*****                                                             P0330480
C*****   WHEN EXECUTING ONLY SEGMENT 033, THE   STOP   AND   END   P0330490
C*****   CARDS, WHICH APPEAR AS COMMENTS, MUST HAVE THE   C=       P0330500
C*****   IN COL  1  AND  2  REMOVED.                              P0330510
C=    STOP                                                        P0330520
C=    END                                                        P0330530
      STOP                                                        P033C1
      END                                                        P033C2
C*************************************************************************P0340010
C*****                                                             P0340020
C*****                          ARBAS - (034)                      P0340030
C*****                                                             P0340040
C*************************************************************************P0340050
C*****   GENERAL PURPOSE                                  ASA REF P0340060
C*****     TEST THAT EXPRESSIONS INVOLVING THE ADDITION AND       6.1  P0340070
C*****     SUBTRACTION (COMBINED) OF INTEGER OR REAL VALUES MAY BE P0340080
C*****     FORMED.                                                P0340090
C*****   GENERAL COMMENTS                                         P0340100
C*****     TYPES ARE NEVER MIXED.                                 P0340110
C*****     VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED IN    P0340120
C*****     A VARIETY OF COMBINATIONS.                             P0340130
C*****                                                             P0340140
C*****   S P E C I F I C A T I O N S   SEGMENT 034                P0340150
C*****                                                             P0010710
```

```
C*****   WHEN EXECUTING ONLY SEGMENT 034, THE SPECIFICATION STATEMENTS    P0010715
C*****   WHICH APPEAR AS COMMENTS, MUST HAVE THE C= IN COLUMNS            P0010720
C*****   1  AND  2  REMOVED                                              P0010725
C*****                                                                    P0010730
C=      DIMENSION A2S(2,2),A3S(3,3,3)                                     P0010735
C=    1,IAC1I(5),IAC2I(2,7),AC1S(25)                                      P0010740
C=      INTEGER MCA3I(2,3,3)                                              P0010745
C*****                                                                    P0010750
        DIMENSION A2S(2,2),A3S(3,3,3)                                     P034A1
      1,IAC1I(5),IAC2I(2,7),AC1S(25)                                      P034A2
        INTEGER MCA3I(2,3,3)                                              P034A3
C*****  O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      P0340160
C*****                                                                    P0070550
C*****   WHEN EXECUTING ONLY SEGMENT 034, THE STATEMENT   NUVI = 6        P0070555
C*****   MUST HAVE THE C= IN COL 1 AND 2 REMOVED.                         P0070560
C*****                                                                    P0070565
C=      NUVI = 6                                                          P0070570
C*****                                                                    P0070575
        NUVI = 6                                                          P034B1
        WRITE (NUVI,340)                                                  P0340170
340     FORMAT (1H1,1X,32HARBAS - (034) BASIC ADDITION AND/14X,          P0340180
      113H  SUBTRACTION//16H   ASA REF. - 6.4//                          P0340190
      22X,7HRESULTS)                                                     P0340200
C*****     HEADER FOR SEGMENT 034 WRITTEN                                 P0340210
        WRITE (NUVI,341)                                                  P0340220
341     FORMAT   (//2X,26HTEST1 INTEGER ADD AND SUBT)                    P0340230
        JACVI = 5                                                        P0340240
        KBCVI = 1                                                        P0340250
        LCCVI = 10                                                       P0340260
        MDCVI = -2                                                       P0340270
        IAC1I(2) = 3                                                     P0340280
        IAC2I(2,2) = -3                                                  P0340290
        IHDVI = JACVI+KBCVI-LCCVI+MDCVI-IAC1I(2)+9                       P0340300
        IGDVI = (JACVI+KBCVI) - (MDCVI-IAC1I(2)) - 11                    P0340310
        IFDVI =(6 + (KBCVI - (LCCVI+MDCVI))) + 1                         P0340320
        MCA3I(1,1,1) = IAC2I(2,2) - JACVI - MDCVI - KBCVI + 7 + 0        P0340330
        WRITE (NUVI,342) IHDVI,IGDVI, IFDVI, MCA3I(1,1,1)               P0340340
342     FORMAT (/4(I11/))                                                P0340350
C*****     HEADER FOR TEST2                                              P0340360
        WRITE (NUVI,344)                                                 P0340370
344     FORMAT   (/2X,24HTEST2 REAL ADD AND SUBTR)                      P0340380
        ACVS = 5.0                                                      P0340390
        BCVS = 1.0                                                      P0340400
        CCVS = 10.0                                                     P0340410
        DCVS = -.2E+1                                                   P0340420
        AC1S(1) = 30.E-1                                                P0340430
        A2S  (2,1) = 6.0                                                P0340440
        HHDVS= ACVS + BCVS - CCVS + DCVS +9.0-AC1S(1)                   P0340450
        GGDVS= (ACVS + 1.0) -11.0  - ( DCVS-AC1S(1))                    P0340460
        FFDVS= (6.0 + (BCVS-(CCVS+DCVS))) + 1.0                         P0340470
        A3S(1,1,2) = A2S(2,1) - CCVS + 8.0 - 4.0                        P0340480
        WRITE (NUVI,343) HHDVS, GGDVS, FFDVS, A3S(1,1,2)               P0340490
343     FORMAT (//4(F11.1/)/35H  ALL ABOVE ANSWERS SHOULD BE 0 FOR/     P0340500
      1 31H  THIS SEGMENT TO BE SUCCESSFUL)                            P0340510
C*****     END OF TEST SEGMENT 034                                       P0340520
C*****                                                                    P0340530
C*****   WHEN EXECUTING ONLY SEGMENT 034, THE  STOP  AND  END            P0340540
C*****   CARDS WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=           P0340550
C*****   IN COLUMNS  1  AND  2  REMOVED.                                 P0340560
C=      STOP                                                             P0340570
C=      END                                                             P0340580
        STOP                                                            P034C1
        END                                                            P034C2
C**********************************************************************P0350010
C*****                                                                    P0350020
C*****                        ARFAS - (035)                             P0350030
C*****                                                                    P0350040
C**********************************************************************P0350050
```

```
C*****    GENERAL PURPOSE                                          ASA REF  P0350060
C*****       TEST THAT EXPRESSIONS INVOLVING THE ADDITION AND         6.1   P0350070
C*****       SUBTRACTION (COMBINED) OF DOUBLE PRECISION VALUES              P0350080
C*****       MAY BE FORMED                                                  P0350090
C*****    GENERAL COMMENTS                                                  P0350100
C*****       VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED IN A          P0350110
C*****       VARIETY OF COMBINATIONS                                        P0350120
C*****                                                                      P0350130
C*****    S P E C I F I C A T I O N S   SEGMENT 035                         P0350140
C*****                                                                      P0010760
C*****    WHEN EXECUTING ONLY SEGMENT 035, THE SPECIFICATION STATEMENTS     P0010765
C*****    WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                    P0010770
C*****    IN COLUMNS  1  AND  2  REMOVED.                                   P0010775
C*****                                                                      P0010780
C=      DOUBLE PRECISION ACVD,BCVD,CCVD,DCVD,FFDVD,GGDVD,HHDVD              P0010785
C=     1,AC1D(10),BC2D(7,4),CC3D(7,2,2)                                     P0010790
        DOUBLE PRECISION ACVD,BCVD,CCVD,DCVD,FFDVD,GGDVD,HHDVD             P035A1
       1,AC1D(10),BC2D(7,4),CC3D(7,2,2)                                    P035A2
C*****                                                                      P0010795
C*****    O U T P U T   T A P E   ASSIGNMENT STATEMENT.  NO INPUT TAPE.     P0350150
C*****    WHEN EXECUTING ONLY SEGMENT 035, THE FOLLOWING STATEMENT          P0070580
C*****    NUVI = 6   MUST HAVE THE C=   IN COLUMNS 1 AND 2 REMOVED.         P0070585
C*****                                                                      P0070590
C=      NUVI = 6                                                            P0070595
        NUVI = 6                                                           P035B1
        WRITE (NUVI,350)                                                    P0350160
350     FORMAT (1H1,1X,32HARFAS - (035) D.P. ADD AND SUBTR//2X,            P0350170
       -14HASA REF. - 6.1//2X,7HRESULTS)                                   P0350180
C*****       HEADER FOR SEGMENT 035 WRITTEN                                 P0350190
        ACVD = 5.0D0                                                       P0350200
        BCVD = 10.0D-1                                                     P0350210
        CCVD = 10.0D0                                                      P0350220
        DCVD = -0.2D1                                                      P0350230
        AC1D(1)= 300.0D-2                                                  P0350240
        BC2D(6,3) = 400.D-2                                                P0350250
        AC1D(2) = .24816326424816D5                                       P0350260
        BC2D(5,3) = -.12408163212408D5                                    P0350270
        HHDVD = ACVD + BCVD - CCVD + DCVD + 9.0D0 - AC1D(1)               P0350280
        GGDVD = (ACVD + 1.0E0) - 11.0E0 -(DCVD - AC1D(1))                 P0350290
        FFDVD = (6.0D0+(BCVD-(CCVD+DCVD))) + 10.0D-1                      P0350300
        CC3D(6,1,1) = CCVD-DCVD+BC2D(6,3)-ACVD-11.0D0                     P0350310
        CC3D(5,1,2) = AC1D(2) + BC2D(5,3) - 12408.163212408D0            P0350320
        WRITE (NUVI,351) HHDVD, GGDVD, FFDVD, CC3D(6,1,1), CC3D(5,1,2)     P0350330
351     FORMAT (//5(D22.10/)//35H   THE ANSWERS ABOVE SHOULD BE 0 FOR/     P0350340
       1 32H   THIS SEGMENT TO BE SUCCESSFUL./36H   VALUES WITH EXPONENTS LEP0350350
       2SS THAN   /31H   10**(-14) ARE CONSIDERED ZERO)                    P0350360
C*****       END OF TEST SEGMENT 035                                       P0350370
C*****                                                                      P0350380
C*****    WHEN EXECUTING ONLY SEGMENT 035, THE  STOP  AND  END             P0350390
C*****    CARDS, WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=               P0350400
C*****    IN COL  1  AND  2  REMOVED.                                      P0350410
C=      STOP                                                               P0350420
C=      END                                                                P0350430
        STOP                                                              P035C1
        END                                                               P035C2
C**********************************************************************P0360010
C*****                                                                      P0360020
C*****                          ARBMI - (036)                              P0360030
C*****                                                                      P0360040
C**********************************************************************P0360050
C*****    GENERAL PURPOSE                                          ASA REF  P0360060
C*****       TEST THAT EXPRESSIONS INVOLVING MULTIPLICATION OF       6.1    P0360070
C*****       INTEGER VALUES MAY BE FORMED.                                  P0360080
C*****    GENERAL COMMENTS                                                  P0360090
C*****       INTEGER SUBTRACTION ASSUMED WORKING                            P0360100
C*****     * VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED               P0360110
C*****       IN A VARIETY OF COMBINATIONS.                                  P0360120
C*****                                                                      P0360130
```

```
C*****    S P E C I F I C A T I O N S  SEGMENT 036                          P0360140
C*****                                                                      P0010800
C*****    WHEN EXECUTING ONLY SEGMENT 036, THE SPECIFICATION STATEMENTS     P0010805
C*****    WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=  IN COLUMNS           P0010810
C*****    1  AND  2  REMOVED.                                               P0010815
C*****                                                                      P0010820
C=       DIMENSION IAC1I(5), IAC2I(2,7)                                     P0010825
         DIMENSION IAC1I(5), IAC2I(2,7)                                     P036A1
C*****                                                                      P0010830
C*****    O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.       P0360150
C*****                                                                      P0070600
C*****    WHEN EXECUTING ONLY SEGMENT 036, THE FOLLOWING STATEMENT          P0070605
C*****    NUVI = 6  MUST HAVE THE  C=  IN COLUMNS 1 AND 2 REMOVED.          P0070610
C*****         .                                                           P0070615
C=       NUVI = 6                                                          P0070620
         NUVI = 6                                                          P036B1
C*****                                                                      P0070625
         WRITE (NUVI,360)                                                   P0360160
360      FORMAT (1H1, 1X,36HARBMI - (036) INTEGER MULTIPLICATION//          P0360170
        116H  ASA REF. - 6.1//2X,7HRESULTS)                               P0360180
C*****    HEADER FOR SEGMENT 036 WRITTEN                                   P0360190
         JACVI=1                                                          P0360200
         KBCVI=2                                                          P0360210
         LCCVI=0                                                          P0360220
         MDCVI=-5                                                         P0360230
         IAC1I(2) = -10                                                   P0360240
         IAC2I(1,2) = 3                                                   P0360250
         IHDVI=JACVI*KBCVI                                                P0360260
         IGDVI=KBCVI*MDCVI*LCCVI                                          P0360270
         IFDVI = MDCVI*JACVI*IAC1I(2)*3                                   P0360280
         IEDVI=-3*JACVI*(-MDCVI)*JACVI*KBCVI                              P0360290
         IDDVI=KBCVI*KBCVI*KBCVI*KBCVI*KBCVI*JACVI                        P0360300
         ICDVI = (-IAC1I(2))*JACVI*KBCVI*JACVI*KBCVI*JACVI*1              P0360310
         IAC2I(1,1)=IAC2I(1,2)*MDCVI*IAC1I(2)*2                           P0360320
         IHDVI = IHDVI - 2                                                P0360330
         IFDVI = IFDVI - 150                                              P0360340
         IEDVI = IEDVI + 30                                               P0360350
         IDDVI = IDDVI - 32                                               P0360360
         ICDVI = ICDVI - 40                                               P0360370
         IAC2I(1,1) = IAC2I(1,1) - 300                                    P0360380
         WRITE (NUVI,361) IHDVI, IGDVI, IFDVI, IEDVI, IDDVI, ICDVI,       P0360390
        1                IAC2I(1,1)                                       P0360400
361      FORMAT (//7(I10/)//35H  ALL ABOVE ANSWERS SHOULD BE 0 FOR/        P0360410
        1  31H  THIS SEGMENT TO BE SUCCESSFUL)                           P0360420
C*****    END OF TEST SEGMENT 036                                         P0360430
C*****                                                                      P0360440
C*****    WHEN EXECUTING ONLY SEGMENT 036, THE  STOP  AND  END             P0360450
C*****    CARDS, WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=               P0360460
C*****    IN COL  1  AND  2  REMOVED.                                      P0360470
C=       STOP                                                             P0360480
C=       END                                                              P0360490
         STOP                                                             P036C1
         END                                                             P036C2
C*************************************************************************P0370010
C*****                                                                      P0370020
C*****                        ARBMR - (037)                                P0370030
C*****                                                                      P0370040
C*************************************************************************P0370050
C*****    GENERAL PURPOSE                                         ASA REF  P0370060
C*****    TEST THAT EXPRESSIONS INVOLVING MULTIPLICATION OF         6.1    P0370070
C*****    REAL VALUES MAY BE FORMED                                       P0370080
C*****    GENERAL COMMENTS                                                P0370090
C*****    REAL SUBTRACTION ASSUMED WORKING                               P0370100
C*****    * VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED IN A          P0370110
C*****    VARIETY OF COMBINATIONS.                                        P0370120
C*****                                                                      P0370130
C*****    S P E C I F I C A T I O N S  SEGMENT 037                         P0370140
C*****                                                                      P0010840
```

```
C*****    WHEN EXECUTING ONLY SEGMENT 037, THE SPECIFICATION STATEMENTS    P0010845
C*****    WHICH APPEAR AS COMMENTS, MUST HAVE THE    C=    IN COLUMNS        P0010850
C*****    1   AND   2   REMOVED.                                            P0010855
C*****                                                                      P0010860
C=      DIMENSION A2S(2,2),AC1S(25)                                         P0010865
        DIMENSION A2S(2,2),AC1S(25)                                         P037A1
C*****                                                                      P0010870
C*****    O U T P U T  T A P E  ASSIGNMENT STATEMENT.   NO INPUT TAPE.      P0370150
C*****                                                                      P0070630
C*****    WHEN EXECUTING ONLY SEGMENT 037, THE FOLLOWING STATEMENT          P0070635
C*****    NUVI = 6   MUST HAVE THE   C=   IN COLUMNS 1 AND 2 REMOVED.       P0070640
C*****                                                                      P0070645
C=      NUVI = 6                                                            P0070650
        NUVI = 6                                                            P037B1
C*****                                                                      P0070655
        WRITE (NUVI,370)                                                    P0370160
370     FORMAT (1H1,1X,33HARBMR - (037) REAL MULTIPLICATION//2X,           P0370170
        114HASA REF. - 6.1//2X,7HRESULTS)                                   P0370180
C*****       HEADER FOR SEGMENT 037 WRITTEN                                 P0370190
        ACVS = 1.0                                                         P0370200
        BCVS = 0.2E2                                                       P0370210
        CCVS = -1.0                                                        P0370220
        DCVS = 0.0                                                         P0370230
        AC1S(1) = .5E+1                                                    P0370240
        HHDVS=ACVS*BCVS                                                    P0370250
        GGDVS=BCVS*BCVS*1.0                                                P0370260
        FFDVS=2.0*AC1S(1)*ACVS*ACVS                                        P0370270
        EEDVS=ACVS*BCVS*CCVS*DCVS*AC1S(1)                                  P0370280
        DDDVS=AC1S(1)*ACVS*BCVS*1.0E1*ACVS*ACVS                            P0370290
        CCDVS=CCVS*CCVS*CCVS*3.E0*ACVS*ACVS*ACVS                           P0370300
        A2S(1,1) = ACVS*CCVS*2.                                            P0370310
        HHDVS = HHDVS - 20.0                                               P0370320
        GGDVS = GGDVS - 400.0                                              P0370330
        FFDVS = FFDVS - 10.0                                               P0370340
        DDDVS = DDDVS - 1000.0                                             P0370350
        CCDVS = CCDVS + 3.0                                                P0370360
        A2S(1,1) = A2S(1,1) + 2.                                           P0370370
        WRITE (NUVI,371) HHDVS, GGDVS, FFDVS, EEDVS, DDDVS, CCDVS,         P0370380
        1              A2S(1,1)                                            P0370390
371     FORMAT (//7(F11.1/)//35H  ALL ABOVE ANSWERS SHOULD BE 0 FOR/       P0370400
        1 31H  THIS SEGMENT TO BE SUCCESSFUL)                              P0370410
C*****      END OF TEST SEGMENT 037                                        P0370420
C*****    WHEN EXECUTING ONLY SEGMENT 037, THE STOP AND END CARDS          P0370430
C*****    WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=   IN COLUMNS     P0370440
C*****    1   AND   2   REMOVED.                                           P0370450
C=      STOP                                                               P0370460
C=      END                                                                P0370470
        STOP                                                               P037C1
        END                                                               P037C2
C*************************************************************************P0380010
C*****                                                                      P0380020
C*****                        ARFMD - (038)                                P0380030
C*****                                                                      P0380040
C*************************************************************************P0380050
C*****    GENERAL PURPOSE                                        ASA REF P0380060
C*****       TEST THAT EXPRESSIONS INVOLVING THE MULTIPLICATION      6.1  P0380070
C*****       OF DOUBLE PRECISION VALUES MAY BE FORMED                      P0380080
C*****    GENERAL COMMENTS                                                 P0380090
C*****    * DP ADDITION AND SUBTRACTION ASSUMED WORKING.                   P0380100
C*****    * VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED IN A          P0380110
C*****       VARIETY OF COMBINATIONS.                                      P0380120
C*****                                                                      P0380130
C*****    S P E C I F I C A T I O N S   SEGMENT 038                        P0380140
C*****                                                                      P0010880
C*****    WHEN EXECUTING ONLY SEGMENT 038, THE SPECIFICATION STATEMENTS    P0010885
C*****    WHICH APPEAR AS COMMENTS, MUST HAVE THE   C=   IN COLUMNS        P0010890
C*****    1   AND   2   REMOVED.                                           P0010895
C*****                                                                      P0010900
```

```
C=      DOUBLE PRECISION ACVD,BCVD,CCVD,DCVD,EEDVD,DDDVD,CCDVD          P0010905
C=     1,FFDVD, GGDVD,HHDVD,AC1D(10),BC2D(7,4),  CC3D(7,2,2)            P0010910
        DOUBLE PRECISION ACVD,BCVD,CCVD,DCVD,EEDVD,DDDVD,CCDVD          P038A1
       1,FFDVD, GGDVD,HHDVD,AC1D(10),BC2D(7,4),  CC3D(7,2,2)            P038A2
C*****                                                                  P0010915
C*****   O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.   P0380150
C*****                                                                  P0070660
C*****  WHEN EXECUTING ONLY SEGMENT 038, THE FOLLOWING STATEMENT        P0070665
C*****   NUVI = 6  MUST HAVE THE   C=   IN COLUMNS 1 AND 2 REMOVED.     P0070670
C*****                                                                  P0070675
C=      NUVI = 6                                                        P0070680
        NUVI = 6                                                        P038B1
C*****                                                                  P0070685
        WRITE (NUVI,380)                                               P0380160
380     FORMAT (1H1,1X,33HARFMD - (038) D.P. MULTIPLICATION//  2X,     P0380170
       -15H ASA REF. - 6.1//2X,7HRESULTS)                             P0380180
C*****    HEADER FOR SEGMENT 038 WRITTEN                               P0380190
        ACVD=1.0D0                                                     P0380200
        BCVD=2.0                                                       P0380210
        CCVD=-30.0D-1                                                  P0380220
        DCVD=1.0D1                                                     P0380230
        AC1D(1) = 1.1D1                                                P0380240
        CC3D(3,1,2) = .262144D6                                        P0380250
        CC3D(6,1,2) = -2000.D-3                                        P0380260
        CC3D(3,2,2) = 409.6D1                                          P0380270
        HHDVD=ACVD*BCVD                                                P0380280
        GGDVD=ACVD*0.0D0*CCVD                                          P0380290
        FFDVD = AC1D(1)*ACVD*ACVD*ACVD                                 P0380300
        EEDVD=CCVD*CCVD*ACVD*1.0D0*BCVD                                P0380310
        DDDVD=ACVD*2.0D1*ACVD*DCVD*1.0E0*CCVD                          P0380320
        CCDVD=ACVD*BCVD*CCVD*CCVD*CCVD*BCVD*ACVD                       P0380330
        BC2D(3,4) = DCVD*(400.D-2)*CC3D(6,1,2)                         P0380340
        BC2D(2,3) = CC3D(3,1,2) * CC3D(3,2,2)                          P0380350
        HHDVD = HHDVD - 2.0D0                                          P0380360
        FFDVD = FFDVD - 11.0D0                                         P0380370
        EEDVD = EEDVD - 18.0D0                                         P0380380
        DDDVD = DDDVD + 600.0D0                                        P0380390
        CCDVD = CCDVD + 108.0D0                                        P0380400
        BC2D(3,4) = BC2D(3,4) -(-80.D0)                                P0380410
        BC2D(2,3) = BC2D(2,3) - 1.073741824D9                          P0380420
        WRITE (NUVI,381) HHDVD, GGDVD, FFDVD, EEDVD, DDDVD, CCDVD,     P0380430
       1               BC2D(3,4) , BC2D(2,3)                           P0380440
381     FORMAT (//8(D22.10/)//35H  THE ANSWERS ABOVE SHOULD BE 0 FOR/   P0380450
       1 31H  THIS SEGMENT TO BE SUCCESSFUL)                          P0380460
C*****    END OF TEST SEGMENT 038                                      P0380470
C*****  WHEN EXECUTING ONLY SEGMENT 038, THE STOP AND END CARDS        P0380480
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=   IN COLUMNS   P0380490
C*****  1  AND  2  REMOVED.                                            P0380500
C=      STOP                                                           P0380510
C=      END                                                            P0380520
        STOP                                                           P038C1
        END                                                           P038C2
C************************************************************************P0390010
C*****                                                                  P0390020
C*****                          ARBDV - (039)                          P0390030
C*****                                                                  P0390040
C************************************************************************P0390050
C*****                                                                  P0390060
C*****  GENERAL PURPOSE                                       ASA REF  P0390070
C*****    TEST BASIC DIVISION,                                 6.1     P0390080
C*****    INTEGER AND REAL (SP) TYPES ONLY                             P0390090
C*****                                                                  P0390100
C*****  S P E C I F I C A T I O N S  SEGMENT 039                       P0390110
C*****                                                                  P0010920
C*****  WHEN EXECUTING ONLY SEGMENT 039, THE SPECIFICATION STATEMENTS   P0010925
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE   C=   IN COLUMNS       P0010930
C*****  1  AND  2  REMOVED.                                            P0010935
C*****                                                                  P0010940
```

```
C=      DIMENSION A2S(2,2),IAC1I(5),IAC2I(2,7),AC1S(25)                  P0010945
        DIMENSION A2S(2,2),IAC1I(5),IAC2I(2,7),AC1S(25)                  P039A1
C*****                                                                   P0010950
C*****     O U T P U T   T A P E   ASSIGNMENT STATEMENT.   NO INPUT TAPE. P0390120
C*****                                                                   P0070690
C*****     WHEN EXECUTING ONLY SEGMENT 039, THE FOLLOWING STATEMENT      P0070695
C*****     NUVI = 6   MUST HAVE THE   C=   IN COLUMNS 1 AND 2 REMOVED.   P0070700
C*****                                                                   P0070705
C=      NUVI = 6                                                         P0070710
        NUVI = 6                                                         P039B1
C*****                                                                   P0070715
        WRITE (NUVI,390)                                                 P0390130
390     FORMAT (1H1,1X,30HARBDV - (039) INTEGER AND REAL/15X,            P0390140
       -9H DIVISION//2X,14HASA REF. - 6.1/ /2X,7HRESULTS)               P0390150
C*****     HEADER FOR SEGMENT 039 WRITTEN                                P0390160
        WRITE (NUVI,391)                                                 P0390170
391     FORMAT   (//2X,22HTEST1 INTEGER DIVISION)                       P0390180
        JACVI=1                                                          P0390190
        KBCVI=2                                                          P0390200
        LCCVI=0                                                          P0390210
        MDCVI=10                                                         P0390220
        IAC1I(2) = 1                                                     P0390230
        IAC2I(1,4) = -8                                                  P0390240
        IHDVI=KBCVI/JACVI                                                P0390250
        IGDVI=MDCVI/KBCVI/JACVI                                          P0390260
        IFDVI=LCCVI/JACVI/JACVI/1                                        P0390270
        IEDVI = MDCVI/KBCVI/IAC1I(2)/IAC1I(2)/JACVI                      P0390280
        IAC2I(1,2)=IAC2I(1,4)/4/KBCVI                                    P0390290
        IHDVI = IHDVI - 2                                                P0390300
        IGDVI = IGDVI - 5                                                P0390310
        IEDVI = IEDVI - 5                                                P0390320
        IAC2I(1,2) = IAC2I(1,2) + 1                                      P0390330
        WRITE (NUVI,392) IHDVI, IGDVI, IFDVI, IEDVI, IAC2I(1,2)          P0390340
392     FORMAT (//5(I10/))                                              P0390350
        WRITE (NUVI, 393)                                                P0390360
393     FORMAT   (//2X,19HTEST2 REAL DIVISION)                          P0390370
        ACVS=1.0                                                         P0390380
        BCVS=0.0                                                         P0390390
        CCVS=1.0E1                                                       P0390400
        DCVS=20.0E-1                                                     P0390410
        AC1S(1)=100.0E-2                                                 P0390420
        A2S(1,1) = -200.E-2                                              P0390430
        HHDVS= ACVS/ACVS                                                 P0390440
        GGDVS = CCVS/ACVS/(-ACVS)                                        P0390450
        FFDVS= BCVS/CCVS/DCVS/ACVS                                       P0390460
        EEDVS= CCVS/AC1S(1)/DCVS/(-1.0)/ACVS                            P0390470
        A2S(1,2) = A2S(1,1)/AC1S(1)/ACVS/(-2.0E0)                        P0390480
        HHDVS = HHDVS - 1.0                                              P0390490
        GGDVS = GGDVS + 10.0                                             P0390500
        EEDVS = EEDVS + 5.0                                              P0390510
        A2S(1,2) = A2S(1,2) - 1.                                         P0390520
        WRITE (NUVI,394) HHDVS , GGDVS, FFDVS, EEDVS, A2S(1,2)           P0390530
394     FORMAT (//5(F11.1/)//35H  ALL ABOVE ANSWERS SHOULD BE 0 FOR/    P0390540
       12X,29HTHIS SEGMENT TO BE SUCCESSFUL)                            P0390550
C*****     END OF TEST SEGMENT 039                                       P0390560
C*****     WHEN EXECUTING ONLY SEGMENT 039, THE STOP AND END CARDS       P0390570
C*****     WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=   IN COLUMNS  P0390580
C*****     1   AND   2   REMOVED.                                        P0390590
C=      STOP                                                             P0390600
C=      END                                                              P0390610
        STOP                                                             P039C1
        END                                                             P039C2
C************************************************************************P0400010
C*****                                                                   P0400020
C*****                        ARFDV - (040)                             P0400030
C*****                                                                   P0400040
C************************************************************************P0400050
C*****  GENERAL PURPOSE                                          ASA REFP0400060
```

```
C*****      TEST THAT EXPRESSIONS INVOLVING DIVISION OF DOUBLE       6.1     P0400070
C*****      PRECISION VALUES MAY BE FORMED                                   P0400080
C*****   GENERAL COMMENTS                                                    P0400090
C*****   * DP SUBTRACTION ASSUMED WORKING.                                   P0400100
C*****   * VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED IN A             P0400110
C*****      VARIETY OF COMBINATIONS.                                         P0400120
C*****                                                                       P0400130
C*****   S P E C I F I C A T I O N S   SEGMENT 040                           P0400140
C*****                                                                       P0010960
C*****   WHEN EXECUTING ONLY SEGMENT 040, THE SPECIFICATION STATEMENTS       P0010965
C*****   WHICH APPEAR AS COMMENTS, MUST HAVE THE   C=   IN COLUMNS           P0010970
C*****   1  AND  2  REMOVED.                                                 P0010975
C*****                                                                       P0010980
C=     DOUBLE PRECISION ACVD,BCVD,CCVD,DCVD,EEDVD,FFDVD,GGDVD,HHDVD          P0010985
C=    1,AC1D(10),BC2D(7,4),CC3D(7,2,2)                                       P0010990
       DOUBLE PRECISION ACVD,BCVD,CCVD,DCVD,EEDVD,FFDVD,GGDVD,HHDVD          P040A1
      1,AC1D(10),BC2D(7,4),CC3D(7,2,2)                                       P040A2
C*****                                                                       P0010995
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.   NO INPUT TAPE.      P0400150
C*****                                                                       P0070720
C*****   WHEN EXECUTING ONLY SEGMENT 040, THE FOLLOWING STATEMENT            P0070725
C*****   NUVI = 6   MUST HAVE THE   C=   IN COLUMNS 1 AND 2 REMOVED.         P0070730
C*****                                                                       P0070735
C=     NUVI = 6                                                              P0070740
       NUVI = 6                                                             P040B1
C*****                                                                       P0070745
       WRITE (NUVI,400)                                                      P0400160
  400 FORMAT (1H1,1X,27HARFDV - (040) D.P. DIVISION//                        P0400170
     -16H  ASA REF. - 6.1//2X,7HRESULTS)                                     P0400180
C*****      HEADER FOR SEGMENT 040 WRITTEN                                   P0400190
       ACVD = 1.0D0                                                          P0400200
       BCVD = 20.0D-1                                                        P0400210
       CCVD = .1D2                                                           P0400220
       DCVD = -10.0                                                          P0400230
       AC1D(1)= 0.0                                                          P0400240
       CC3D(1,2,2) = -.004D3                                                 P0400250
       CC3D(1,1,2) = .244140625D-3                                           P0400260
       HHDVD = BCVD/ACVD                                                     P0400270
       CC3D(3,1,2) = .125D0                                                  P0400280
       GGDVD  = DCVD/DCVD/ACVD                                               P0400290
       FFDVD  = AC1D(1)/BCVD/ACVD/1.D0/1.D0                                  P0400300
       EEDVD = DCVD/BCVD/(-5.0E0)/ACVD/ACVD                                  P0400310
       BC2D(4,4) = CC3D(1,2,2)/BCVD/DCVD/.002D2                              P0400320
       BC2D(4,3) = CC3D(1,1,2) / CC3D(3,1,2)                                 P0400330
       HHDVD = HHDVD - 2.0D0                                                 P0400340
       GGDVD = GGDVD - 1.0D0                                                 P0400350
       EEDVD = EEDVD - 1.0D0                                                 P0400360
       BC2D(4,4) = BC2D(4,4) - 1.0D0                                         P0400370
       BC2D(4,3) = BC2D(4,3) - 195.3125D-5                                   P0400380
       WRITE (NUVI,401) HHDVD,GGDVD,FFDVD,EEDVD,BC2D(4,4) , BC2D(4,3)        P0400390
401    FORMAT (//6(D22.10/)//35H  THE ANSWERS ABOVE SHOULD BE 0 FOR/        P0400400
      1 31H  THIS SEGMENT TO BE SUCCESSFUL)                                  P0400410
C*****      END OF TEST SEGMENT 040                                          P0400420
C*****   WHEN EXECUTING ONLY SEGMENT 040, THE STOP AND END CARDS             P0400430
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=   IN COLUMNS       P0400440
C*****   1  AND  2  REMOVED.                                                 P0400450
C=     STOP                                                                  P0400460
C=     END                                                                   P0400470
       STOP                                                                  P040C1
       END                                                                   P040C2
C************************************************************************P0410010
C*****                                                                       P0410020
C*****                          ARBEX - (041)                               P0410030
C*****                                                                       P0410040
C************************************************************************P0410050
C*****                                                                       P0410060
C*****   GENERAL PURPOSE                                          ASA REF P0410070
C*****      TEST THAT EXPRESSIONS INVOLVING INTEGER AND REAL        6.1     P0410080
```

```
C*****      EXPONENTIATION MAY BE FORMED                                    P0410090
C*****   GENERAL COMMENTS                                                   P0410100
C*****      THE FOLLOWING TESTS ARE MADE -                                  P0410110
C*****      INTEGER BY INTEGER GIVING INTEGER                        6.1    P0410120
C*****      REAL (SP) BY INTEGER GIVING REAL (SP)                           P0410130
C*****      REAL (SP) BY REAL (SP) GIVING REAL (SP)                         P0410140
C*****   RESTRICTIONS OBSERVED                                              P0410150
C*****                                                                      P0410160
C*****    S P E C I F I C A T I O N S   SEGMENT 041                         P0410170
C*****                                                                      P0011000
C*****   WHEN EXECUTING ONLY SEGMENT 041, THE SPECIFICATION STATEMENTS      P0011005
C*****   WHICH APPEAR AS COMMENTS, MUST HAVE THE   C=   IN COLUMNS          P0011010
C*****   1  AND  2  REMOVED.                                                P0011015
C*****                                                                      P0011020
C=      DIMENSION A2S(2,2),IAC1I(5),IAC2I(2,7),AC1S(25)                     P0011025
        DIMENSION A2S(2,2),IAC1I(5),IAC2I(2,7),AC1S(25)                     P041A1
C*****                                                                      P0011030
C*****    O U T P U T   T A P E   ASSIGNMENT STATEMENT.   NO INPUT TAPE.    P0410180
C*****                                                                      P0070750
C*****   WHEN EXECUTING ONLY SEGMENT 041, THE FOLLOWING STATEMENT           P0070755
C*****   NUVI = 6  MUST HAVE THE   C=   IN COLUMNS 1 AND 2 REMOVED.         P0070760
C*****                                                                      P0070765
C=      NUVI = 6                                                            P0070770
        NUVI = 6                                                            P041B1
C*****                                                                      P0070775
        WRITE (NUVI,410)                                                    P0410190
410     FORMAT (1H1,1X,34HARBEX - (041) BASIC EXPONENTIATION//             P0410200
      -  2X,15HASA REFS. - 6.1//2X, 7HRESULTS)                             P0410210
C*****      HEADER FOR SEGMENT 041 WRITTEN                                  P0410220
        WRITE (NUVI,411)                                                    P0410230
411     FORMAT   (//2X,18HINTEGER BY INTEGER)                              P0410240
        JACVI=1                                                            P0410250
        KBCVI=0                                                            P0410260
        LCCVI=2                                                            P0410270
        MDCVI=-1                                                           P0410280
        IAC1I(2) = 3                                                       P0410290
        IAC2I(1,4) = 3                                                     P0410300
        IHDVI = LCCVI**IAC1I(2)                                            P0410310
        IGDVI=KBCVI**JACVI                                                 P0410320
        IFDVI=JACVI**KBCVI                                                 P0410330
        IEDVI = MDCVI**IAC1I(2)                                            P0410340
        IDDVI=(LCCVI**LCCVI)**(JACVI**MDCVI)                               P0410350
        IAC2I(1,2) = (LCCVI**IAC2I(1,4))**JACVI                            P0410360
        IHDVI = IHDVI - 8                                                  P0410370
        IFDVI = IFDVI - 1                                                  P0410380
        IEDVI = IEDVI + 1                                                  P0410390
        IDDVI = IDDVI- 4                                                   P0410400
        IAC2I(1,2) = IAC2I(1,2) - 8                                        P0410410
        WRITE (NUVI, 412) IHDVI, IGDVI, IFDVI, IEDVI, IAC2I(1,2)           P0410420
412     FORMAT (//6(I10/))                                                 P0410430
        WRITE (NUVI, 413)                                                  P0410440
413     FORMAT   (//2X,25HREAL BY INT, REAL BY REAL)                       P0410450
        ACVS=1.0                                                           P0410460
        BCVS=0.0                                                           P0410470
        CCVS=0.5E0                                                         P0410480
        DCVS = 20.0E-1                                                     P0410490
        AC1S(1)=1.21E0                                                     P0410500
        A2S(1,1) = 300.E-2                                                 P0410510
        HHDVS=ACVS**JACVI                                                  P0410520
        GGDVS=BCVS**JACVI                                                  P0410530
        FFDVS=DCVS**IAC1I(2)                                               P0410540
        EEDVS=ACVS**ACVS                                                   P0410550
        DDDVS=AC1S(1)**CCVS                                                P0410560
        CCDVS=(DCVS**1)**(2.0**ACVS)                                       P0410570
        A2S(2,1) = (A2S(1,1)**DCVS)**BCVS                                  P0410580
        HHDVS = HHDVS - 1.0                                                P0410590
        FFDVS = FFDVS - 8.0                                                P0410600
        EEDVS = EEDVS - 1.0                                                P0410610
```

```
          DDDVS = DDDVS - 1.1                                       P0410620
          CCDVS = CCDVS - 4.0                                       P0410630
          A2S(2,1) = A2S(2,1) - 1.0                                 P0410640
          WRITE (NUVI,414) HHDVS, GGDVS, FFDVS, EEDVS, DDDVS, CCDVS,A2S(2,1)P0410650
414       FORMAT (//7(F11.1/)//35H   ALL ABOVE ANSWERS SHOULD BE 0 FOR/  P0410660
      12X, 29HTHIS SEGMENT TO BE SUCCESSFUL)                        P0410670
C*****    END OF TEST SEGMENT 041                                   P0410680
C*****  WHEN EXECUTING ONLY SEGMENT 041, THE STOP AND END CARDS     P0410690
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=   IN COLUMNS P0410700
C*****  1  AND  2  REMOVED.                                         P0410710
C=      STOP                                                        P0410720
C=      END                                                         P0410730
        STOP                                                        P041C1
        END                                                         P041C2
C********************************************************************P0420010
C*****                                                              P0420020
C*****                          ARFEX - (042)                       P0420030
C*****                                                              P0420040
C********************************************************************P0420050
C*****    GENERAL PURPOSE                                    ASA REFP0420060
C*****      TEST EXPONENTIATION OF DOUBLE PRECISION ITEMS        6.1 P0420070
C*****      THE FOLLOWING TYPES OF DP EXPONENTIATION ARE TESTED -   P0420080
C*****        DP BY REAL GIVING DP                                  P0420090
C*****        REAL BY DP GIVING DP                                  P0420100
C*****        DP BY DP GIVING DP                                    P0420110
C*****    GENERAL COMMENTS                                          P0420120
C*****    * DP ADDITION AND SUBTRACTION ASSUMED WORKING.            P0420130
C*****    * VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED IN A   P0420140
C*****      VARIETY OF COMBINATIONS.                                P0420150
C*****    RESTRICTION OBSERVED                                      P0420160
C*****      NEGATIVE VALUED ITEMS ARE NEVER RAISED TO A REAL OR  6.4/12P0420170
C*****      DP EXPONENT                                             P0420180
C*****                                                              P0420190
C*****    S P E C I F I C A T I O N S   SEGMENT 042                 P0420200
C*****                                                              P0011040
C*****  WHEN EXECUTING ONLY SEGMENT 042, THE SPECIFICATION STATEMENTS P0011045
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE   C=   IN COLUMNS    P0011050
C*****  1  AND  2  REMOVED.                                         P0011055
C*****                                                              P0011060
C=      DOUBLE PRECISION ACVD,BCVD,CCVD,EEDVD,FFDVD,GGDVD,HHDVD      P0011065
C=      DOUBLE PRECISION AC1D(10),BC2D(7,4),CC3D(7,2,2)             P0011070
        DOUBLE PRECISION ACVD,BCVD,CCVD,EEDVD,FFDVD,GGDVD,HHDVD      P042A1
        DOUBLE PRECISION AC1D(10),BC2D(7,4),CC3D(7,2,2)             P042A2
C*****                                                              P0011075
C*****  O U T P U T   T A P E   ASSIGNMENT STATEMENT.  NO INPUT TAPE. P0420210
C*****                                                              P0070780
C*****  WHEN EXECUTING ONLY SEGMENT 042, THE FOLLOWING STATEMENT    P0070785
C*****  NUVI = 6  MUST HAVE THE   C=   IN COLUMNS 1 AND 2 REMOVED.  P0070790
C*****                                                              P0070795
C=      NUVI = 6                                                    P0070800
        NUVI = 6                                                    P042B1
C*****                                                              P0070805
        WRITE (NUVI,420)                                            P0420220
420     FORMAT (1H1,1X,28HARFEX - (042) EXPONENTIATION//            P0420230
      -16H   ASA REF. - 6.1//2X,7HRESULTS)                          P0420240
C*****    HEADER FOR SEGMENT 042 WRITTEN                            P0420250
C*****    DEFINE VARIABLES AND ARRAY ELEMENTS                       P0420260
        ACVS=1.0                                                    P0420270
        BCVS=0.0                                                    P0420280
        CCVS=0.5                                                    P0420290
        DCVS=20.0E-1                                                P0420300
        ACVD = 1.0D0                                                P0420310
        BCVD = 80.0D-1                                              P0420320
        CCVD = 0.0                                                  P0420330
        AC1D(1) = 1.0                                               P0420340
        BC2D(2,4) =  3000.D-3                                       P0420350
        HHDVD = ACVD**BCVS                                          P0420360
        GGDVD = ACVS**ACVD                                          P0420370
```

```
          FFDVD = AC1D(1)**BCVD                                           P0420380
          EEDVD = (DCVS**ACVD)** (2.0D0**ACVS)                            P0420390
          CC3D(5,1,2) = BC2D(2,4)**(DCVS**BCVS)                           P0420400
          HHDVD = HHDVD - 1.0D0                                           P0420410
          GGDVD = GGDVD - 1.0D0                                           P0420420
          FFDVD = FFDVD - 1.0D0                                           P0420430
          EEDVD = EEDVD - 4.0D0                                           P0420440
          CC3D(5,1,2) = CC3D(5,1,2) - 3.0D0                               P0420450
          WRITE (NUVI,421) HHDVD, GGDVD, FFDVD, EEDVD, CC3D(5,1,2)        P0420460
421       FORMAT (//5(D22.10/)//35H  THE ANSWERS ABOVE SHOULD BE 0 FOR/   P0420470
     1 32H  THIS SEGMENT TO BE SUCCESSFUL./36H  VALUES WITH EXPONENTS LEP0420480
     2SS THAN    /31H  10**(-14) ARE CONSIDERED ZERO)                    P0420490
C*****     END OF TEST SEGMENT 042                                        P0420500
C*****  WHEN EXECUTING ONLY SEGMENT 042, THE STOP AND END CARDS           P0420510
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=   IN COLUMNS      P0420520
C*****  1  AND  2  REMOVED.                                               P0420530
C=    STOP                                                                P0420540
C=    END                                                                 P0420550
      STOP                                                                P042C1
      END                                                                 P042C2
C*****************************************************************************P0430010
C*****                                                                    P0430020
C*****                          ARBHI - (043)                             P0430030
C*****                                                                    P0430040
C*****************************************************************************P0430050
C*****  GENERAL PURPOSE                                          ASA REF P0430060
C*****     TESTS THAT HIERARCHY OF OPERATORS AND PARENTHESES       6.1/07P0430070
C*****     ARE HANDLED CORRECTLY. OPERATORS SHOULD FOLLOW                 P0430080
C*****       THIS ORDER - **            (EXPONENTIATION)           6.4/41P0430090
C*****                    * AND /     (MULTIPLICATION,DIVISION)           P0430100
C*****                    + AND -     (ADDITION,SUBTRACTION)              P0430110
C*****  GENERAL COMMENTS                                                  P0430120
C*****  * ONLY INTEGER EXPRESSIONS ARE USED SINCE THIS TEST IS            P0430130
C*****    CONCENTRATING ON OPERATORS AND PARENTHESES                      P0430140
C*****  * ADDITION, SUBTRACTION, MULTIPLICATION, DIVISION,        6.4/49P0430150
C*****    EXPONENTIATION ASSUMED TO FOLLOW LAWS OF                        P0430160
C*****    ASSOCIATION AND COMMUTATION UNLESS PARENTHESES                  P0430170
C*****    REGROUP EXPRESSIONS                                             P0430180
C*****  * INTEGER DIVISION MUST BE EVALUATED FROM LEFT TO         6.4/56P0430190
C*****    RIGHT                                                           P0430200
C*****  RESTRICTIONS OBSERVED                                             P0430210
C*****  * ALL ELEMENTS EVALUATED ARE MATHEMATICALLY DEFINED       6.4/16P0430220
C*****  * NO NEGATIVE VALUES ARE RAISED TO A REAL                 6.4/12P0430230
C*****    EXPONENT                                                        P0430240
C*****  * NO ZERO VALUED PRIMARY IS RAISED TO A ZERO              6.4/14P0430250
C*****    VALUED EXPONENT                                                 P0430260
C*****                                                                    P0430270
C*****  S P E C I F I C A T I O N S  SEGMENT 043                          P0430280
C*****                                                                    P0011080
C*****  WHEN EXECUTING ONLY SEGMENT 043, THE SPECIFICATION STATEMENTS     P0011085
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE   C=   IN COLUMNS          P0011090
C*****  1  AND  2  REMOVED.                                               P0011095
C*****                                                                    P0011100
C=    DIMENSION IAC1I(5),IAC2I(2,7)                                       P0011105
      DIMENSION IAC1I(5),IAC2I(2,7)                                       P043A1
C*****                                                                    P0011110
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.        P0430290
C*****                                                                    P0070810
C*****  WHEN EXECUTING ONLY SEGMENT 043, THE FOLLOWING STATEMENT          P0070815
C*****  NUVI = 6  MUST HAVE THE   C=   IN COLUMNS 1 AND 2 REMOVED.         P0070820
C*****                                                                    P0070825
C=    NUVI = 6                                                            P0070830
      NUVI = 6                                                            P043B1
C*****                                                                    P0070835
      WRITE  (NUVI,430)                                                   P0430300
430   FORMAT (1H1,1X,36HARBHI - (043) HIERARCHY, PARENTHESES//2X,         P0430310
     1 23HASA REFS. - 6.1 AND 6.4//                                       P0430320
     2 2X, 7HRESULTS)                                                     P0430330
```

```
      JACVI = 1                                                       P0430340
      KBCVI = 2                                                       P0430350
      LCCVI = -5                                                      P0430360
      MDCVI = 0                                                       P0430370
      NECVI = 36                                                      P0430380
      IAC1I(2) = 10                                                   P0430390
C*****    TEST THAT ADDITION IS COMMUTATIVE (TEST 1)                  P0430400
      MRRVI = 1                                                       P0430410
      IHDVI = JACVI + KBCVI                                           P0430420
      IGDVI = KBCVI + JACVI                                           P0430430
      IFDVI = IHDVI - IGDVI                                           P0430440
      WRITE (NUVI,431) MRRVI, IFDVI                                   P0430450
C*****    TEST THAT MULTIPLICATION IS COMMUTATIVE (TEST 2)            P0430460
      MRRVI = 2                                                       P0430470
      IHDVI = JACVI * KBCVI                                           P0430480
      IGDVI = KBCVI * JACVI                                           P0430490
      IFDVI = IHDVI - IGDVI                                           P0430500
      WRITE (NUVI,431) MRRVI, IFDVI                                   P0430510
C*****    TEST THAT SUBTRACTION IS COMMUTATIVE (TEST 3)               P0430520
      MRRVI = 3                                                       P0430530
      IHDVI = KBCVI - JACVI                                           P0430540
      IGDVI = -JACVI + KBCVI                                          P0430550
      IFDVI = IHDVI - IGDVI                                           P0430560
      WRITE (NUVI,431) MRRVI, IFDVI                                   P0430570
C*****    TEST THAT ADDITION IS ASSOCIATIVE (TEST 4)                  P0430580
      MRRVI = 4                                                       P0430590
      IHDVI = (IAC1I(2) + JACVI) + KBCVI                              P0430600
      IGDVI = IAC1I(2) + (JACVI + KBCVI)                              P0430610
      IFDVI = IHDVI - IGDVI                                           P0430620
      WRITE (NUVI,431) MRRVI, IFDVI                                   P0430630
C*****    TEST THAT MULTIPLICATION IS ASSOCIATIVE (TEST 5)            P0430640
      MRRVI = 5                                                       P0430650
      IHDVI = (IAC1I(2) * LCCVI) * KBCVI                              P0430660
      IGDVI = IAC1I(2) * (LCCVI * KBCVI)                              P0430670
      IFDVI = IHDVI - IGDVI                                           P0430680
      WRITE (NUVI,431) MRRVI, IFDVI                                   P0430690
C*****    TEST THAT MULTIPLICATION IS DONE BEFORE ADDITION            P0430700
C*****     OR SUBTRACTION (TEST 6). ANSWER SHOULD BE ZERO             P0430710
      MRRVI = 6                                                       P0430720
      IHDVI = JACVI + KBCVI * LCCVI - 1 + IAC1I(2)                    P0430730
      WRITE (NUVI,431) MRRVI, IHDVI                                   P0430740
C*****    REGROUP TEST 6 EXPRESSION (SLIGHTLY CHANGED) WITH           P0430750
C*****     PARENTHESES.  ANSWERS SHOULD BE NON-ZERO (TEST7).          P0430760
      MRRVI = 7                                                       P0430770
      IGDVI = (JACVI + KBCVI) * LCCVI + 9                             P0430780
      IFDVI = JACVI + KBCVI * (LCCVI + 9)                             P0430790
      IEDVI = (JACVI + KBCVI) * (LCCVI + 9)                           P0430800
      IAC1I(1) = IGDVI + 6                                            P0430810
      IAC1I(3) = IFDVI - 9                                            P0430820
      IAC1I(4) = IEDVI - 12                                           P0430830
      WRITE (NUVI,432) MRRVI, IAC1I(1), IAC1I(3), IAC1I(4)            P0430840
C*****    TEST THAT DIVISION IS DONE BEFORE ADDITION                  P0430850
C*****     AND SUBTRACTION (TEST 8). ANSWER SHOULD BE ZERO.           P0430860
      MRRVI = 8                                                       P0430870
      LCCVI = - 6                                                     P0430880
      IAC1I(2) = 12                                                   P0430890
      IHDVI = LCCVI + IAC1I(2) / KBCVI - LCCVI - 6                    P0430900
      WRITE (NUVI,431) MRRVI, IHDVI                                   P0430910
C*****    REGROUP TEST 8 EXPRESSION WITH PARENTHESES (TEST 9). SECOND P0430920
C*****     ANSWER SHOULD BE ZERO, OTHERS NON-ZERO.                    P0430930
      MRRVI = 9                                                       P0430940
      IGDVI = (LCCVI + IAC1I(2)) / KBCVI - LCCVI - 6                  P0430950
      IFDVI = LCCVI + IAC1I(2) / (KBCVI - LCCVI - 6)                  P0430960
      IEDVI = (LCCVI + IAC1I(2)) / (KBCVI - LCCVI - 6)                P0430970
      IAC1I(1) = IGDVI - 3                                            P0430980
      IAC1I(4) = IEDVI - 3                                            P0430990
      WRITE (NUVI,432) MRRVI, IAC1I(1), IAC1I(3), IAC1I(4)            P0431000
C*****    TEST THAT EXPONENTIATION IS DONE BEFORE                     P0431010
```

```
C*****     ANY OTHER OPERATION (TEST 10). ANSWERS SHOULD              P0431020
C*****       BE ZERO.                                                 P0431030
      MRRVI = 10                                                      P0431040
      IHDVI = KBCVI + 3 ** 2 - 11                                     P0431050
      IGDVI = IAC1I(2) * KBCVI ** 3 - 96                              P0431060
      IFDVI = NECVI / LCCVI ** KBCVI - 1                              P0431070
      WRITE (NUVI,432) MRRVI, IHDVI, IGDVI, IFDVI                     P0431080
C*****     REGROUP TEST 10 EXPRESSIONS WITH PARENTHESES (TEST 11)     P0431090
C*****       ANSWERS SHOULD BE NON-ZERO                               P0431100
      MRRVI = 11                                                      P0431110
      IHDVI = (KBCVI + 3) ** 2 - 11                                   P0431120
      IGDVI = (IAC1I(2) * KBCVI) ** 3 - 80                            P0431130
      IFDVI = (NECVI / LCCVI) ** KBCVI - 1                            P0431140
      IAC1I(1) = IHDVI - 14                                           P0431150
      IAC1I(3) = IGDVI - 13744                                        P0431160
      IAC1I(4) = IFDVI - 35                                           P0431170
      WRITE (NUVI,432) MRRVI, IAC1I(1), IAC1I(3), IAC1I(4)            P0431180
C*****     THE FOLLOWING STATEMENTS INCLUDE AN ADDITIONAL TEST        P0431190
C*****       OF OPERATOR HIERARCHY. A VARIETY OF OPERATORS IS USED    P0431200
C*****       BOTH VARIABLES AND ARRAY ELEMENTS ARE USED.  ALL         P0431210
C*****       ANSWERS SHOULD BE ZERO (TEST 12).                        P0431220
      MRRVI = 12                                                      P0431230
      LCCVI = -5                                                      P0431240
      IAC1I(2) = 10                                                   P0431250
      IEDVI = JACVI+KBCVI*LCCVI-IAC1I(2)/2-IAC1I(2)/2/5+15            P0431260
      IDDVI = KBCVI**3*4 + 162/(3**(KBCVI*2)) + MDCVI-34              P0431270
      IHDVI = KBCVI*(JACVI+KBCVI*(IAC1I(2)-KBCVI)) - 34               P0431280
      IGDVI = IAC1I(2)/KBCVI+70/(LCCVI*(KBCVI**2+3))-3                P0431290
      IFDVI = KBCVI*(KBCVI+IAC1I(2)*(KBCVI+3*(JACVI+KBCVI)))-224      P0431300
      IAC1I(1) = KBCVI*(KBCVI+KBCVI*(KBCVI+KBCVI*(KBCVI+KBCVI*        P0431310
     -(KBCVI+KBCVI)))) - 92                                           P0431320
      IAC2I(1,4) = IAC1I(2)+LCCVI+JACVI+KBCVI+KBCVI-JACVI-9           P0431330
      IAC2I(1,2) = IAC1I(2)/(LCCVI+JACVI+KBCVI)*(KBCVI**              P0431340
     1(KBCVI-JACVI))+10                                               P0431350
      WRITE (NUVI,433) MRRVI, IEDVI, IDDVI, IHDVI, IGDVI, IFDVI,      P0431360
     1             IAC1I(1),IAC2I(1,4),IAC2I(1,2)                     P0431370
C*****   EVALUATION MAY PROCEED ACCORDING TO ANY VALID FORMATION SEQUENCEP0431380
C*****   EVALUATION OF INTEGER TERM CONTAINING DIVISION               P0431390
      MRRVI = 13                                                      P0431400
      NECVI = 7                                                       P0431410
      KBCVI = 2                                                       P0431420
      LCCVI = 4                                                       P0431430
      IGDVI = NECVI/KBCVI * LCCVI                                     P0431440
      IFDVI = LCCVI * NECVI / KBCVI                                   P0431450
      IAC1I(1) = IGDVI - 12                                           P0431460
      IAC1I(2) = IFDVI - 14                                           P0431470
      WRITE (NUVI,434) MRRVI,IAC1I(1), IAC1I(2)                       P0431480
C*****     FORMAT STATEMENTS FOR THIS SEGMENT                         P0431490
  431 FORMAT ( /2X,4HTEST, I4, I6)                                    P0431500
  432 FORMAT(/2X, 4HTEST, I4, I6/ I16/ I16)                           P0431510
  433 FORMAT(/2X, 4HTEST,I4,I6/6(I16/),I16)                           P0431520
  434 FORMAT(/2X,4HTEST,I4,I6/I16/2X,35H  THE ANSWERS ABOVE SHOULD BE 0 P0431530
     1FOR/31H  THIS SEGMENT TO BE SUCCESSFUL)                         P0431540
C*****     END OF TEST SEGMENT 043                                    P0431550
C*****   WHEN EXECUTING ONLY SEGMENT 043, THE STOP AND END CARDS      P0431560
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=  IN COLUMNS  P0431570
C*****   1   AND  2   REMOVED.                                        P0431580
C=    STOP                                                            P0431590
C=    END                                                             P0431600
      STOP                                                            P043C1
      END                                                             P043C2
C**********************************************************************P0500010
C*****                                                                P0500020
C*****                         SBB67 - (050)                          P0500030
C*****                                                                P0500040
C**********************************************************************P0500050
C*****   GENERAL PURPOSE                                     ASA REFP0500060
C*****       TEST FORMATION OF SUBSCRIPTS FOR INTEGER        5.1.3.3P0500070
```

```
C******       AND SINGLE PRECISION ARRAYS   IN FORM V,K FORMS              P0500080
C*****                                                                     P0500090
C*****   S P E C I F I C A T I O N S   SEGMENT 050                         P0500100
C*****                                                                     P0011120
C*****   WHEN EXECUTING ONLY SEGMENT 050, THE SPECIFICATION STATEMENTS     P0011125
C*****   WHICH APPEAR AS COMMENTS, MUST HAVE THE   C=   IN COLUMNS         P0011130
C*****   1  AND  2  REMOVED.                                               P0011135
C*****                                                                     P0011140
C=      DIMENSION A3S(3,3,3)                                               P0011145
C=      DIMENSION IAC1I(5),IAC2I(2,7),AC1S(25),AC2S(5,6)                   P0011150
C=      INTEGER MCA3I(2,3,3)                                               P0011155
        DIMENSION A3S(3,3,3)                                               P050A1
        DIMENSION IAC1I(5),IAC2I(2,7),AC1S(25),AC2S(5,6)                   P050A2
        INTEGER MCA3I(2,3,3)                                               P050A3
C*****                                                                     P0011160
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.  NO INPUT TAPE.     P0500110
C*****                                                                     P0070840
C*****   WHEN EXECUTING ONLY SEGMENT 050, THE FOLLOWING STATEMENT          P0070845
C*****   NUVI = 6   MUST HAVE THE   C=   IN COLUMNS 1 AND 2 REMOVED.       P0070850
C*****                                                                     P0070855
C=      NUVI = 6                                                           P0070860
        NUVI = 6                                                           P050B1
C*****                                                                     P0070865
        WRITE (NUVI,501)                                                   P0500120
501     FORMAT (1H1,1X,36HSBB67 - (050) SUBSCRIPTS FOR INTEGER/            P0500130
       -16X,21HAND REAL ARRAYS, V, K//2X,14HASA REF. 5.1.3//2X,           P0500140
       -7HRESULTS)                                                        P0500150
        IAC1I(5) = 3                                                      P0500160
        IAC2I(1,3)=4                                                      P0500170
        MCA3I(2,2,1) = -7                                                 P0500180
        AC1S(20)=1.0                                                      P0500190
        AC2S(4,1)=-2.1E1                                                  P0500200
        A3S(1,2,2) = -22.0                                               P0500210
        JACVI = IAC1I(5) + IAC2I(1,3) + MCA3I(2,2,1)                      P0500220
        HHCVS = AC1S(20) - AC2S( 4,1) + A3S(1,2,2)                       P0500230
        WRITE (NUVI, 502) JACVI, HHCVS                                    P0500240
502     FORMAT (// I9//F11.1)                                             P0500250
504     JACVI=1                                                          P0500260
        ACVS=1.0                                                         P0500270
        IAC1I(JACVI)=10                                                  P0500280
        IAC2I(JACVI,3)=12                                                P0500290
        IAC2I(2,JACVI)=-6                                                P0500300
        MCA3I(JACVI,JACVI,3) = -1                                        P0500310
        MCA3I(2,JACVI,JACVI) = -1                                        P0500320
        MCA3I(JACVI,3,JACVI) = -2                                        P0500330
        AC1S(JACVI)=ACVS                                                 P0500340
        AC2S(JACVI,2)=3.0                                                P0500350'
        AC2S(5,JACVI)=60.0E-1                                            P0500360
        A3S(JACVI,JACVI,3) = +1.0                                       P0500370
        A3S(2,JACVI,JACVI) = +1.0                                       P0500380
        A3S(JACVI,3,JACVI) = +0.0                                       P0500390
        NECVI = IAC1I(1) - IAC2I(1,3) - IAC2I(2,1) + MCA3I(1,1,3) +      P0500400
       1        MCA3I(2,1,1) + MCA3I(1,3,1)                              P0500410
        MDCVI = IAC1I(JACVI) - IAC2I(JACVI,3) - IAC2I(2,JACVI) +         P0500420
       1        MCA3I(JACVI,JACVI,3) + MCA3I(2,JACVI,JACVI) +            P0500430
       2        MCA3I(JACVI,3,JACVI)                                     P0500440
        HHCVS = AC1S(1) + AC2S(1,2) - AC2S(5,1) + A3S(1,1,3) + A3S(2,1,1) P0500450
       1        + A3S(1,3,1)                                             P0500460
        GGDVS = AC1S(JACVI) + AC2S(JACVI,2) - AC2S(5,JACVI) +            P0500470
       1        A3S(JACVI,JACVI,3) + A3S(2,JACVI,JACVI) +                P0500480
       2        A3S(JACVI,3,JACVI)                                       P0500490
        WRITE (NUVI,508) NECVI, MDCVI, HHCVS, GGDVS                      P0500500
508     FORMAT (// 2(I9/) / 2(F11.1/) / 35H  THE ANSWERS ABOVE SHOULD BE 0P0500510
       1 FOR/31H  THIS SEGMENT TO BE SUCCESSFUL)                         P0500520
C*****     END OF TEST SEGMENT 050                                        P0500530
C*****   WHEN EXECUTING ONLY SEGMENT 050, THE STOP AND END CARDS          P0500540
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=   IN COLUMNS     P0500550
C*****   1  AND  2  REMOVED.                                              P0500560
```

```
C=      STOP                                                               P0500570
C=      END                                                               P0500580
        STOP                                                               P050C1
        END                                                               P050C2
C*******************************************************************************P0510010
C*****                                                                     P0510020
C*****                         SBB45 - (051)                               P0510030
C*****                                                                     P0510040
C*******************************************************************************P0510050
C*****   GENERAL PURPOSE                                        ASA REFP0510060
C*****      TEST FORMATION OF SUBSCRIPTS FOR INTEGER             5.1.3.3P0510070
C*****      AND SINGLE PRECISION ARRAYS IN FORM V+K AND V-K               P0510080
C*****                                                                     P0510090
C*****    S P E C I F I C A T I O N S   SEGMENT 051                        P0510100
C*****                                                                     P0011170
C*****   WHEN EXECUTING ONLY SEGMENT 051, THE SPECIFICATION STATEMENTS     P0011175
C*****   WHICH APPEAR AS COMMENTS, MUST HAVE THE   C=   IN COLUMNS         P0011180
C*****   1   AND   2   REMOVED.                                            P0011185
C*****                                                                     P0011190
C=      DIMENSION IAC1I(5),IAC2I(2,7),AC1S(25),AC2S(5,6),A3S(3,3,3)        P0011195
C=      INTEGER MCA3I(2,3,3)                                               P0011200
        DIMENSION IAC1I(5),IAC2I(2,7),AC1S(25),AC2S(5,6),A3S(3,3,3)        P051A1
        INTEGER MCA3I(2,3,3)                                               P051A2
C*****                                                                     P0011205
C*****    O U T P U T   T A P E   ASSIGNMENT STATEMENT.   NO INPUT TAPE.   P0510110
C*****                                                                     P0070870
C*****   WHEN EXECUTING ONLY SEGMENT 051, THE FOLLOWING STATEMENT          P0070875
C*****   NUVI = 6   MUST HAVE THE   C=   IN COLUMNS 1 AND 2 REMOVED.       P0070880
C*****                                                                     P0070885
C=      NUVI = 6                                                           P0070890
        NUVI = 6                                                           P051B1
C*****                                                                     P0070895
        WRITE (NUVI,511)                                                   P0510120
511     FORMAT (1H1,1X,36HSBB45 - (051) SUBSCRIPTS FOR INTEGER/            P0510130
       -16X,24HAND REAL ARRAYS,V+K, V-K//2X,16HASA REF. 5.1.3.3//2X,       P0510140
       -7HRESULTS)                                                         P0510150
        JACVI=4                                                            P0510160
        IAC1I(JACVI+1)=1                                                   P0510170
        IAC1I(JACVI-1)=2                                                   P0510180
        IAC2I(JACVI-2,1)=3                                                 P0510190
        IAC2I(JACVI-2,2)=4                                                 P0510200
        IAC2I(2,JACVI+  3 )=5                                              P0510210
        IAC2I(1,JACVI-0)=-3                                                P0510220
        AC1S(JACVI+1)=1.0                                                  P0510230
        AC1S(JACVI-1)=2.0                                                  P0510240
        AC2S(JACVI+0,1)=3.0                                                P0510250
        AC2S(JACVI-2,2)=4.0                                                P0510260
        AC2S(2,JACVI+  2 )=5.0                                             P0510270
        AC2S(1,JACVI-0) = -3.0E0                                           P0510280
        NECVI=IAC1I(5)+IAC1I(3)+IAC2I(2,1)+IAC2I(2,2)                      P0510290
       -+IAC2I(2,7)+IAC2I(1,4)-12                                          P0510300
        KBCVI = IAC1I(JACVI+1) + IAC1I(JACVI-1) + IAC2I(JACVI-2,1) +       P0510310
       1        IAC2I(JACVI-2,2) + IAC2I(1,JACVI-0) + IAC2I(2,JACVI+3) -12P0510320
        HHCVS = AC1S(5) + AC1S(3) + AC2S(4,1) + AC2S(2,2) + AC2S(2,6) +    P0510330
       1        AC2S(1,4) - 12.0                                          P0510340
        GGDVS = AC1S(JACVI+1) + AC1S(JACVI-1) + AC2S(JACVI+0,1) +          P0510350
       1        AC2S(JACVI-2,2) + AC2S(2,JACVI+2) + AC2S(1,JACVI-0) - 12.0P0510360
        JACVI = 2                                                          P0510370
        MCA3I(JACVI,JACVI+1,1)   =   12                                    P0510380
        MCA3I(1,JACVI+1,3) = -4                                            P0510390
        MCA3I(1,2,JACVI+0) = +2                                            P0510400
        MCA3I(JACVI-1,1,JACVI-1) = -6                                      P0510410
        MCA3I(JACVI,JACVI-0,2) = 15                                        P0510420
        MCA3I(2,JACVI-1,JACVI-1) = -11                                     P0510430
        MCA3I(JACVI-0,JACVI+1,JACVI+0) = -8                                P0510440
        MCA3I(JACVI,JACVI+1,JACVI+1) = MCA3I(JACVI,JACVI+1,1) +            P0510450
       1        MCA3I(1,JACVI+1,3) + MCA3I(1,2,JACVI+0) +                  P0510460
       2        MCA3I(JACVI-1,1,JACVI-1) + MCA3I(JACVI,JACVI-0,2) +        P0510470
```

```
      3         MCA3I(2,JACVI-1,JACVI-1) + MCA3I(JACVI-0,JACVI+1,JACVI+0)  P0510480
      A3S(JACVI+1,1,1) = 12.0                                            P0510490
      A3S(1,JACVI+1,3) = -4.0                                            P0510500
      A3S(1,2,JACVI+0) = +2.0                                            P0510510
      A3S(JACVI-1,1,JACVI-1) = -6.0                                      P0510520
      A3S(JACVI+1,JACVI-0,2) = 15.0                                      P0510530
      A3S(2,JACVI-1,JACVI-1) = -11.0                                     P0510540
      A3S(JACVI-0,JACVI+1,JACVI+0) = -8.0                                P0510550
      A3S(JACVI+1,JACVI+1,JACVI+1) = A3S(JACVI+1,1,1) +                  P0510560
      1         A3S(1,JACVI+1,3) + A3S(1,2,JACVI+0) +                    P0510570
      2         A3S(JACVI-1,1,JACVI-1) + A3S(JACVI+1,JACVI-0,2) +        P0510580
      3         A3S(2,JACVI-1,JACVI-1) + A3S(JACVI-0,JACVI+1,JACVI+0)    P0510590
      WRITE (NUVI,515) NECVI,KBCVI,MCA3I(2,3,3),HHCVS,GGDVS,A3S(3,3,3)   P0510600
515   FORMAT (//3(I9/)/3(F11.1/)/35H   THE ANSWERS ABOVE SHOULD BE 0 FOR/P0510610
      1 31H   THIS SEGMENT TO BE SUCCESSFUL)                            P0510620
C*****      END OF TEST SEGMENT 051                                     P0510630
C*****   WHEN EXECUTING ONLY SEGMENT 051, THE STOP AND END CARDS        P0510640
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=   IN COLUMNS   P0510650
C*****   1   AND   2   REMOVED.                                         P0510660
C=       STOP                                                           P0510670
C=       END                                                            P0510680
         STOP                                                           P051C1
         END                                                            P051C2
C********************************************************************P0520010
C*****                                                                  P0520020
C*****                      SBB13 - (052)                               P0520030
C*****                                                                  P0520040
C********************************************************************P0520050
C*****   GENERAL PURPOSE                                  ASA REFSP0520060
C*****      TEST FORMATION OF SUBSCRIPTS FOR INTEGER        5.1.3.3P0520070
C*****      AND SINGLE PRECISION ARRAYS                                 P0520080
C*****      FORM C*V, C*V-K, C*V+K                                      P0520090
C*****                                                                  P0520100
C*****   S P E C I F I C A T I O N S  SEGMENT 052                       P0520110
C*****                                                                  P0011210
C*****   WHEN EXECUTING ONLY SEGMENT 052, THE SPECIFICATION STATEMENTS  P0011215
C*****   WHICH APPEAR AS COMMENTS, MUST HAVE THE   C=   IN COLUMNS       P0011220
C*****   1   AND   2   REMOVED.                                         P0011225
C*****                                                                  P0011230
C=       DIMENSION IAC1I(5),IAC2I(2,7),AC1S(25),A3S(3,3,3),AC2S(5,6)    P0011235
C=       INTEGER MCA3I(2,3,3)                                           P0011240
         DIMENSION IAC1I(5),IAC2I(2,7),AC1S(25),A3S(3,3,3),AC2S(5,6)    P052A1
         INTEGER MCA3I(2,3,3)                                           P052A2
C*****                                                                  P0011245
C*****   O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.    P0520120
C*****                                                                  P0070900
C*****   WHEN EXECUTING ONLY SEGMENT 052, THE FOLLOWING STATEMENT       P0070905
C*****   NUVI = 6  MUST HAVE THE   C=   IN COLUMNS 1 AND 2 REMOVED.     P0070910
C*****                                                                  P0070915
C=       NUVI = 6                                                       P0070920
         NUVI = 6                                                       P052B1
C*****                                                                  P0070925
      WRITE (NUVI,520)                                                  P0520130
520   FORMAT (1H1,1X,36HSBB13 - (052) SUBSCRIPTS INTEGER AND/           P0520140
      -16X,23HREAL, C*V, C*V-K, C*V+K//2X,16HASA REF. 5,1.3.3//2X,      P0520150
      -7HRESULTS)                                                       P0520160
      JACVI=2                                                           P0520170
      KACVI= 1                                                          P0520180
      LCCVI = -2                                                        P0520190
      IAC1I(2*JACVI)=1                                                  P0520200
      IAC2I(1*JACVI,1)=2                                                P0520210
      IAC2I(1,3*KACVI)=3                                                P0520220
      AC1S(2*JACVI)=1.0                                                 P0520230
      AC2S(1*JACVI,1)=2.0                                               P0520240
      AC2S(3, 3*KACVI)=30.E-1                                           P0520250
      MDCVI = IAC1I(2*JACVI) + IAC2I(1*JACVI,1) + IAC2I(1,3*KACVI) - 6  P0520260
      NECVI=IAC1I(4) +IAC2I(2,1) +IAC2I(1,3) - 6                        P0520270
      GGDVS = AC1S(2*JACVI) + AC2S(1*JACVI,1) + AC2S(3,3*KACVI) - 6.0   P0520280
```

```
       HHCVS = AC1S(4) + AC2S(2,1) + AC2S(3,3) - 6.0                      P0520290
       WRITE (NUVI,524) MDCVI, NECVI, GGDVS, HHCVS                        P0520300
524    FORMAT  (//2(I9/)/2(F11.1/))                                       P0520310
       IAC1I(2*JACVI+1) = -6                                              P0520320
       IAC1I(1*JACVI-1)=-4                                                P0520330
       IAC2I(1*JACVI-1,2)=3                                               P0520340
       IAC2I(2*JACVI-3,1)=4                                               P0520350
       IAC2I(2,1*JACVI+4)=2                                               P0520360
       IAC2I(1,3*JACVI-2)=1                                               P0520370
       AC1S(2*LCCVI+9) = -6.0                                             P0520380
       AC1S(1*LCCVI+3) = -4.0                                             P0520390
       AC2S(1*LCCVI+3,2) = 3.0                                            P0520400
       AC2S(2*JACVI+0,3)=4.0                                              P0520410
       AC2S(3,1*JACVI+3)=2.0                                              P0520420
       AC2S(3,3*JACVI-2)=1.0                                              P0520430
       MDCVI = IAC1I(2*JACVI+1) + IAC1I(1*JACVI-1) + IAC2I(1*JACVI-1,2) +P0520440
      1          IAC2I(1*KACVI+0,1) + IAC2I(2,2*JACVI+2) +                P0520450
      2          IAC2I(1,3*JACVI-2)                                       P0520460
       NECVI = IAC1I(5) + IAC1I(1) + IAC2I(1,2)                           P0520470
      -+ IAC2I(1,1) + IAC2I(2,6) + IAC2I(1,4)                             P0520480
       GGDVS = AC1S(2*JACVI+1) + AC1S(1*JACVI-1) + AC2S(1*JACVI-1,2) +     P0520490
      1          AC2S(2*JACVI+0,3) + AC2S(3,1*JACVI+3) + AC2S(3,3*JACVI-2) P0520500
       HHCVS = AC1S(5) + AC1S(1) + AC2S(1,2)                              P0520510
      -+ AC2S(4,3) + AC2S(3,5) + AC2S(3,4)                                P0520520
       WRITE (NUVI,524) MDCVI, NECVI, GGDVS, HHCVS                        P0520530
       MCA3I(2*KACVI,1,1) = -1                                            P0520540
       MCA3I(2,2*KACVI,2) = -2                                            P0520550
       MCA3I(1,1,1*KACVI) = -3                                            P0520560
       MCA3I(1*KACVI+1,2,3) = 1                                           P0520570
       MCA3I(2,1*KACVI+2,2) = 2                                           P0520580
       MCA3I(1,2,3*KACVI+0) = 3                                           P0520590
       MCA3I(4*KACVI-2,1,3) = 40                                          P0520600
       MCA3I(1,6*KACVI-3,2) = 5                                           P0520610
       MCA3I(2,3,10*KACVI-9) = -40                                        P0520620
       MCA3I(2*KACVI,5*KACVI-4,2*KACVI+0)= -5                             P0520630
       MCA3I(1*KACVI-0,3,2*KACVI+1) = MCA3I(2*KACVI,1,1) +                P0520640
      1   MCA3I(2,2*KACVI,2) + MCA3I(1,1,1*KACVI) + MCA3I(1*KACVI+1,2,3)P0520650
      2   + MCA3I(2,1*KACVI+2,2) + MCA3I(1,2,3*KACVI+0)                   P0520660
      3   + MCA3I(4*KACVI-2,1,3) + MCA3I(1,6*KACVI-3,2)                   P0520670
      4   + MCA3I(2,3,10*KACVI-9) + MCA3I(2*KACVI,5*KACVI-4,2*KACVI+0)     P0520680
       A3S(3*KACVI,1,1) = -1.0                                            P0520690
       A3S(2,2*KACVI,2) = -2.0                                            P0520700
       A3S(1,1,1*KACVI) = -3.0                                            P0520710
       A3S(2*KACVI+1,2,3) = 1.0                                           P0520720
       A3S(3,1*KACVI+2,2) = 2.0                                           P0520730
       A3S(1,2,3*KACVI+0) = 3.0                                           P0520740
       A3S(4*KACVI-2,1,3) = 40.0                                          P0520750
       A3S(1,6*KACVI-3,2) = 5.0                                           P0520760
       A3S(2,3,10*KACVI-8) = -40.0                                        P0520770
       A3S(3*KACVI,5*KACVI-4,2*KACVI+0) = -5.0                            P0520780
       A3S(1*KACVI-0,3,2*KACVI+1) = A3S(3*KACVI,1,1) + A3S(2,2*KACVI,2) +P0520790
      1   A3S(1,1,1*KACVI) + A3S(2*KACVI+1,2,3) + A3S(3,1*KACVI+2,2) +     P0520800
      2   A3S(1,2,3*KACVI+0) + A3S(4*KACVI-2,1,3) + A3S(1,6*KACVI-3,2) +P0520810
      3   A3S(2,3,10*KACVI-8) + A3S(3*KACVI,5*KACVI-4,2*KACVI+0)           P0520820
       WRITE (NUVI,525) MCA3I(1,3,3), A3S(1,3,3)                          P0520830
525    FORMAT (//I9 // F11.1 )                                            P0520840
       WRITE (NUVI,527)                                                   P0520850
527    FORMAT (// 35H   THE ANSWERS ABOVE SHOULD BE 0 FOR/                P0520860
      1  31H   THIS SEGMENT TO BE SUCCESSFUL)                             P0520870
C*****     END OF TEST SEGMENT 052                                        P0520880
C*****  WHEN EXECUTING ONLY SEGMENT 052, THE STOP AND END CARDS           P0520890
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=   IN COLUMNS      P0520900
C*****  1  AND  2  REMOVED.                                               P0520910
C=     STOP                                                               P0520920
C=     END                                                                P0520930
       STOP                                                               P052C1
       END                                                                P052C2
C********************************************************************P0530010
```

```
C*****                                                                      P0530020
C*****                          SBF17 - (053)                               P0530030
C*****                                                                      P0530040
C********************************************************************P0530050
C*****                                                                      P0530060
C*****      GENERAL PURPOSE                                       ASA REF  P0530070
C*****          TEST FORMATION OF SUBSCRIPTS FOR DOUBLE PRECISION   5.1.3.3 P0530080
C*****          ARRAYS                                                      P0530090
C*****          FORMS V, K, C*V,         C*V-K, C*V+K, V+K, V-K             P0530100
C*****                                                                      P0530110
C*****    S P E C I F I C A T I O N S   SEGMENT 053                         P0530120
C*****                                                                      P0011250
C*****    WHEN EXECUTING ONLY SEGMENT 053, THE SPECIFICATION STATEMENTS     P0011255
C*****    WHICH APPEAR AS COMMENTS, MUST HAVE THE   C=   IN COLUMNS         P0011260
C*****    1  AND  2  REMOVED.                                               P0011265
C*****                                                                      P0011270
C=      DOUBLE PRECISION AC1D(10),BC2D(7,4),CC3D(7,2,2),EP1D(43),           P0011275
C=     1               VTAVD, WTAVD, AADVD                                  P0011280
        DOUBLE PRECISION AC1D(10),BC2D(7,4),CC3D(7,2,2),EP1D(43),           P053A1
       1               VTAVD, WTAVD, AADVD                                  P053A2
C*****                                                                      P0011285
C*****    O U T P U T   T A P E   ASSIGNMENT STATEMENT.  NO INPUT TAPE.     P0530130
C*****                                                                      P0070930
C*****    WHEN EXECUTING ONLY SEGMENT 053, THE FOLLOWING STATEMENT          P0070935
C*****    NUVI = 6  MUST HAVE THE   C=   IN COLUMNS 1 AND 2 REMOVED.        P0070940
C*****                                                                      P0070945
C=      NUVI = 6                                                            P0070950
        NUVI = 6                                                            P053B1
C*****                                                                      P0070955
        WRITE (NUVI,530)                                                    P0530140
530     FORMAT (1H1,1X,33HSBF17 - (053) SUBSCRIPTS FOR D.P./                P0530150
       -16X,17HARRAYS, ALL FORMS//2X,18HASA REF. - 5.1.3.3//2X,7HRESULTS)  P0530160
        NACVI = 10                                                         P0530170
        JACVI=1                                                           P0530180
        KACVI=+2                                                          P0530190
        LCCVI = -1                                                        P0530200
        EP1D(10)=1.00                                                     P0530210
        BC2D(6,3)=4.0D0                                                   P0530220
        CC3D(4,1,1)=-60.0D-1                                              P0530230
        AC1D(JACVI)=30.0D-1                                               P0530240
        BC2D(JACVI,3)=1.0D0                                               P0530250
        CC3D(JACVI,1,1)=2.0D0                                             P0530260
        BC2D(3,JACVI)=5.0D0                                               P0530270
        CC3D(2,JACVI,1)=-2.0D0                                            P0530280
        CC3D(3,2,JACVI)=.4D1                                              P0530290
        VTAVD = EP1D(10) + BC2D(6,3) + CC3D(4,1,1) + AC1D(1)              P0530300
       -+BC2D(1,3) + CC3D(1,1,1) + BC2D(3,1) + CC3D(2,1,1)                P0530310
       -+CC3D(3,2,1) - 12.0D0                                             P0530320
        AADVD = EP1D(10) + AC1D(JACVI) + BC2D(JACVI,3) + BC2D(6,3) +       P0530330
       1          CC3D(4,1,1) + CC3D(JACVI,1,1) + BC2D(3,JACVI) +          P0530340
       2          CC3D(2,JACVI,1) + CC3D(3,2,JACVI) - 12.0D0              P0530350
        AC1D(3*JACVI)=-0.6D+1                                             P0530360
        AC1D(3*JACVI-2)=70.0D-1                                           P0530370
        AC1D(5*JACVI+3) = 1.0D0                                           P0530380
        AC1D (JACVI+3) = 1.0D0                                            P0530390
        AC1D (NACVI-3) = -1.0D0                                           P0530400
        BC2D(6*JACVI,2*KACVI-1) =2.0D0                                    P0530410
        BC2D(8*JACVI-2,1*LCCVI+5) = 10.0D0                                P0530420
        CC3D (3*JACVI,2,4*KACVI-6) = -8.0D0                               P0530430
        CC3D(10*JACVI-3,1,1*LCCVI+3) = -6.0D0                             P0530440
        WTAVD = AC1D(3) + AC1D(1) + AC1D(8) + BC2D(6,3) +                 P0530450
       -BC2D(6,4) + CC3D(3,2,2) + CC3D(7,1,2) + AC1D(4) + AC1D(7)         P0530460
        CC3D(2*KACVI+1,NACVI-8,2*JACVI) = AC1D(3*JACVI) +                 P0530470
       1          AC1D(3*JACVI-2) + AC1D(5*JACVI+3) + AC1D(JACVI+3) +      P0530480
       2          AC1D(NACVI-3) + BC2D(6*JACVI,2*KACVI-1) +               P0530490
       3          BC2D(8*JACVI-2,1*JACVI+3) + CC3D(3*JACVI,2,4*KACVI-6 ) + P0530500
       4          CC3D(10*JACVI-3,1,1*JACVI+1)                           P0530510
        WRITE (NUVI,531) VTAVD, WTAVD, AADVD, CC3D(5,2,2)                 P0530520
```

```
  531    FORMAT (//4(D18.5/)/ 35H  THE ANSWERS ABOVE SHOULD BE 0 FOR/     P0530530
      1 31H  THIS SEGMENT TO BE SUCCESSFUL)                              P0530540
C*****     END OF TEST SEGMENT 053                                       P0530550
C*****   WHEN EXECUTING ONLY SEGMENT 053, THE STOP AND END CARDS         P0530560
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=   IN COLUMNS    P0530570
C*****   1  AND  2  REMOVED.                                             P0530580
C=     STOP                                                              P0530590
C=     END                                                              P0530600
       STOP                                                             P053C1
       END                                                              P053C2
C******************************************************************************P0540010
C*****                                                                   P0540020
C*****                            SIMIF - (054)                          P0540030
C*****                                                                   P0540040
C******************************************************************************P0540050
C*****   GENERAL PURPOSE                                        ASA REFSP0540060
C*****     TO TEST ARITHMETIC IF STATEMENT                      7.1.2.2 P0540070
C*****     AND LOGICAL IF FOLLOWED BY GO TO                     7.1.2.3 P0540080
C*****     SO THAT THESE STATEMENTS MAY BE USED                 4.2     P0540090
C*****     IN SUBSEQUENT TEST SEGMENTS.                                 P0540100
C*****                                                                   P0540110
C*****     ARITHMETIC EXPRESSIONS ARE -                                 P0540120
C*****     INTEGER VARIABLE                                             P0540130
C*****     INTEGER VARIABLE + OR - A CONSTANT                           P0540140
C*****     LOGICAL EXPRESSIONS ARE -                                    P0540150
C*****     LOGICAL VARIABLE                                             P0540160
C*****     .NOT. LOGICAL VARIABLE                                       P0540170
C*****                                                                   P0540180
C*****   S P E C I F I C A T I O N S   SEGMENT 054                       P0540190
C*****                                                                   P0011290
C*****   WHEN EXECUTING ONLY SEGMENT 054, THE SPECIFICATION STATEMENTS   P0011295
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                  P0011300
C*****   IN COLUMNS  1   AND  2   REMOVED.                              P0011305
C*****                                                                   P0011310
C=     LOGICAL LVB, L1B(10), LNVB                                       P0011315
       LOGICAL LVB, L1B(10), LNVB                                       P054A1
C*****                                                                   P0011320
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.  NO INPUT TAPE.    P0540200
C*****   WHEN EXECUTING ONLY SEGMENT 054, THE FOLLOWING STATEMENT        P0070960
C*****   NUVI = 6  MUST HAVE THE C=   IN COLUMNS 1 AND 2 REMOVED.        P0070965
C*****                                                                   P0070970
C=     NUVI = 6                                                         P0070975
       NUVI = 6                                                         P054B1
       WRITE(NUVI,7540)                                                 P0540210
       IVI = -8                                                         P0540220
       JVI = 0                                                          P0540230
       KVI = 2                                                          P0540240
       MVI = -4                                                         P0540250
       LVB = .TRUE.                                                     P0540260
       LNVB = .FALSE.                                                   P0540270
C*****   LOGICAL ARRAY L1B SHOULD CONTAIN ALL .TRUE. IF TEST IS CORRECT. P0540280
       NVI = 1                                                          P0540290
       IF (IVI) 541, 542, 542                                          P0540300
  544 IF (JVI) 542, 541, 542                                          P0540310
  545 IF (KVI) 542,542, 541                                           P0540320
C*****   ZERO IS NEITHER POSITIVE NOR NEGATIVE                          P0540330
  546 NAVI = IVI * JVI                                                 P0540340
       IF (NAVI) 542, 541, 542                                         P0540350
  547 NAVI = JVI * MVI                                                 P0540360
       IF (NAVI) 542, 541, 542                                         P0540370
  548 NAVI = JVI / MVI                                                 P0540380
       IF (NAVI) 542, 541, 542                                         P0540390
  549 IF (MVI + 4) 542, 541, 542                                      P0540400
 7543 IF (KVI - 2) 542, 541, 542                                      P0540410
C*****   LOGICAL IF FOLLOWED BY GO TO                                   P0540420
 7544 IF (LVB) GO TO 541                                              P0540430
       GO TO 542                                                       P0540440
 7545 IF (.NOT.LNVB) GO TO 541                                        P0540450
```

```
  542  L1B(NVI) = .FALSE.                                             P0540460
       GO TO 543                                                      P0540470
  541  L1B(NVI) = .TRUE.                                              P0540480
  543  NVI = NVI + 1                                                  P0540490
       GO TO (544,544,545,546,547,548,549,7543,7544,7545,7546), NVI  P0540500
 7546  WRITE (NUVI,7541) L1B                                          P0540510
       WRITE (NUVI,7542)                                              P0540520
 7540  FORMAT (2H1 ,30HSIMIF - (054) SIMPLE ARITH. IF/19X,14HANO LOGICAL P0540530
      -IF//20H  ASA REF. - 7.1.2.2/ 13X, 7H7.1.2.3 //9H  RESULTS)     P0540540
 7541  FORMAT (/L4)                                                   P0540550
 7542  FORMAT  (/36H   THE TEN ANSWERS ABOVE MUST BE TRUE)            P0540560
C*****  ENO OF TEST SEGMENT 054                                       P0540570
C*****  WHEN EXECUTING ONLY SEGMENT 054, THE STOP AND END CARDS       P0540580
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=               P0540590
C*****  IN COLUMNS  1  AND  2  REMOVED.                               P0540600
C=     STOP                                                           P0540610
C=     ENO                                                            P0540620
       STOP                                                           P054C1
       END                                                            P054C2
C************************************************************************P0550010
C*****                                                                P0550020
C*****                       IFABS - (055)                           P0550030
C*****                                                                P0550040
C************************************************************************P0550050
C*****  GENERAL PURPOSE                                     ASA REF   P0550060
C*****     TEST INTRINSIC FUNCTION ABS,IABS (ABSOLUTE VALUE)    8.2   P0550070
C*****                                                                P0550080
C*****  O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.  P0550090
C*****                                                                P0070980
C*****  WHEN EXECUTING ONLY SEGMENT 055, THE FOLLOWING STATEMENT      P0070985
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 ANO 2 REMOVED.        P0070990
C*****                                                                P0070995
C=     NUVI = 6                                                       P0071000
       NUVI = 6                                                       P055B1
C*****                                                                P0071005
       WRITE(NUVI,0550)                                               P0550100
 0550  FORMAT(37H1 IFABS - (055) INTRINSIC FUNCTIONS--/10X,26HABS, IABS (P0550110
      1ABSOLUTE VALUE)//17H  ASA REFS. - 8.2//9H  RESULTS)            P0550120
C*****  HEAOER FOR SEGMENT 055 WRITTEN                                P0550130
C*****     SINGLE PRECISION REAL ARGUMENT                             P0550140
       MCGVI = 1                                                      P0550150
       CMAVS = 1.000789                                               P0550160
       CMBVS = -0.2E2                                                 P0550170
       CMCVS = -2.0                                                   P0550180
       CMOVS =  2.0                                                   P0550190
       CMFVS = -4.0                                                   P0550200
       CMEVS = ABS(CMAVS)                                             P0550210
       CMEVS = CMEVS - 1.000789                                       P0550220
       WRITE (NUVI,0557) CMEVS                                        P0550230
       CMBVS = ABS(CMBVS)                                             P0550240
       CMEVS = CMBVS - 0.2E2                                          P0550250
       WRITE (NUVI,0557) CMEVS                                        P0550260
       CMEVS = 2.0*CMCVS+ABS(2.0*CMFVS+ABS(CMCVS*CMOVS**MCGVI))       P0550270
       WRITE (NUVI,0557) CMEVS                                        P0550280
       CMEVS = CMFVS+CMDVS+ABS(CMCVS+ABS(CMFVS)-ABS(CMOVS-CMCVS))     P0550290
       WRITE (NUVI,0557) CMEVS                                        P0550300
 0557  FORMAT  (/2X,F15.1)                                            P0550310
 0558  FORMAT  (/2X,37HTHE ABOVE ANSWERS SHOULO ALL BE 0 FOR/2X,      P0550320
      1 35HTHIS TEST SEGMENT TO BE SUCCESSFUL.)                       P0550330
C*****     INTEGER ARGUMENT                                           P0550340
       MCAVI = 25                                                     P0550350
       MCBVI = 4                                                      P0550360
       MCCVI = -129                                                   P0550370
       MCDVI = -2                                                     P0550380
       MCEVI = 2                                                      P0550390
       MCFVI = IABS(MCAVI)                                            P0550400
       MCFVI = MCFVI -25                                              P0550410
       WRITE (NUVI,0551) MCFVI                                        P0550420
```

```
        MCFVI = IABS(MCDVI+IABS(MCBVI/MCDVI)-IABS(MCEVI**2))-MCBVI          P0550430
        WRITE (NUVI,0551) MCFVI                                             P0550440
        MCCVI = IABS(MCCVI)                                                 P0550450
        MCFVI = MCCVI - 129                                                 P0550460
        WRITE (NUVI,0551) MCFVI                                             P0550470
0551    FORMAT  (/10X,I5)                                                   P0550480
        WRITE (NUVI,0558)                                                   P0550490
C*****     END OF TEST SEGMENT 055                                          P0550500
C*****   WHEN EXECUTING ONLY SEGMENT 055, THE   STOP   AND   END   CARDS    P0550510
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=                    P0550520
C*****   IN COLUMNS  1  AND  2  REMOVED.                                    P0550530
C=      STOP                                                                P0550540
C=      END                                                                 P0550550
        STOP                                                                P055C1
        END                                                                 P055C2
C**************************************************************************P0560010
C*****                                                                      P0560020
C*****                         IFFLT - (056)                                P0560030
C*****                                                                      P0560040
C**************************************************************************P0560050
C*****   GENERAL PURPOSE                                            ASA REF P0560060
C*****      TEST INTRINSIC FUNCTION FLOAT (CONVERSION FROM             8.2  P0560070
C*****      INTEGER TO REAL)                                     (TABLE 3)P0560080
C*****                                                                      P0560090
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.  NO INPUT TAPE.      P0560100
C*****                                                                      P0071010
C*****   WHEN EXECUTING ONLY SEGMENT 056, THE FOLLOWING STATEMENT           P0071015
C*****   NUVI = 6   MUST HAVE THE   C= IN COLUMNS 1 AND 2 REMOVED.          P0071020
C*****                                                                      P0071025
C=      NUVI = 6                                                            P0071030
        NUVI = 6                                                            P056B1
C*****                                                                      P0071035
        WRITE (NUVI,0560)                                                   P0560110
0560    FORMAT  (1H1,1X,34HIFFLT - (056) INTRINSIC FUNCTION--/16X,          P0560120
        15HFLOAT/ 2X,14HASA REF. - 8.2/2X,7HRESULTS)                        P0560130
C*****      HEADER FOR SEGMENT 056                                          P0560140
C*****      ARGUMENT IS INTEGER, FUNCTION IS REAL                           P0560150
        MCAVI = 64                                                          P0560160
        MCBVI = -512                                                        P0560170
        MCCVI = 2                                                           P0560180
        MCDVI = 4                                                           P0560190
        MCEVI = 8                                                           P0560200
        CMAVS = FLOAT(MCAVI)                                                P0560210
        CMBVS = CMAVS - 64.0                                                P0560220
        WRITE (NUVI,0561) CMBVS                                             P0560230
        CMAVS = FLOAT(MCBVI)                                                P0560240
        CMBVS = CMAVS + 512.0                                               P0560250
        WRITE (NUVI,0561) CMBVS                                             P0560260
        CMBVS= FLOAT(-2*MCEVI)+FLOAT(MCCVI*MCDVI)*FLOAT(MCEVI/MCDVI)-       P0560270
     -  FLOAT(MCDVI**MCCVI) + 16.0                                          P0560280
        WRITE (NUVI,0561) CMBVS                                             P0560290
        WRITE (NUVI,0562)                                                   P0560300
        WRITE (NUVI,0563)                                                   P0560310
0561    FORMAT  (/2X,F15.1)                                                 P0560320
0562    FORMAT  (/2X,37HTHE ABOVE ANSWERS SHOULD ALL BE 0 FOR)              P0560330
0563    FORMAT  (2X,35HTHIS TEST SEGMENT TO BE SUCCESSFUL.)                 P0560340
C*****      END OF TEST SEGMENT 056                                         P0560350
C*****   WHEN EXECUTING ONLY SEGMENT 056, THE   STOP   AND   END   CARDS    P0560360
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=                    P0560370
C*****   IN COLUMNS  1  AND  2  REMOVED.                                    P0560380
C=      STOP                                                                P0560390
C=      END                                                                 P0560400
        STOP                                                                P056C1
        END                                                                 P056C2
C**************************************************************************P0570010
C*****                                                                      P0570020
C*****                         IFFIX - (057)                                P0570030
C*****                                                                      P0570040
```

```
C****************************************************************************P0570050
C*****   GENERAL PURPOSE                                            ASA REF P0570060
C*****      TEST INTRINSIC FUNCTION - IFIX - (CONVERSION FROM          8.2  P0570070
C*****      REAL TO INTEGER)                                      (TABLE 3)P0570080
C*****                                                                      P0570090
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.  NO INPUT TAPE.      P0570100
C*****                                                                      P0071040
C*****   WHEN EXECUTING ONLY SEGMENT 057, THE FOLLOWING STATEMENT           P0071045
C*****   NUVI = 6  MUST HAVE THE  C= IN COLUMNS 1 AND 2 REMOVED.            P0071050
C*****                                                                      P0071055
C=      NUVI = 6                                                            P0071060
        NUVI = 6                                                            P057B1
C*****                                                                      P0071065
        WRITE (NUVI,0570)                                                   P0570110
0570    FORMAT   (1H1,1X,34HIFFIX - (057) INTRINSIC FUNCTION--/16X,        4P0570120
       1HIFIX//2X,14HASA REF. - 8.2//2X,7HRESULTS)                         P0570130
C*****      HEADER FOR SEGMENT 057                                          P0570140
C*****      SINGLE PRECISION ARGUMENT, INTEGER FUNCTION                     P0570150
        CMAVS = 2.4567                                                      P0570160
        CMBVS = -0.2001E2                                                   P0570170
        CMCVS = +5.61E-1                                                    P0570180
        CMDVS = -123.456E0                                                  P0570190
        CMEVS = 789.9876E-2                                                 P0570200
        CMFVS = 2.0                                                         P0570210
        CMGVS = -0.5                                                        P0570220
        MCAVI = IFIX(CMAVS)                                                 P0570230
        MCBVI = MCAVI -2                                                    P0570240
        WRITE (NUVI,0571) MCBVI                                            P0570250
        MCAVI = IFIX(CMBVS)                                                 P0570260
        MCBVI = MCAVI + 20                                                  P0570270
        WRITE (NUVI,0571) MCBVI                                            P0570280
        MCAVI = IFIX(CMCVS)                                                 P0570290
        WRITE (NUVI,0571) MCAVI                                            P0570300
        MCAVI = IFIX(CMDVS)                                                 P0570310
        MCBVI = MCAVI + 123                                                 P0570320
        WRITE (NUVI,0571) MCBVI                                            P0570330
        MCAVI = IFIX(CMEVS)                                                 P0570340
        MCBVI = MCAVI - 7                                                   P0570350
        WRITE (NUVI,0571) MCBVI                                            P0570360
        MCBVI = IFIX(CMBVS*CMGVS)*IFIX(CMDVS/CMFVS)-                        P0570370
       - IFIX(CMBVS**IFIX(CMFVS))+1010                                     P0570380
        WRITE(NUVI,0571) MCBVI                                             P0570390
        WRITE (NUVI,0572)                                                  P0570400
        WRITE (NUVI,0573)                                                  P0570410
0571    FORMAT   (/10X,I6)                                                  P0570420
0572    FORMAT    (/2X,37HTHE ABOVE ANSWERS SHOULD ALL BE 0 FOR)           P0570430
0573    FORMAT    (2X,35HTHIS TEST SEGMENT TO BE SUCCESSFUL.)              P0570440
C*****      END OF TEST SEGMENT 057                                         P0570450
C*****   WHEN EXECUTING ONLY SEGMENT 057, THE   STOP   AND   END   CARDS    P0570460
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=                   P0570470
C*****   IN COLUMNS  1  AND  2  REMOVED.                                    P0570480
C=      STOP                                                                P0570490
C=      END                                                                P0570500
        STOP                                                                P057C1
        END                                                                P057C2
C****************************************************************************P0580010
C*****                                                                      P0580020
C*****                             IFSGN - (058)                            P0580030
C*****                                                                      P0580040
C****************************************************************************P0580050
C*****   GENERAL PURPOSE                                            ASA REF P0580060
C*****      TEST INTRINSIC FUNCTION - SIGN, ISIGN - (TRANSFER    8.2/31-32 P0580070
C*****      OF SIGN - SIGN OF A2 TIMES ABS(A1)  )                 (TABLE 3)P0580080
C*****                                                                      P0580090
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.  NO INPUT TAPE.      P0580100
C*****                                                                      P0071070
C*****   WHEN EXECUTING ONLY SEGMENT 058, THE FOLLOWING STATEMENT           P0071075
C*****   NUVI = 6  MUST HAVE THE   C= IN COLUMNS 1 AND 2 REMOVED.          P0071080
```

```
C*****                                                                          P0071085
C=      NUVI = 6                                                                P0071090
        NUVI = 6                                                                P058B1
C*****                                                                          P0071095
        WRITE (NUVI,0580)                                                       P0580110
0580    FORMAT   (1H1 ,1X,35HIFSGN - (058) INTRINSIC FUNCTIONS--/16X, 24        P0580120
       1  HSIGN, ISIGN (TRANSFER OF/16X,14HARGUMENT SIGN)//2X,14HASA REF.        P0580130
       2- 8.2//2X,7HRESULTS)                                                    P0580140
C*****     HEADER FOR SEGMENT 058                                               P0580150
C*****       ARGUMENTS AND FUNCTION ARE ALL REAL-TYPE (SIGN)                    P0580160
        CMAVS = 1.078                                                           P0580170
        CMBVS = -23.0E1                                                         P0580180
        CMCVS = -5.4567                                                         P0580190
        CMDVS = 7.567E-1                                                        P0580200
        CMGVS = +2.0                                                            P0580210
        CMHVS = -4.0                                                            P0580220
        CMIVS = +8.0                                                            P0580230
        CMEVS = SIGN(CMAVS,CMBVS)                                               P0580240
        CMFVS = CMEVS + 1.078                                                   P0580250
        WRITE (NUVI,0581) CMFVS                                                 P0580260
        CMEVS = SIGN(CMAVS,CMDVS)                                               P0580270
        CMFVS = CMEVS - 1.078                                                   P0580280
        WRITE (NUVI,0581) CMFVS                                                 P0580290
        CMEVS = SIGN(CMBVS,CMCVS)                                               P0580300
        CMFVS = CMEVS + 23.0E1                                                  P0580310
        WRITE (NUVI,0581) CMFVS                                                 P0580320
        CMEVS = SIGN(CMBVS,CMDVS)                                               P0580330
        CMFVS = CMEVS - 23.0E1                                                  P0580340
        WRITE (NUVI,0581) CMFVS                                                 P0580350
        CMFVS = SIGN(CMGVS,CMHVS)*SIGN(CMHVS,CMIVS)+                            P0580360
       - SIGN(SIGN(CMIVS,CMBVS),SIGN(CMHVS,CMGVS))                             P0580370
        WRITE(NUVI,0581) CMFVS                                                  P0580380
C*****       ARGUMENTS AND FUNCTION ARE ALL INTEGER-TYPE (ISIGN)                P0580390
        MCAVI = 24                                                              P0580400
        MCBVI = +167                                                           P0580410
        MCCVI = -5980                                                           P0580420
        MCDVI = -12345                                                          P0580430
        MCGVI = 2                                                               P0580440
        MCHVI = -4                                                              P0580450
        MCIVI = 8                                                               P0580460
        MCEVI = ISIGN(MCAVI,MCBVI)                                              P0580470
        MCFVI = MCEVI - 24                                                      P0580480
        WRITE (NUVI,0582) MCFVI                                                 P0580490
        MCEVI = ISIGN(MCBVI,MCCVI)                                              P0580500
        MCFVI = MCEVI + 167                                                     P0580510
        WRITE (NUVI,0582) MCFVI                                                 P0580520
        MCEVI = ISIGN(MCCVI,MCDVI)                                              P0580530
        MCFVI = MCEVI + 5980                                                    P0580540
        WRITE (NUVI,0582) MCFVI                                                 P0580550
        MCEVI = ISIGN(MCDVI,MCAVI)                                              P0580560
        MCFVI = MCEVI - 12345                                                   P0580570
        WRITE (NUVI,0582) MCFVI                                                 P0580580
        MCFVI = ISIGN(ISIGN(MCGVI*MCHVI+(2*MCIVI),MCIVI/MCGVI+MCCVI)+           P0580590
       1        ISIGN(+8,MCHVI/MCGVI+MCCVI),MCIVI) - MCHVI **2                  P0580600
        WRITE(NUVI,0582)MCFVI                                                   P0580610
        WRITE (NUVI,0583)                                                       P0580620
        WRITE(NUVI,0584)                                                        P0580630
0581    FORMAT      (/2X,F15.1)                                                 P0580640
0582    FORMAT      (/10X,I5)                                                   P0580650
0583    FORMAT      (/2X,37HTHE ABOVE ANSWERS SHOULD ALL BE 0 FOR)              P0580660
0584    FORMAT      (2X,35HTHIS TEST SEGMENT TO BE SUCCESSFUL.)                 P0580670
C*****     END OF TEST SEGMENT 058                                             P0580680
C*****  WHEN EXECUTING ONLY SEGMENT 058, THE  STOP   AND   END   CARDS          P0580690
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=                        P0580700
C*****  IN COLUMNS  1   AND   2   REMOVED.                                      P0580710
C=      STOP                                                                    P0580720
C=      END                                                                     P0580730
        STOP                                                                    P058C1
```

```
      END                                                           P058C2
C*****************************************************************************P0590010
C*****                                                             P0590020
C*****                    IFDAB - (059)                            P0590030
C*****                                                             P0590040
C*****************************************************************************P0590050
C*****    GENERAL PURPOSE                                 ASA REF P0590060
C*****     TEST INTRINSIC FUNCTION DABS (ABSOLUTE VALUE OF       8.2  P0590070
C*****      A DOUBLE PRECISION ARGUMENT)                    (TABLE 3)P0590080
C*****                                                             P0590090
C*****    S P E C I F I C A T I O N S  SEGMENT 059                 P0590100
C*****                                                             P0011330
C*****    WHEN EXECUTING ONLY SEGMENT 059, THE SPECIFICATION STATEMENTS P0011335
C*****    WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=          P0011340
C*****    IN COLUMNS 1  AND  2  REMOVED.                           P0011345
C*****                                                             P0011350
C=     DOUBLE PRECISION DPAVD,DPBVD,DPCVD,DPDVD,DPEVD,DPFVD,DPGVD  P0011355
       DOUBLE PRECISION DPAVD,DPBVD,DPCVD,DPDVD,DPEVD,DPFVD,DPGVD  P059A1
C*****                                                             P0011360
C*****    O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE. P0590110
C*****                                                             P0071100
C*****    WHEN EXECUTING ONLY SEGMENT 059, THE FOLLOWING STATEMENT P0071105
C*****    NUVI = 6  MUST HAVE THE  C= IN COLUMNS 1 AND 2 REMOVED.  P0071110
C*****                                                             P0071115
C=     NUVI = 6                                                    P0071120
       NUVI = 6                                                    P059B1
C*****                                                             P0071125
       WRITE (NUVI,0590)                                           P0590120
0590   FORMAT (1H1,1X,34HIFDAB - (059) INTRINSIC FUNCTION--/16X,   P0590130
      123HDABS (ABSOLUTE VALUE OF/16X,16HA D.P. ARGUMENT)/  2X,    P0590140
      214HASA REF. - 8.2//                                        P0590150
      32X,7HRESULTS)                                              P0590160
C*****     HEADER FOR SEGMENT 059 WRITTEN                          P0590170
C*****     ARGUMENT AND FUNCTION ARE DOUBLE PRECISION             P0590180
       DPAVD = 1.2345678901234D0                                  P0590190
       DPBVD = -2.0D0                                             P0590200
       DPCVD = -39.468024681357D-1                                P0590210
       DPDVD = 2.0D0                                              P0590220
       DPGVD = -4.0D0                                             P0590230
       DPEVD = 1.0D0                                              P0590240
       DPEVD = DABS(DPAVD)                                        P0590250
       DPFVD = DPEVD - 1.2345678901234D0                          P0590260
       WRITE (NUVI,0591) DPFVD                                    P0590270
       DPEVD = 2.0D0*DPBVD+DABS(DPDVD*DPGVD+DABS(DPGVD/(2.0D0*DPDVD) P0590280
      - *DPDVD**2))                                               P0590290
       WRITE (NUVI,0591) DPEVD                                    P0590300
       DPEVD = 3.0D0                                              P0590310
       DPEVD = DABS(DPCVD)                                        P0590320
       DPFVD = DPEVD - 39.468024681357D-1                         P0590330
       WRITE (NUVI,0591) DPFVD                                    P0590340
       DPEVD = 4.0D0                                              P0590350
       DPEVD = DPGVD +DPDVD+DABS(DPBVD+DABS(DPGVD)-DABS(DPDVD-DPBVD)) P0590360
       WRITE (NUVI,0591) DPEVD                                    P0590370
       WRITE (NUVI,0592)                                          P0590380
       WRITE (NUVI,0593)                                          P0590390
0591   FORMAT (/ D22.10)                                          P0590400
0592   FORMAT (/ 39H  THE ABOVE ANSWERS SHOULD ALL BE 0 FOR)      P0590410
0593   FORMAT (36H  THIS TEST SEGMENT TO BE SUCCESSFUL)           P0590420
C*****     END OF TEST SEGMENT 059                                P0590430
C*****    WHEN EXECUTING ONLY SEGMENT 059, THE  STOP  AND  END  CARDS P0590440
C*****    WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=         P0590450
C*****    IN COLUMNS 1  AND  2  REMOVED.                          P0590460
C=     STOP                                                       P0590470
C=     END                                                        P0590480
       STOP                                                       P059C1
       END                                                        P059C2
C*****************************************************************************P0600010
C*****                                                             P0600020
```

```
C*****                         IFTRN - (060)                                  P0600030
C*****                                                                         P0600040
C******************************************************************************P0600050
C*****     GENERAL PURPOSE                                          ASA REF    P0600060
C*****        TEST INTRINSIC FUNCTIONS AINT,INT, AND IDINT --        8.2       P0600070
C*****        TRUNCATION (SIGN OF A * LARGEST INTEGER LE ABS(A) )   (TABLE 3)  P0600080
C*****                                                                         P0600090
C*****   S P E C I F I C A T I O N S   SEGMENT 060                             P0600100
C*****                                                                         P0011370
C*****   WHEN EXECUTING ONLY SEGMENT 060, THE SPECIFICATION STATEMENTS         P0011375
C*****   WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=                       P0011380
C*****    IN COLUMNS 1  AND  2  REMOVED.                                       P0011385
C*****                                                                         P0011390
C=    DOUBLE PRECISION DPAVD,DPBVD,DPCVD,DPDVD                                 P0011395
      DOUBLE PRECISION DPAVD,DPBVD,DPCVD,DPDVD                                 P060A1
C*****                                                                         P0011400
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.   NO INPUT TAPE.        P0600110
C*****                                                                         P0071130
C*****   WHEN EXECUTING ONLY SEGMENT 060, THE FOLLOWING STATEMENT              P0071135
C*****   NUVI = 6  MUST HAVE THE   C= IN COLUMNS 1 AND 2 REMOVED.              P0071140
C*****                                                                         P0071145
C=    NUVI = 6                                                                 P0071150
      NUVI = 6                                                                 P060B1
C*****                                                                         P0071155
      WRITE (NUVI,0600)                                                        P0600120
0600  FORMAT (1H1, 1X,34HIFTRN - (060) INTRINSIC FUNCTION--/10X,29HAINT,       P0600130
     1 INT, IDINT (TRUNCATION)//16H   ASA REF. - 8.2//2X,7HRESULTS)            P0600140
C*****       HEADER FOR SEGMENT 060 WRITTEN                                    P0600150
C*****       TEST OF AINT - REAL ARGUMENT AND REAL FUNCTION                    P0600160
      CMAVS = 1.999                                                           P0600170
      CMBVS = 999.001                                                         P0600180
      CMCVS = -0.45678                                                        P0600190
      CMDVS = -9876.0                                                         P0600200
      CMEVS = 1.0                                                             P0600210
      CMEVS = AINT(CMAVS)                                                     P0600220
      CMFVS = CMEVS - 1.0                                                     P0600230
      WRITE (NUVI,0601) CMFVS                                                 P0600240
      CMEVS = 2.0                                                             P0600250
      CMEVS = AINT(CMBVS)                                                     P0600260
      CMFVS = CMEVS - 999.0                                                   P0600270
      WRITE (NUVI,0601) CMFVS                                                 P0600280
      CMEVS = 3.0                                                             P0600290
      CMEVS = AINT(CMCVS)                                                     P0600300
      CMFVS = CMEVS                                                           P0600310
      WRITE (NUVI,0601) CMFVS                                                 P0600320
      CMEVS = 4.0                                                             P0600330
      CMEVS = AINT(CMDVS)                                                     P0600340
      CMFVS = CMEVS + 9876.0                                                  P0600350
      WRITE (NUVI,0601) CMFVS                                                 P0600360
      WRITE (NUVI,0603)                                                       P0600370
C*****       TEST OF INT - REAL ARGUMENT BUT INTEGER FUNCTION                  P0600380
      MCAVI = 5                                                               P0600390
      MCAVI = INT(CMAVS)                                                      P0600400
      MCBVI = MCAVI - 1                                                       P0600410
      WRITE (NUVI,0604) MCBVI                                                 P0600420
      MCAVI = 6                                                               P0600430
      MCAVI = INT(CMBVS)                                                      P0600440
      MCBVI = MCAVI - 999                                                     P0600450
      WRITE (NUVI,0604) MCBVI                                                 P0600460
      MCAVI = 7                                                               P0600470
      MCAVI = INT(CMCVS)                                                      P0600480
      WRITE (NUVI,0604) MCAVI                                                 P0600490
      MCAVI = 8                                                               P0600500
      MCAVI = INT(CMDVS)                                                      P0600510
      MCBVI = MCAVI + 9876                                                    P0600520
      WRITE (NUVI,0604) MCBVI                                                 P0600530
      WRITE (NUVI,0605)                                                       P0600540
C*****       TEST OF IDINT - DOUBLE PRECISION ARGUMENT AND FUNCTION            P0600550
```

```
          DPAVD = 1.999999999999D1                                        P0600560
          DPBVD = +99.00050018912300                                      P0600570
          DPCVD = -0.9876543210198D0                                      P0600580
          DPDVD = -456.78909876514D1                                      P0600590
          MCAVI = 9                                                       P0600600
          MCAVI = IDINT(DPAVD)                                            P0600610
          MCBVI = MCAVI - 19                                              P0600620
          WRITE (NUVI,0606) MCBVI                                         P0600630
          MCAVI = 10                                                      P0600640
          MCAVI = IDINT(DPBVD)                                            P0600650
          MCBVI = MCAVI - 99                                              P0600660
          WRITE (NUVI,0606) MCBVI                                         P0600670
          MCAVI = 11                                                      P0600680
          MCAVI = IDINT(DPCVD)                                            P0600690
          WRITE (NUVI,0606) MCAVI                                         P0600700
          MCAVI = 12                                                      P0600710
          MCAVI = IDINT(DPDVD)                                            P0600720
          MCBVI = MCAVI + 4567                                            P0600730
          WRITE (NUVI,0606) MCBVI                                         P0600740
          WRITE (NUVI,0607)                                               P0600750
          WRITE (NUVI,0608)                                               P0600760
0601      FORMAT (/F11.1)                                                 P0600770
0603      FORMAT (  2X,16HEND OF AINT TEST)                              P0600780
0604      FORMAT (/I10)                                                   P0600790
0605      FORMAT (  2X,15HEND OF INT TEST)                               P0600800
0606      FORMAT (/I10)                                                   P0600810
0607      FORMAT (  2X,17HEND OF IDINT TEST)                             P0600820
0608      FORMAT (  40H  ALL ABOVE ANSWERS SHOULD BE 0 FOR THIS/         P0600830
         1 31H  TEST SEGMENT TO BE SUCCESSFUL)                           P0600840
C*****      END OF TEST SEGMENT 060                                       P0600850
C*****   WHEN EXECUTING ONLY SEGMENT 060, THE  STOP  AND  END  CARDS     P0600860
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 P0600870
C*****   IN COLUMNS  1  AND  2  REMOVED.                                 P0600880
C=     STOP                                                               P0600890
C=     END                                                                P0600900
       STOP                                                               P060C1
       END                                                                P060C2
C***********************************************************************P0610010
C*****                                                                    P0610020
C*****                        IFMOD - (061)                              P0610030
C*****                                                                    P0610040
C***********************************************************************P0610050
C*****   GENERAL PURPOSE                                    ASA REF P0610060
C*****      TEST INTRINSIC FUNCTION AMOD AND MOD - REMAINDERING,    8.2   P0610070
C*****      WHICH IS DEFINED AS A1-(A1/A2)A2 WHERE (X) IS AN     (TABLE 3)P0610080
C*****      INTEGER WHOSE MAGNITUDE IS LE ABS(X) AND WHOSE SIGN          P0610090
C*****      IS THE SAME AS X.                                            P0610100
C*****                                                                    P0610110
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.   NO INPUT TAPE.  P0610120
C*****                                                                    P0071160
C*****   WHEN EXECUTING ONLY SEGMENT 061, THE FOLLOWING STATEMENT        P0071165
C*****   NUVI = 6   MUST HAVE THE  C= IN COLUMNS 1 AND 2 REMOVED.        P0071170
C*****                                                                    P0071175
C=     NUVI = 6                                                           P0071180
       NUVI = 6                                                           P061B1
C*****                                                                    P0071185
       WRITE (NUVI,0610)                                                  P0610130
0610   FORMAT (1H1, 1X,34HIFMOD - (061) INTRINSIC FUNCTION--/16X,24HAMOD,P0610140
      1 MOD (REMAINDERING)//16H  ASA REF. - 8.2//2X,                     P0610150
      2 7H   LTS)                                                        P0610160
C*****      HEADER FOR SEGMENT 061 WRITTEN                               P0610170
C*****      TEST OF AMOD - REAL ARGUMENTS AND REAL FUNCTION              P0610180
       CMAVS = 16.0625                                                    P0610190
       CMBVS = -4.0                                                       P0610200
       CMCVS = -8.125                                                     P0610210
       CMDVS = 2.5                                                        P0610220
       CMEVS = -1.0                                                       P0610230
       CMFVS = 1.0                                                        P0610240
```

```
          CMFVS = AMOD(CMAVS,CMBVS)                                    P0610250
          CMGVS = CMFVS - 0.0625                                       P0610260
          WRITE (NUVI,0611) CMGVS                                      P0610270
          CMFVS = 2.0                                                  P0610280
          CMFVS = AMOD(CMCVS,CMDVS)                                    P0610290
          CMGVS = CMFVS + 0.625                                        P0610300
          WRITE (NUVI,0611) CMGVS                                      P0610310
          CMFVS = 3.0                                                  P0610320
          CMFVS = AMOD(CMBVS,CMEVS)                                    P0610330
          CMGVS = CMFVS + 0.0                                          P0610340
          WRITE (NUVI,0611) CMGVS                                      P0610350
          CMFVS = 4.0                                                  P0610360
          CMFVS = AMOD(CMBVS,CMAVS)                                    P0610370
          CMGVS = CMFVS + 4.0                                          P0610380
          WRITE (NUVI,0611) CMGVS                                      P0610390
          WRITE (NUVI,0612)                                            P0610400
C*****     TEST OF MOD - INTEGER ARGUMENTS AND INTEGER FUNCTION        P0610410
          MCAVI = 35                                                   P0610420
          MCBVI = -5                                                   P0610430
          MCCVI = -998                                                 P0610440
          MCDVI = 9                                                    P0610450
          MCEVI = 10                                                   P0610460
          MCFVI = 1                                                    P0610470
          MCFVI = MOD(MCAVI,MCBVI)                                     P0610480
          MCGVI = MCFVI + 0                                            P0610490
          WRITE (NUVI,0613) MCGVI                                      P0610500
          MCFVI = 2                                                    P0610510
          MCFVI = MOD(MCCVI,MCDVI)                                     P0610520
          MCGVI = MCFVI + 8                                            P0610530
          WRITE (NUVI,0613) MCGVI                                      P0610540
          MCFVI = 3                                                    P0610550
          MCFVI = MOD(MCAVI,MCDVI)                                     P0610560
          MCGVI = MCFVI - 8                                            P0610570
          WRITE (NUVI,0613) MCGVI                                      P0610580
          MCFVI = 4                                                    P0610590
          MCFVI = MOD(MCBVI,MCEVI)                                     P0610600
          MCGVI = MCFVI + 5                                            P0610610
          WRITE (NUVI,0613) MCGVI                                      P0610620
          WRITE (NUVI,0614)                                            P0610630
0611      FORMAT (/F11.1)                                             P0610640
0612      FORMAT   (//2X,17HEND OF AMOD TEST.)                        P0610650
0613      FORMAT (/I10)                                               P0610660
0614      FORMAT (//2X,16HEND OF MOD TEST.//2X,                       P0610670
         138HALL ABOVE ANSWERS SHOULD BE 0 FOR THIS/2X,               P0610680
         230HTEST SEGMENT TO BE SUCCESSFUL.)                          P0610690
C*****     END OF TEST SEGMENT 061                                    P0610700
C*****   WHEN EXECUTING ONLY SEGMENT 061, THE  STOP  AND  END  CARDS  P0610710
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=              P0610720
C*****   IN COLUMNS  1  AND  2  REMOVED.                              P0610730
C=      STOP                                                          P0610740
C=      END                                                          P0610750
        STOP                                                          P061C1
        END                                                          P061C2
C*********************************************************************P0620010
C*****                                                                P0620020
C*****                         IFMAX - (062)                          P0620030
C*****                                                                P0620040
C*********************************************************************P0620050
C*****   GENERAL PURPOSE                                    ASA REF P0620060
C*****     TEST OF INTRINSIC FUNCTION AMAX0,AMAX1,MAX0,MAX1 AND   8.2 P0620070
C*****     DMAX1 -- CHOOSING LARGEST VALUE               (TABLE 3)P0620080
C*****                                                                P0620090
C*****   S P E C I F I C A T I O N S   SEGMENT 062                    P0620100
C*****                                                                P0011410
C*****   WHEN EXECUTING ONLY SEGMENT 062, THE SPECIFICATION STATEMENTS P0011415
C*****   WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=              P0011420
C*****   IN COLUMNS 1  AND  2  REMOVED.                              P0011425
C*****                                                                P0011430
```

```
C=     DOUBLE PRECISION  MCAVD,MCBVD,MCCVD,MCDVD,MCEVD,MCFVD              P0011435
       DOUBLE PRECISION  MCAVD,MCBVD,MCCVD,MCDVD,MCEVD,MCFVD              P062A1
C*****                                                                   P0011440
C*****  O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     P0620110
C*****                                                                   P0071190
C*****  WHEN EXECUTING ONLY SEGMENT 062, THE FOLLOWING STATEMENT         P0071195
C*****  NUVI = 6  MUST HAVE THE  C= IN COLUMNS 1 AND 2 REMOVED.          P0071200
C*****                                                                   P0071205
C=     NUVI = 6                                                          P0071210
       NUVI = 6                                                          P062B1
C*****                                                                   P0071215
       WRITE (NUVI,0620)                                                 P0620120
0620   FORMAT (1H1, 1X,35HIFMAX - (062) INTRINSIC FUNCTIONS--/13X,28HAMAXP0620130
      10,AMAX1,MAX0, MAX1,DMAX1      / 2X,14HASA REF. - 8.2//2X,7HRESULTS) P0620140
C*****     TEST OF AMAX0 - INTEGER ARGUMENTS, REAL FUNCTION        8.2/19P0620150
C*****     TWO ARGUMENTS FOR AMAX0                                       P0620160
       WRITE (NUVI,0625)                                                 P0620170
       MCAVI = 128                                                       P0620180
       MCBVI = 64                                                        P0620190
       MCCVI = -8                                                        P0620200
       MCDVI = -4096                                                     P0620210
       CMEVS = 1.0                                                       P0620220
       CMEVS = AMAX0(MCAVI,MCBVI)                                        P0620230
       CMFVS = CMEVS - 128.0                                             P0620240
       WRITE (NUVI,0621) CMFVS                                           P0620250
       CMEVS = 2.0                                                       P0620260
       CMEVS = AMAX0(MCCVI,MCCVI)                                        P0620270
       CMFVS = CMEVS + 8.0                                               P0620280
       WRITE (NUVI,0621) CMFVS                                           P0620290
       CMEVS = 3.0                                                       P0620300
       CMEVS = AMAX0(MCAVI,MCCVI)                                        P0620310
       CMFVS = CMEVS - 128.0                                             P0620320
       WRITE (NUVI,0621) CMFVS                                           P0620330
       CMEVS = 4.0                                                       P0620340
       CMEVS = AMAX0(MCCVI,MCDVI)                                        P0620350
       CMFVS = CMEVS + 8.0                                               P0620360
       WRITE (NUVI,0621) CMFVS                                           P0620370
       CMEVS = 5.0                                                       P0620380
       CMEVS = AMAX0(MCDVI,MCBVI)                                        P0620390
       CMFVS = CMEVS - 64.0                                              P0620400
       WRITE (NUVI,0621) CMFVS                                           P0620410
       MCGVI = 2                                                         P0620420
       WRITE (NUVI,0622) MCGVI                                           P0620430
C*****     THREE ARGUMENTS FOR AMAX0                                     P0620440
       CMEVS = 6.0                                                       P0620450
       CMEVS = AMAX0(MCCVI,MCBVI,MCAVI)                                  P0620460
       CMFVS = CMEVS - 128.0                                             P0620470
       WRITE (NUVI,0621) CMFVS                                           P0620480
       CMEVS = 7.0                                                       P0620490
       CMEVS = AMAX0(MCDVI,MCBVI,MCCVI)                                  P0620500
       CMFVS = CMEVS - 64.0                                              P0620510
       WRITE (NUVI,0621) CMFVS                                           P0620520
       CMEVS = 8.0                                                       P0620530
       CMEVS = AMAX0(MCDVI,MCCVI,MCCVI)                                  P0620540
       CMFVS = CMEVS + 8.0                                               P0620550
       WRITE (NUVI,0621) CMFVS                                           P0620560
       MCGVI = 3                                                         P0620570
       WRITE (NUVI,0622) MCGVI                                           P0620580
C*****     FOUR OR FIVE ARGUMENTS FOR AMAX0                              P0620590
       CMEVS = 9.0                                                       P0620600
       CMEVS = AMAX0(MCAVI,MCBVI,MCCVI,MCDVI)                            P0620610
       CMFVS = CMEVS - 128.0                                             P062062O
       WRITE (NUVI,0621) CMFVS                                           P0620630
       CMEVS = 10.0                                                      P0620640
       CMEVS = AMAX0(MCAVI,MCBVI,MCCVI,MCDVI,MCAVI)                      P0620650
       CMFVS = CMEVS - 128.0                                             P0620660
       WRITE (NUVI,0621) CMFVS                                           P0620670
       WRITE (NUVI,0623)                                                 P0620680
```

```
C*****      TEST OF AMAX1 - REAL ARGUMENTS AND FUNCTION              8.2/20P0620690
C*****      TWO ARGUMENTS FOR AMAX1                                      P0620700
      WRITE (NUVI,0624)                                                  P0620710
      CMAVS = 102.0E0                                                    P0620720
      CMBVS = +76.12                                                     P0620730
      CMCVS = -85.43E1                                                   P0620740
      CMDVS = -0.986                                                     P0620750
      CMEVS = AMAX1(CMAVS,CMBVS)                                         P0620760
      CMFVS = CMEVS - 102.0E0                                            P0620770
      WRITE (NUVI,0621) CMFVS                                            P0620780
      CMEVS = AMAX1(CMBVS,CMCVS)                                         P0620790
      CMFVS = CMEVS - 76.12                                              P0620800
      WRITE (NUVI,0621) CMFVS                                            P0620810
      CMEVS = AMAX1(CMDVS,CMCVS)                                         P0620820
      CMFVS = CMEVS + 0.986                                              P0620830
      WRITE (NUVI,0621) CMFVS                                            P0620840
      MCGVI = 2                                                          P0620850
      WRITE (NUVI,0622) MCGVI                                            P0620860
C*****      THREE ARGUMENTS FOR AMAX1                                    P0620870
      CMEVS = AMAX1(CMCVS,CMBVS,CMAVS)                                   P0620880
      CMFVS = CMEVS - 102.0E0                                            P0620890
      WRITE (NUVI,0621) CMFVS                                            P0620900
      CMEVS = AMAX1(CMDVS,CMBVS,CMCVS)                                   P0620910
      CMFVS = CMEVS - 76.12                                              P0620920
      WRITE (NUVI,0621) CMFVS                                            P0620930
      CMEVS = AMAX1(CMCVS,CMCVS,CMCVS)                                   P0620940
      CMFVS = CMEVS - CMCVS                                              P0620950
      WRITE (NUVI,0621) CMFVS                                            P0620960
      MCGVI = 3                                                          P0620970
      WRITE (NUVI,0622) MCGVI                                            P0620980
C*****      FOUR OR FIVE ARGUMENTS FOR AMAX1                             P0620990
      CMEVS = AMAX1(CMAVS,CMBVS,CMCVS,CMDVS)                             P0621000
      CMFVS = CMEVS - 102.0E0                                            P0621010
      WRITE (NUVI,0621) CMFVS                                            P0621020
      CMEVS = AMAX1(CMAVS,CMCVS,CMDVS,CMBVS,CMAVS)                       P0621030
      CMFVS = CMEVS - 102.0E0                                            P0621040
      WRITE (NUVI,0621) CMFVS                                            P0621050
      WRITE (NUVI,0623)                                                  P0621060
C*****      TEST OF MAX0 - INTEGER ARGUMENTS AND FUNCTION            8.2/21P0621070
C*****      TWO ARGUMENTS FOR MAX0                                       P0621080
      WRITE (NUVI,0628)                                                  P0621090
      MCEVI = MAX0(MCAVI,MCBVI)                                          P0621100
      MCFVI = MCEVI - 128                                                P0621110
      WRITE (NUVI,0626) MCFVI                                            P0621120
      MCEVI = MAX0(MCCVI,MCDVI)                                          P0621130
      MCFVI = MCEVI + 8                                                  P0621140
      WRITE (NUVI,0626) MCFVI                                            P0621150
      MCEVI = MAX0(MCBVI,MCCVI)                                          P0621160
      MCFVI = MCEVI - 64                                                 P0621170
      WRITE (NUVI,0626) MCFVI                                            P0621180
      MCEVI = MAX0(MCCVI,MCCVI)                                          P0621190
      MCFVI = MCEVI - MCCVI                                              P0621200
      WRITE (NUVI,0626) MCFVI                                            P0621210
      MCGVI = 2                                                          P0621220
      WRITE (NUVI,0622) MCGVI                                            P0621230
C*****      THREE ARGUMENTS FOR MAX0                                     P0621240
      MCEVI = MAX0(MCCVI,MCBVI,MCAVI)                                    P0621250
      MCFVI = MCEVI - 128                                                P0621260
      WRITE (NUVI,0626) MCFVI                                            P0621270
      MCEVI = MAX0(MCDVI,MCDVI,MCCVI)                                    P0621280
      MCFVI = MCEVI + 8                                                  P0621290
      WRITE (NUVI,0626) MCFVI                                            P0621300
      MCGVI = 3                                                          P0621310
      WRITE (NUVI,0622) MCGVI                                            P0621320
C*****      FOUR OR FIVE ARGUMENTS FOR MAX0                              P0621330
      MCEVI = MAX0(MCDVI,MCCVI,MCBVI,MCAVI)                              P0621340
      MCFVI = MCEVI - 128                                                P0621350
      WRITE (NUVI,0626) MCFVI                                            P0621360
```

```
      MCEVI = MAX0(MCAVI,MCCVI,MCBVI,MCDVI,MCBVI)                      P0621370
      MCFVI = MCEVI - 128                                             P0621380
      WRITE (NUVI,0626) MCFVI                                         P0621390
      WRITE (NUVI,0623)                                               P0621400
C*****      TEST OF MAX1 - REAL ARGUMENTS AND INTEGER FUNCTION      8.2/22P0621410
C*****      TWO ARGUMENTS FOR MAX1                                   P0621420
      WRITE (NUVI,0629)                                               P0621430
      MCEVI = MAX1(CMAVS,CMBVS)                                       P0621440
      MCFVI = MCEVI - 102                                            P0621450
      WRITE (NUVI,0626) MCFVI                                         P0621460
      MCEVI = MAX1(CMBVS,CMCVS)                                       P0621470
      MCFVI = MCEVI - 76                                             P0621480
      WRITE (NUVI,0626) MCFVI                                         P0621490
      MCEVI = MAX1(CMDVS,CMCVS)                                       P0621500
      MCFVI = MCEVI + 0                                              P0621510
      WRITE (NUVI,0626) MCFVI                                         P0621520
      MCGVI = 2                                                      P0621530
      WRITE (NUVI,0622) MCGVI                                         P0621540
C*****      THREE ARGUMENTS FOR MAX1                                 P0621550
      MCEVI = MAX1(CMCVS,CMBVS,CMAVS)                                 P0621560
      MCFVI = MCEVI - 102                                            P0621570
      WRITE (NUVI,0626) MCFVI                                         P0621580
      MCEVI = MAX1(CMDVS,CMCVS,CMBVS)                                 P0621590
      MCFVI = MCEVI - 76                                             P0621600
      WRITE (NUVI,0626) MCFVI                                         P0621610
      MCGVI = 3                                                      P0621620
      WRITE (NUVI,0622) MCGVI                                         P0621630
C*****      FOUR OR FIVE ARGUMENTS FOR MAX1                          P0621640
      MCEVI = MAX1(CMAVS,CMBVS,CMCVS,CMDVS)                           P0621650
      MCFVI = MCEVI - 102                                            P0621660
      WRITE (NUVI,0626)  MCFVI                                        P0621670
      MCEVI = MAX1(CMAVS,CMCVS,CMBVS,CMAVS,CMDVS)                     P0621680
      MCFVI = MCEVI - 102                                            P0621690
      WRITE (NUVI,0626) MCFVI                                         P0621700
      WRITE (NUVI,0623)                                               P0621710
C*****      TEST OF DMAX1 - DOUBLE PRECISION ARGUMENTS AND FUNCTION 8.2/23P0621720
C*****      TWO ARGUMENTS FOR DMAX1                                  P0621730
      WRITE (NUVI,9999)                                               P0621740
      MCAVD = 23.0D-1                                                P0621750
      MCBVD = 111.789789D0                                           P0621760
      MCCVD = -99.66D-1                                              P0621770
      MCDVD = -456.123D0                                             P0621780
      MCEVD = DMAX1(MCAVD,MCBVD)                                      P0621790
      MCFVD = MCEVD - 111.789789D0                                   P0621800
      WRITE (NUVI,0627) MCFVD                                         P0621810
      MCEVD = DMAX1( MCAVD, MCCVD)                                    P0621820
      MCFVD = MCEVD - 23.0D-1                                        P0621830
      WRITE (NUVI,0627) MCFVD                                         P0621840
      MCEVD = DMAX1(MCDVD,MCCVD)                                      P0621850
      MCFVD = MCEVD + 99.66D-1                                       P0621860
      WRITE (NUVI,0627) MCFVD                                         P0621870
      MCEVD = DMAX1(MCDVD,MCDVD)                                      P0621880
      MCFVD = MCEVD - MCDVD                                          P0621890
      WRITE (NUVI,0627) MCFVD                                         P0621900
      MCGVI = 2                                                      P0621910
      WRITE (NUVI,0622) MCGVI                                         P0621920
C*****      THREE ARGUMENTS FOR DMAX1                                P0621930
      MCEVD = DMAX1(MCAVD,MCCVD,MCBVD)                                P0621940
      MCFVD = MCEVD - 111.789789D0                                   P0621950
      WRITE (NUVI,0627) MCFVD                                         P0621960
      MCEVD = DMAX1(MCCVD,MCDVD,MCAVD)                                P0621970
      MCFVD = MCEVD - 23.0D-1                                        P0621980
      WRITE (NUVI,0627) MCFVD                                         P0621990
      MCEVD = DMAX1(MCCVD,MCCVD,MCDVD)                                P0622000
      MCFVD = MCEVD + 99.66D-1                                       P0622010
      WRITE (NUVI,0627) MCFVD                                         P0622020
      MCGVI = 3                                                      P0622030
      WRITE (NUVI,0622) MCGVI                                         P0622040
```

```
C*****      FOUR OR FIVE ARGUMENTS FOR DMAX1                               P0622050
      MCEVD = DMAX1(MCAVD,MCCVD,MCBVD,MCDVD)                               P0622060
      MCFVD = MCEVD - 111.789789D0                                         P0622070
      WRITE (NUVI,0627) MCFVD                                              P0622080
      MCEVD = DMAX1(MCCVD,MCCVD,MCDVD,MCBVD,MCAVD)                         P0622090
      MCFVD = MCEVD - 111.789789D0                                         P0622100
      WRITE (NUVI,0627) MCFVD                                              P0622110
      WRITE (NUVI,0623)                                                    P0622120
      WRITE (NUVI,9998)                                                    P0622130
0621  FORMAT ( F11.1)                                                      P0622140
0622  FORMAT (  15X,9H  END OF ,I2,15H-ARGUMENT TEST.)                     P0622150
0623  FORMAT (  15X,31H  END OF 4- OR 5-ARGUMENT TEST.)                    P0622160
0624  FORMAT ( /2X,15HTEST OF AMAX1--)                                     P0622170
0625  FORMAT ( /2X,15HTEST OF AMAX0--)                                     P0622180
0626  FORMAT ( I10)                                                        P0622190
0627  FORMAT ( D22.10)                                                     P0622200
0628  FORMAT (2H1 ,14HTEST OF MAX0--)                                      P0622210
0629  FORMAT ( /2X,14HTEST OF MAX1--)                                      P0622220
9998  FORMAT (/ 39H  THE ABOVE ANSWERS SHOULD ALL BE 0 FOR/2X,            P0622230
     135HTHIS TEST SEGMENT TO BE SUCCESSFUL.)                             P0622240
9999  FORMAT ( /2X,15HTEST OF DMAX1--)                                     P0622250
C*****      END OF TEST SEGMENT 062                                        P0622260
C*****   WHEN EXECUTING ONLY SEGMENT 062, THE  STOP   AND   END   CARDS    P0622270
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                   P0622280
C*****   IN COLUMNS  1   AND   2   REMOVED.                                P0622290
C=    STOP                                                                 P0622300
C=    END                                                                 P0622310
      STOP                                                                 P062C1
      END                                                                 P062C2
C*********************************************************************P0630010
C*****                                                                     P0630020
C*****                          IFMIN - (063)                             P0630030
C*****                                                                     P0630040
C*********************************************************************P0630050
C*****   GENERAL PURPOSE                                         ASA REF P0630060
C*****      TEST INTRINSIC FUNCTIONS AMIN0,AMIN1,MIN0,MIN1 AND      8.2   P0630070
C*****      DMIN1 -- CHOOSING SMALLEST VALUE.              (TABLE 3)P0630080
C*****                                                                     P0630090
C*****   S P E C I F I C A T I O N S   SEGMENT 063                        P0630100
C*****                                                                     P0011450
C*****   WHEN EXECUTING ONLY SEGMENT 063, THE SPECIFICATION STATEMENTS    P0011455
C*****   WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=                  P0011460
C*****   IN COLUMNS 1   AND   2   REMOVED.                                P0011465
C*****                                                                     P0011470
C=    DOUBLE PRECISION  MCAVD,MCBVD,MCCVD,MCDVD,MCEVD,MCFVD               P0011475
C*****                                                                     P0011480
      DOUBLE PRECISION  MCAVD,MCBVD,MCCVD,MCDVD,MCEVD,MCFVD               P063A1
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.   NO INPUT TAPE.   P0630110
C*****                                                                     P0071220
C*****   WHEN EXECUTING ONLY SEGMENT 063, THE FOLLOWING STATEMENT         P0071225
C*****   NUVI = 6   MUST HAVE THE  C= IN COLUMNS 1 AND 2 REMOVED.         P0071230
C*****                                                                     P0071235
C=    NUVI = 6                                                            P0071240
      NUVI = 6                                                            P063B1
C*****                                                                     P0071245
      WRITE (NUVI,0630)                                                    P0630120
0630  FORMAT (1H1,1X,35HIFMIN - (063) INTRINSIC FUNCTIONS--/13X,27HAMIN0P0630130
     1,AMIN1,MIN0,MIN1,DMIN1/ 2X,14HASA REF. - 8.2//2X,7HRESULTS)         P0630140
C*****      TEST OF AMIN0 - INTEGER ARGUMENTS, REAL FUNCTION       8.2/24P0630150
C*****      TWO ARGUMENTS FOR AMIN0                                       P0630160
      WRITE (NUVI,0635)                                                    P0630170
      MCAVI = 128                                                         P0630180
      MCBVI = 64                                                          P0630190
      MCCVI = -8                                                          P0630200
      MCDVI = -4096                                                       P0630210
      CMEVS = AMIN0(MCAVI,MCBVI)                                          P0630220
      CMFVS = CMEVS - 64.0                                                P0630230
      WRITE (NUVI,0631) CMFVS                                             P0630240
```

```
      CMEVS = AMINO(MCDVI,MCCVI)                                    P0630250
      CMFVS = CMEVS + 4096.0                                        P0630260
      WRITE (NUVI,0631) CMFVS                                       P0630270
      CMEVS = AMINO(MCBVI,MCCVI)                                    P0630280
      CMFVS = CMEVS + 8.0                                           P0630290
      WRITE (NUVI,0631) CMFVS                                       P0630300
      MCGVI = 2                                                     P0630310
      WRITE (NUVI,0632) MCGVI                                       P0630320
C*****    THREE-ARGUMENT TEST FOR AMINO                            P0630330
      CMEVS = AMINO(MCAVI,MCCVI,MCBVI)                              P0630340
      CMFVS = CMEVS + 8.0                                           P0630350
      WRITE (NUVI,0631) CMFVS                                       P0630360
      CMEVS = AMINO(MCBVI,MCBVI,MCDVI)                              P0630370
      CMFVS = CMEVS + 4096.0                                        P0630380
      WRITE (NUVI,0631) CMFVS                                       P0630390
      MCGVI = 3                                                     P0630400
      WRITE (NUVI,0632) MCGVI                                       P0630410
C*****    FOUR OR FIVE ARGUMENTS FOR AMINO                         P0630420
      CMEVS = AMINO(MCAVI,MCCVI,MCDVI,MCBVI)                        P0630430
      CMFVS = CMEVS + 4096.0                                        P0630440
      WRITE (NUVI,0631) CMFVS                                       P0630450
      CMEVS = AMINO(MCCVI,MCBVI,MCCVI,MCAVI,MCDVI)                  P0630460
      CMFVS = CMEVS + 4096.0                                        P0630470
      WRITE (NUVI,0631) CMFVS                                       P0630480
      WRITE (NUVI,0633)                                             P0630490
C*****    TEST OF AMIN1 - REAL ARGUMENTS, REAL FUNCTION    8.2/25P0630500
C*****    TWO ARGUMENTS TEST FOR AMIN1                             P0630510
      WRITE (NUVI,0634)                                             P0630520
      CMAVS = 26.5                                                  P0630530
      CMBVS = 9.6666                                                P0630540
      CMCVS = -1.65                                                 P0630550
      CMDVS = -10.001                                               P0630560
      CMEVS = AMIN1(CMBVS,CMDVS)                                    P0630570
      CMFVS = CMEVS + 10.001                                        P0630580
      WRITE (NUVI,0631) CMFVS                                       P0630590
      CMEVS = AMIN1(CMAVS,CMBVS)                                    P0630600
      CMFVS = CMEVS - 9.6666                                        P0630610
      WRITE (NUVI,0631) CMFVS                                       P0630620
      CMEVS = AMIN1(CMCVS,CMDVS)                                    P0630630
      CMFVS = CMEVS + 10.001                                        P0630640
      WRITE (NUVI,0631) CMFVS                                       P0630650
      CMEVS = AMIN1(CMCVS,CMCVS)                                    P0630660
      CMFVS = CMEVS + 1.65                                          P0630670
      WRITE (NUVI,0631) CMFVS                                       P0630680
      MCGVI = 2                                                     P0630690
      WRITE (NUVI,0632) MCGVI                                       P0630700
C*****    THREE-ARGUMENT TEST FOR AMIN1                            P0630710
      CMEVS = AMIN1(CMBVS,CMCVS,CMDVS)                              P0630720
      CMFVS = CMEVS + 10.001                                        P0630730
      WRITE (NUVI,0631) CMFVS                                       P0630740
      CMEVS = AMIN1(CMBVS,CMBVS,CMBVS)                              P0630750
      CMFVS = CMEVS - 9.6666                                        P0630760
      WRITE (NUVI,0631) CMFVS                                       P0630770
      CMEVS = AMIN1(CMAVS,CMBVS,CMCVS)                              P0630780
      CMFVS = CMEVS + 1.65                                          P0630790
      WRITE (NUVI,0631) CMFVS                                       P0630800
      MCGVI = 3                                                     P0630810
      WRITE (NUVI,0632) MCGVI                                       P0630820
C*****    FOUR OR FIVE-ARGUMENT TEST FOR AMIN1                     P0630830
      CMEVS = AMIN1(CMAVS,CMBVS,CMCVS,CMDVS)                        P0630840
      CMFVS = CMEVS + 10.001                                        P0630850
      WRITE (NUVI,0631) CMFVS                                       P0630860
      CMEVS = AMIN1(CMAVS,CMCVS,CMBVS,CMCVS,CMDVS)                  P0630870
      CMFVS = CMEVS + 10.001                                        P0630880
      WRITE (NUVI,0631) CMFVS                                       P0630890
      WRITE (NUVI,0633)                                             P0630900
C*****    TEST OF MINO - INTEGER ARGUMENTS, INTEGER FUNCTION  8.2/26P0630910
C*****    TWO-ARGUMENT TEST FOR MINO                               P0630920
```

```
       WRITE (NUVI,0636)                                              P0630930
       MCEVI = MINO(MCBVI,MCAVI)                                       P0630940
       MCFVI = MCEVI - 64                                             P0630950
       WRITE (NUVI,0639) MCFVI                                        P0630960
       MCEVI = MINO(MCBVI,MCCVI)                                       P0630970
       MCFVI = MCEVI + 8                                              P0630980
       WRITE (NUVI,0639) MCFVI                                        P0630990
       MCEVI = MINO(MCCVI,MCDVI)                                       P0631000
       MCFVI = MCEVI + 4096                                           P0631010
       WRITE (NUVI,0639) MCFVI                                        P0631020
       MCEVI = MINO(MCAVI,0)                                           P0631030
       WRITE (NUVI,0639) MCEVI                                        P0631040
       MCGVI = 2                                                      P0631050
       WRITE (NUVI,0632) MCGVI                                        P0631060
C*****     THREE-ARGUMENT TEST FOR MINO                               P0631070
       MCEVI = MINO(MCAVI,MCCVI,MCBVI)                                 P0631080
       MCFVI = MCEVI + 8                                              P0631090
       WRITE (NUVI,0639) MCFVI                                        P0631100
       MCEVI = MINO(MCCVI,MCAVI,MCDVI)                                 P0631110
       MCFVI = MCEVI + 4096                                           P0631120
       WRITE (NUVI,0639) MCFVI                                        P0631130
       MCGVI = 3                                                      P0631140
       WRITE (NUVI,0632) MCGVI                                        P0631150
C*****     FOUR OR FIVE-ARGUMENT TEST FOR MINO                        P0631160
       MCEVI = MINO(MCBVI,MCAVI,MCCVI,MCDVI)                           P0631170
       MCFVI = MCEVI + 4096                                           P0631180
       WRITE (NUVI,0639) MCFVI                                        P0631190
       MCEVI = MINO(MCAVI,MCBVI,MCAVI,MCCVI,MCDVI)                     P0631200
       MCFVI = MCEVI + 4096                                           P0631210
       WRITE (NUVI,0639) MCFVI                                        P0631220
       WRITE (NUVI,0633)                                              P0631230
C*****     TEST OF MIN1 - REAL ARGUMENTS, INTEGER FUNCTION   8.2/27P0631240
C*****     TWO-ARGUMENT TEST FOR MIN1                                 P0631250
       WRITE (NUVI,0637)                                              P0631260
       MCEVI = MIN1(CMAVS,CMBVS)                                       P0631270
       MCFVI = MCEVI - 9                                              P0631280
       WRITE (NUVI,0639) MCFVI                                        P0631290
       MCEVI = MIN1(CMCVS,CMDVS)                                       P0631300
       MCFVI = MCEVI + 10                                             P0631310
       WRITE (NUVI,0639) MCFVI                                        P0631320
       MCEVI = MIN1(CMAVS,CMCVS)                                       P0631330
       MCFVI = MCEVI + 1                                              P0631340
       WRITE (NUVI,0639) MCFVI                                        P0631350
       MCGVI = 2                                                      P0631360
       WRITE (NUVI,0632) MCGVI                                        P0631370
C*****     THREE-ARGUMENT TEST FOR MIN1                               P0631380
       MCEVI = MIN1(CMAVS,CMCVS,CMBVS)                                 P0631390
       MCFVI = MCEVI + 1                                              P0631400
       WRITE (NUVI,0639) MCFVI                                        P0631410
       MCEVI = MIN1(CMAVS,CMCVS,CMDVS)                                 P0631420
       MCFVI = MCEVI + 10                                             P0631430
       WRITE (NUVI,0639) MCFVI                                        P0631440
       MCGVI = 3                                                      P0631450
       WRITE (NUVI,0632) MCGVI                                        P0631460
C*****     FOUR OR FIVE-ARGUMENT TEST FOR MIN1                        P0631470
       MCEVI = MIN1(CMAVS,CMBVS,CMDVS,CMCVS)                           P0631480
       MCFVI = MCEVI + 10                                             P0631490
       WRITE (NUVI,0639) MCFVI                                        P0631500
       MCEVI = MIN1(CMAVS,CMBVS,CMCVS,CMCVS,CMDVS)                     P0631510
       MCFVI = MCEVI + 10                                             P0631520
       WRITE (NUVI,0639) MCFVI                                        P0631530
       WRITE (NUVI,0633)                                              P0631540
C*****     TEST OF DMIN1 - DOUBLE PRECISION ARGUMENTS, FUNCTION 8.2/28P0631550
C*****     TWO-ARGUMENT TEST FOR DMIN1                                P0631560
       WRITE (NUVI,0638)                                              P0631570
       MCAVD = 61.1234D0                                              P0631580
       MCBVD = 2.0D1                                                  P0631590
       MCCVD = -999.009D-1                                            P0631600
```

```
         MCDVD = -1.9D0                                              P0631610
         MCEVD = DMIN1(MCAVD,MCBVD)                                  P0631620
         MCFVD = MCEVD - 2.0D1                                       P0631630
         WRITE (NUVI,9996) MCFVD                                     P0631640
         MCEVD = DMIN1(MCCVD,MCDVD)                                  P0631650
         MCFVD = MCEVD + 999.009D-1                                  P0631660
         WRITE (NUVI,9996) MCFVD                                     P0631670
         MCEVD = DMIN1(MCAVD,MCDVD)                                  P0631680
         MCFVD = MCEVD + 1.9D0                                       P0631690
         WRITE (NUVI,9996) MCFVD                                     P0631700
         MCGVI = 2                                                   P0631710
         WRITE (NUVI,0632) MCGVI                                     P0631720
C*****      THREE-ARGUMENT TEST FOR DMIN1                            P0631730
         MCEVD = DMIN1(MCAVD,MCBVD,MCDVD)                            P0631740
         MCFVD = MCEVD + 1.9D0                                       P0631750
         WRITE (NUVI,9996) MCFVD                                     P0631760
         MCEVD = DMIN1(MCAVD,MCCVD,MCBVD)                            P0631770
         MCFVD = MCEVD + 999.009D-1                                  P0631780
         WRITE (NUVI,9996) MCFVD                                     P0631790
         MCGVI = 3                                                   P0631800
         WRITE (NUVI,0632) MCGVI                                     P0631810
C*****      FOUR OR FIVE-ARGUMENT TEST FOR DMIN1                     P0631820
         MCEVD = DMIN1(MCAVD,MCCVD,MCBVD,MCDVD)                      P0631830
         MCFVD = MCEVD + 999.009D-1                                  P0631840
         WRITE (NUVI,9996) MCFVD                                     P0631850
         MCEVD = DMIN1(MCBVD,MCAVD,MCBVD,MCDVD,MCCVD)                P0631860
         MCFVD = MCEVD + 999.009D-1                                  P0631870
         WRITE (NUVI,9996) MCFVD                                     P0631880
         WRITE (NUVI,0633)                                           P0631890
         WRITE (NUVI,9997)                                           P0631900
0631     FORMAT ( F11.1)                                            P0631910
0632     FORMAT( 15X, 8H  END OF,I2,15H-ARGUMENT TEST.)             P0631920
0633     FORMAT (  15X, 30H  END OF 4 OR 5-ARGUMENT TEST.)          P0631930
0634     FORMAT ( /16H   TEST OF AMIN1 )                            P0631940
0635     FORMAT ( /16H   TEST OF AMIN0 )                            P0631950
0636     FORMAT ( /16H   TEST OF MIN0  )                            P0631960
0637     FORMAT (  16H1 TEST OF MIN1  )                             P0631970
0638     FORMAT ( /16H   TEST OF DMIN1 )                            P0631980
0639     FORMAT ( I10)                                              P0631990
9996     FORMAT ( D22.10)                                           P0632000
9997     FORMAT ( /39H   THE ABOVE ANSWERS SHOULD ALL BE 0 FOR/1X,  P0632010
        1 36H THIS TEST SEGMENT TO BE SUCCESSFUL.)                  P0632020
C*****   END OF TEST SEGMENT 063                                    P0632030
C*****  WHEN EXECUTING ONLY SEGMENT 063, THE  STOP  AND  END  CARDS P0632040
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=             P0632050
C*****  IN COLUMNS  1  AND  2  REMOVED.                             P0632060
C=     STOP                                                         P0632070
C=     END                                                          P0632080
       STOP                                                         P063C1
       END                                                          P063C2
C*********************************************************************P0640010
C*****                                                              P0640020
C*****                        IFDSG - (064)                         P0640030
C*****                                                              P0640040
C*********************************************************************P0640050
C*****   GENERAL PURPOSE                                ASA REF P0640060
C*****     TEST INTRINSIC FUNCTION DSIGN (TRANSFER OF SIGN WITH    8.2/33P0640070
C*****      DDOUBLE PRECISION ARGUMENTS AND FUNCTION)         (TABLE 3)P0640080
C*****                                                              P0640090
C*****  S P E C I F I C A T I O N S  SEGMENT 064                    P0640100
C*****                                                              P0011490
C*****  WHEN EXECUTING ONLY SEGMENT 064, THE SPECIFICATION STATEMENTS P0011495
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=             P0011500
C*****  IN COLUMNS 1  AND  2  REMOVED.                              P0011505
C*****                                                              P0011510
C=     DDOUBLE PRECISION  MCAVD,MCBVD,MCCVD,MCDVD,MCEVD,MCFVD       P0011515
       DDOUBLE PRECISION  MCAVD,MCBVD,MCCVD,MCDVD,MCEVD,MCFVD       P064A1
C*****                                                              P0011520
```

```
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.  NO INPUT TAPE.         P0640110
C*****                                                                         P0071250
C*****    WHEN EXECUTING ONLY SEGMENT 064, THE FOLLOWING STATEMENT             P0071255
C*****    NUVI = 6  MUST HAVE THE  C= IN COLUMNS 1 AND 2 REMOVED.              P0071260
C*****                                                                         P0071265
C=    NUVI = 6                                                                 P0071270
      NUVI = 6                                                                 P064B1
C*****                                                                         P0071275
      WRITE (NUVI,0640)                                                        P0640120
0640  FORMAT (1H1,1X,34HIFDSG - (064) INTRINSIC FUNCTION--/16X,24HDSIGN        P0640130
     1(TRANSFER OF SIGN)/ 2X,14HASA REF. - 8.2//2X,7HRESULTS)                  P0640140
C*****      HEADER FOR SEGMENT 064 WRITTEN                                     P0640150
      MCAVD = +9.5D0                                                          P0640160
      MCBVD = 123.4567D1                                                      P0640170
      MCCVD = -5.665D1                                                        P0640180
      MCDVD = -75.57D-0                                                       P0640190
      MCEVD = DSIGN(MCAVD,MCBVD)                                              P0640200
      MCFVD = MCEVD - 9.5D0                                                   P0640210
      WRITE (NUVI,0641) MCFVD                                                 P0640220
      MCEVD = DSIGN(MCBVD,MCCVD)                                              P0640230
      MCFVD = MCEVD + 123.4567D1                                              P0640240
      WRITE (NUVI,0641) MCFVD                                                 P0640250
      MCEVD = DSIGN(MCCVD,MCDVD)                                              P0640260
      MCFVD = MCEVD + 5.665D1                                                 P0640270
      WRITE (NUVI,0641) MCFVD                                                 P0640280
      MCEVD = DSIGN(MCDVD,MCDVD)                                              P0640290
      MCFVD = MCEVD +75.57D0                                                  P0640300
      WRITE (NUVI,0641) MCFVD                                                 P0640310
      WRITE (NUVI,0642)                                                       P0640320
0641  FORMAT (1H0,D30.18)                                                     P0640330
0642  FORMAT (1H0,1X,38HALL ABOVE ANSWERS SHOULD BE 0 FOR THIS/               P0640340
     12X,30HTEST SEGMENT TO BE SUCCESSFUL.)                                   P0640350
C*****      END OF TEST SEGMENT 064                                           P0640360
C*****    WHEN EXECUTING ONLY SEGMENT 064, THE  STOP  AND  END  CARDS         P0640370
C*****    WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                     P0640380
C*****    IN COLUMNS  1  AND  2  REMOVED.                                     P0640390
C=    STOP                                                                    P0640400
C=    END                                                                     P0640410
      STOP                                                                    P064C1
      END                                                                     P064C2
C************************************************************************P0650010
C*****                                                                         P0650020
C*****                          IFDIM - (065)                                 P0650030
C*****                                                                         P0650040
C************************************************************************P0650050
C*****    GENERAL PURPOSE                                        ASA REF P0650060
C*****      TEST INTRINSIC FUNCTION DIM AND IDIM--POSITIVE          8.2   P0650070
C*****      DIFFERENCE, WHICH IS DEFINED AS A1 - MIN(A1,A2)      (TABLE 3)P0650080
C*****                                                                         P0650090
C*****   N O   S P E C I F I C A T I O N S  SEGMENT 065                       P0650100
C*****   O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.         P0650110
C*****    WHEN EXECUTING ONLY SEGMENT 065, THE FOLLOWING STATEMENT            P0071280
C*****    NUVI = 6  MUST HAVE THE C=  IN COLUMNS 1 AND 2 REMOVED.             P0071285
C*****                                                                         P0071290
C=    NUVI = 6                                                                 P0071295
      NUVI = 6                                                                 P065B1
      WRITE (NUVI,0650)                                                        P0650120
0650  FORMAT (1H1,1X,39HIFDIM - (065) INTRINSIC FUNCTIONS - DIM/12X,         P0650130
     130HAND IDIM (POSITIVE DIFFERENCE)/ 2X,14HASA REF. - 8.2/               P0650140
     2/2X,7HRESULTS)                                                          P0650150
C*****      HEADER FOR SEGMENT 065 WRITTEN                                     P0650160
C*****      TEST OF DIM - -EAL ARGUMENTS, REAL FUNCT+ON          C2/34P0650170
      CMAVS = -4.0                                                           P0650180
      CMBVS = 4.0                                                            P0650190
      CMCVS = 16.25                                                         P0650200
      CMDVS = -64.25                                                        P0650210
      CMEVS = DIM(CMAVS,CMBVS)                                              P0650220
      CMFVS = CMEVS + 0.0                                                   P0650230
```

```
          WRITE (NUVI,0651) CMFVS                                         P0650240
          CMEVS = DIM(CMCVS,CMDVS)                                        P0650250
          CMFVS = CMEVS - 80.5                                            P0650260
          WRITE (NUVI,0651) CMFVS                                         P0650270
          CMEVS = OIM(CMCVS,CMBVS)                                        P0650280
          CMFVS = CMEVS - 12.25                                           P0650290
          WRITE (NUVI,0651) CMFVS                                         P0650300
          CMEVS = DIM(CMDVS,CMAVS)                                        P0650310
          CMFVS = CMEVS - 0.0                                             P0650320
          WRITE (NUVI,0651) CMFVS                                         P0650330
C*****      TEST OF IDIM - INTEGER ARGUMENTS, INTEGER FUNCTION    8.2/35P0650340
          MCAVI = 02468                                                   P0650350
          MCBVI = +36                                                     P0650360
          MCCVI = -3                                                      P0650370
          MCOVI = -23                                                     P0650380
          MCEVI = IDIM(MCAVI,MCBVI)                                       P0650390
          MCFVI = MCEVI - 2432                                            P0650400
          WRITE (NUVI,0652) MCFVI                                         P0650410
          MCEVI = IOIM(MCBVI,MCCVI)                                       P0650420
          MCFVI = MCEVI - 39                                              P0650430
          WRITE (NUVI,0652) MCFVI                                         P0650440
          MCEVI = IDIM(MCOVI,MCCVI)                                       P0650450
          MCFVI = MCEVI + 0                                               P0650460
          WRITE (NUVI,0652) MCFVI                                         P0650470
          MCEVI = IDIM(MCCVI,MCCVI)                                       P0650480
          WRITE (NUVI,0652) MCEVI                                         P0650490
          MCEVI = IDIM(MCCVI,MCBVI)                                       P0650500
          WRITE (NUVI,0652) MCEVI                                         P0650510
          WRITE (NUVI,0653)                                               P0650520
0651   FORMAT (1H0,F17.2)                                                 P0650530
0652   FORMAT (1H0,10X,I5)                                                P0650540
0653   FORMAT (1H0,1X,34H ALL ABOVE ANSWERS SHOULD BE 0 FOR/2X,           P0650550
      135HTHIS TEST SEGMENT TO BE SUCCESSFUL.)                            P0650560
C*****      END OF TEST SEGMENT 065                                       P0650570
C*****   WHEN EXECUTING ONLY SEGMENT 065 THE STOP ANO ENO CAROS           P0650580
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                   P0650590
C*****   IN COLUMNS  1  ANO  2  REMOVEO.                                  P0650600
C=     STOP                                                               P0650610
C=     END                                                                P0650620
       STOP                                                               P065C1
       END                                                                P065C2
C***************************************************************************P0660010
C*****                                                                    P0660020
C*****                            IFSGL - (066)                           P0660030
C*****                                                                    P0660040
C***************************************************************************P0660050
C*****   GENERAL PURPOSE                                        ASA REF P0660060
C*****      TEST INTRINSIC FUNCTION SNGL - OBTAIN MOST SIGNIFICANT  8.2/36P0660070
C*****      PART OF DOUBLE PRECISION ARGUMENT.                   (TABLE 3)P0660080
C*****   GENERAL COMMENTS                                                 P0660090
C*****      ASSIGNEO GO TO STATEMENT ASSUMED WORKING.                     P0660100
C*****                                                                    P0660110
C*****   S P E C I F I C A T I O N S   SEGMENT 066                        P0660120
C*****                                                                    P0011530
C*****   WHEN EXECUTING ONLY SEGMENT 066, THE SPECIFICATION STATEMENTS    P0011535
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                   P0011540
C*****   IN COLUMNS  1  AND  2  REMOVED.                                  P0011545
C*****                                                                    P0011550
C=     DOUBLE PRECISION MCAVD,MCBVD,MCCVD,MCDVD,MCEVD,MCFVO,              P0011555
C=    1             CMAVD, CMBVD,CMCVD                                    P0011560
       OOUBLE PRECISION MCAVO,MCBVD,MCCVD,MCDVO,MCEVO,MCFVO,              P066A1
      1             CMAVO, CMBVO,CMCVO                                    P066A2
C*****                                                                    P0011565
C*****   O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     P0660130
C*****                                                                    P0071300
C*****   WHEN EXECUTING ONLY SEGMENT 066, THE FOLLOWING STATEMENT         P0071305
C*****   NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 ANO 2 REMOVEO.           P0071310
C=     NUVI = 6                                                           P0071315
```

```
          NUVI = 6                                                          P066B1
C*****                                                                      P0071320
      WRITE (NUVI, 0660)                                                    P0660140
0660  FORMAT (1H1,1X,39HIFSGL - (066) INTRINSIC FUNCTION SNGL--/16X,        P0660150
     1 126HOBTAIN MOST SIGNIFICANT PT/16X,                                  P0660160
     2 18H OF O.P. ARGUMENT. //2X,15HASA REFS. - 8.2//2X,7HRESULTS)         P0660170
C*****     HEAOER FOR SEGMENT 066 WRITTEN                                   P0660180
      MCAVD = .48748748748748D3+.57D-5+.56046450-6+.31786509547D-7          P0660190
      MCBVD =-39.689539609539D1-.570-5-.56046450-6-.31786509547D-7          P0660200
      MCCVO = .33333333333333300+.57D-5+.56046450-6+.317865095470-7         P0660210
      MCOVO =-.666666666666666600-.570-5+.5604645D-6-.317865095470-7        P0660220
      MCEVD = .48748748748748D3+.57D-5+.56046450-6+.317865095470-7          P0660230
      MCFVD = -39.68953960953900+1                                          P0660240
      AVS   = 0.0                                                           P0660250
      BVS   = 0.0                                                           P0660260
      CVS   = 0.0                                                           P0660270
      IVI   = 2                                                             P0660280
C***** EXPRESSION RESULTS ASSIGNEO TO O.P. RESULT FOR VISUAL COMPARISONP0660290
C***** ARGUMENTS OF SNGL - VARIABLE, SIMPLE EXPRESSION                      P0660300
      CMAVD = AVS + SNGL(MCAVD) - BVS                                       P0660310
      WRITE (NUVI,661) MCAVO,CMAVD                                          P0660320
      CMAVO = CVS + SNGL(MCBVD) + AVS                                       P0660330
      WRITE (NUVI,661) MCBVO, CMAVO                                         P0660340
      CMAVO = SNGL(MCCVO)                                                   P0660350
      WRITE (NUVI,661) MCCVO,CMAVO                                          P0660360
      CMBVO = -MCBVO                                                        P0660370
      CMAVO = -SNGL(MCBVO - CMBVD)                                          P0660380
      CMCVO = - (MCBVD + MCBVO)                                             P0660390
      WRITE (NUVI,661) CMCVO,CMAVO                                          P0660400
      CMCVO = MCDVD * MCDVO                                                 P0660410
      CMAVO = BVS + SNGL(MCOVO**IVI) + CVS                                  P0660420
      WRITE (NUVI,661) CMCVO, CMAVO                                         P0660430
C***** ARGUMENT OF SNGL - INTRINSIC FUNCTION WITH DIFFERENT NO. OF ARG P0660440
      CMAVO = -(CVS + SNGL(DABS(MCDVO)) + BVS)                              P0660450
      WRITE (NUVI,661) MCDVO, CMAVD                                         P0660460
      CMAVO = AVS - BVS + SNGL(OMIN1(MCEVO,MCFVO))                          P0660470
      WRITE (NUVI,661) MCFVO, CMAVO                                         P0660480
      CMAVO = CVS + BVS + SNGL(OMAX1(MCCVO,MCEVD,MCFVD))                    P0660490
      WRITE (NUVI,661) MCEVO, CMAVO                                         P0660500
      WRITE (NUVI, 662)                                                     P0660510
661   FORMAT(1H0,1X,6HLINE A,025.14/2X,6HLINE B,025.14)                    P0660520
662   FORMAT(33H0 LINE B SHOULO AGREE WITH LINE A /40H  ONLY TO THE PRECP0660530
     A ISION OF A REAL OATUM. /37H  REMAINING OIGITS RESULT FROM OUTPUT /P0660540
     B 33H  CONVERSION WHEN A REAL VALUE IS / 32H  ASSIGNED TO D.P. FOR P0660550
     C PRINTING. )                                                         P0660560
C*****     ENO OF SEGMENT 066                                              P0660570
C***** WHEN EXECUTING ONLY SEGMENT 066, THE STOP AND END CARDS             P0660580
C***** WHICH APPEAR AS COMMENT CAROS MUST HAVE THE  C= IN COLUMNS          P0660590
C***** 1  ANO  2  REMOVED.                                                 P0660600
C=    STOP                                                                 P0660610
C=    ENO                                                                  P0660620
      STOP                                                                 P066C1
      ENO                                                                  P066C2
C*************************************************************************P0670010
C*****                                                                      P0670020
C*****                         IFREL - (067)                                P0670030
C*****                                                                      P0670040
C*************************************************************************P0670050
C***** GENERAL PURPOSE                                       ASA REF P0670060
C*****    TEST INTRINSIC FUNCTION REAL (OBTAIN REAL PART OF       8.2/39P0670070
C*****    COMPLEX ARGUMENT ).                                (TABLE 3)P0670080
C*****                                                                      P0670090
C***** S P E C I F I C A T I O N S  SEGMENT 067                            P0670100
C*****                                                                      P0011570
C***** WHEN EXECUTING ONLY SEGMENT 067, THE SPECIFICATION STATEMENTS       P0011575
C***** WHICH APPEAR AS COMMENT CAROS MUST HAVE THE C=                      P0011580
C***** IN COLUMNS 1  AND  2  REMOVEO.                                      P0011585
C*****                                                                      P0011590
```

```
C=      COMPLEX CHAVC,CHBVC,CHCVC,CHDVC,CHEVC,CHFVC                         P0011595
        COMPLEX CHAVC,CHBVC,CHCVC,CHDVC,CHEVC,CHFVC                         P067A1
C*****                                                                      P0011600
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.   NO INPUT TAPE.     P0670110
C*****                                                                      P0071330
C*****   WHEN EXECUTING ONLY SEGMENT 067, THE FOLLOWING STATEMENT           P0071335
C*****   NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.             P0071340
C=      NUVI = 6                                                            P0071345
        NUVI = 6                                                            P067B1
C*****                                                                      P0071350
        WRITE (NUVI,0670)                                                   P0670120
0670    FORMAT (1H1,1X,34HIFREL - (067) INTRINSIC FUNCTION--/ 16X, 4HREAL/P0670130
       1 2X,14HASA REF. - 8.2//                                            P0670140
       2 2X,7HRESULTS)                                                     P0670150
C*****      HEADER FOR SEGMENT 067 WRITTEN                                  P0670160
        CHAVC = (3.2,1.86)                                                 P0670170
        CHBVC = (2.1,0.0)                                                  P0670180
        CHCVC = (3.7,-1.2)                                                 P0670190
        CHDVC = (+45.1,+2.2)                                               P0670200
        CHEVC = (-16.0, 0.0)                                               P0670210
        CHFVC = (-32.0, -1.1)                                              P0670220
        CMAVS = REAL(CHAVC)                                                P0670230
        CMBVS = CMAVS - 3.2                                                P0670240
        CMAVS = REAL(CHBVC)                                                P0670250
        CMCVS = CMAVS - 2.1                                                P0670260
        CMAVS = REAL(CHCVC)                                                P0670270
        CMDVS = CMAVS - 3.7                                                P0670280
        CMAVS = REAL(CHDVC)                                                P0670290
        CMEVS = CMAVS - 45.1                                               P0670300
        CMAVS =  ABS(REAL(CHEVC) + REAL(CHFVC))                            P0670310
        CMFVS = CMAVS - 48.0                                               P0670320
        CMAVS = AMAX1(REAL(CHAVC),REAL(CHBVC), REAL(CHEVC-CHFVC))          P0670330
        CMGVS = CMAVS - 16.0                                               P0670340
        WRITE (NUVI,0671) CMBVS,CMCVS,CMDVS,CMEVS,CMFVS,CMGVS              P0670350
C*****     REAL CONSTANTS HAVING ONLY FRACTIONAL PARTS(NO EXPONENT)         P0670360
        CHAVC = (.789,.12)                                                 P0670370
        CHBVC = (.13,1.2)                                                  P0670380
        CHCVC = (.507,-2.2)                                                P0670390
        CHDVC = (+.5401,+.5)                                               P0670400
        CHEVC = (-.5,0.25)                                                 P0670410
        CHFVC = (-.0625, 1.1)                                              P0670420
        CMAVS = REAL(CHAVC)                                                P0670430
        CMBVS = CMAVS - .789                                               P0670440
        CMAVS = REAL(CHBVC)                                                P0670450
        CMCVS = CMAVS -0.13                                                P0670460
        CMAVS = REAL(CHCVC)                                                P0670470
        CMDVS = CMAVS -0.507                                               P0670480
        CMAVS = REAL(CHDVC)                                                P0670490
        CMEVS = CMAVS -0.5401                                              P0670500
        CMAVS = REAL(CHEVC+CHFVC)                                          P0670510
        CMFVS = CMAVS  + 0.5625                                            P0670520
        CMAVS = REAL(CHEVC) - REAL(CHFVC)                                  P0670530
        CMGVS = CMAVS + 0.4375                                             P0670540
        WRITE (NUVI,0671) CMBVS,CMCVS,CMDVS,CMEVS,CMFVS,CMGVS              P0670550
C*****     REAL CONSTANTS HAVING ONLY INTEGRAL PARTS(NO EXPONENT)           P0670560
C*****                                                     5.1.1.2/22P0670570
        CHAVC = (23.,0.1)                                                  P0670580
        CHBVC = (12.,+1.2)                                                 P0670590
        CHCVC = (1.,-2.3)                                                  P0670600
        CHDVC = (+45.,+.6)                                                 P0670610
        CHEVC = (19.0, 1.0)                                                P0670620
        CHFVC = (-32.0, 2.0)                                               P0670630
        CMAVS = REAL(CHAVC)                                                P0670640
        CMBVS = CMAVS - 23.0                                               P0670650
        CMAVS = REAL(CHBVC)                                                P0670660
        CMCVS = CMAVS - 12.0                                               P0670670
        CMAVS = REAL(CHCVC)                                                P0670680
        CMDVS = CMAVS - 1.0                                                P0670690
```

```
          CMAVS = REAL(CHDVC)                                          P0670700
          CMEVS = CMAVS - 45.0                                         P0670710
          CMAVS = SIGN(DIM(REAL(CHEVC),REAL(CHFVC)),REAL(CHFVC))       P0670720
          CMFVS = CMAVS + 51.0                                         P0670730
          CMAVS = REAL((16.0,1.0) + CHEVC + CHFVC)                     P0670740
          CMGVS = CMAVS - 3.0                                          P0670750
          WRITE (NUVI,0671) CMBVS,CMCVS,CMDVS,CMEVS,CMFVS,CMGVS        P0670760
          WRITE (NUVI,0672)                                           P0670770
0671  FORMAT (/6(F20.4/))                                             P0670780
0672  FORMAT ( /40H  ALL ABOVE ANSWERS SHOULD BE 0 FOR THIS /         P0670790
     132H  TEST SEGMENT TO BE SUCCESSFUL.)                            P0670800
C*****    END OF TEST SEGMENT 067                                     P0670810
C*****  WHEN EXECUTING ONLY SEGMENT 067, THE  STOP  AND  END  CARDS   P0670820
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=               P0670830
C*****  IN COLUMNS  1  AND  2  REMOVED.                               P0670840
C=     STOP                                                           P0670850
C=     END                                                            P0670860
       STOP                                                           P067C1
       END                                                            P067C2
C**********************************************************************P0680010
C*****                                                                P0680020
C*****                            IFIMG - (068)                       P0680030
C*****                                                                P0680040
C**********************************************************************P0680050
C*****    GENERAL PURPOSE                                  ASA REF P0680060
C*****    TEST INTRINSIC FUNCTION AIMAG (OBTAIN IMAGINARY PART   8.2/41P0680070
C*****      OF COMPLEX ARGUMENT )                          (TABLE 3)P0680080
C*****                                                                P0680090
C*****  S P E C I F I C A T I O N S  SEGMENT 068                      P0680100
C*****                                                                P0011610
C*****  WHEN EXECUTING ONLY SEGMENT 068, THE SPECIFICATION STATEMENTS P0011615
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                P0011620
C*****  IN COLUMNS  1  AND  2  REMOVED.                               P0011625
C*****                                                                P0011630
C=     COMPLEX CHAVC,CHBVC,CHCVC,CHDVC,CHEVC,CHFVC,CHGVC,CHHVC,CHIVC,  P0011635
C=    1CHJVC,CHKVC,CHLVC                                              P0011640
       COMPLEX CHAVC,CHBVC,CHCVC,CHDVC,CHEVC,CHFVC,CHGVC,CHHVC,CHIVC,  P068A1
     1CHJVC,CHKVC,CHLVC                                               P068A2
C*****                                                                P0011645
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.   P0680110
C*****                                                                P0071360
C*****  WHEN EXECUTING ONLY SEGMENT 068, THE FOLLOWING STATEMENT      P0071365
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.        P0071370
C=     NUVI = 6                                                       P0071375
       NUVI = 6                                                       P068B1
C*****                                                                P0071380
       WRITE (NUVI,0680)                                              P0680120
0680  FORMAT (1H1,1X,40HIFIMG - (068) INTRINSIC FUNCTION - AIMAG/16X, P0680130
     119HOBTAIN IMAGINARY PT/16X,19HOF COMPLEX ARGUMENT/ 2X,          P0680140
     213HASA REF.- 8.2//2X,7HRESULTS)                                P0680150
C*****    HEADER FOR SEGMENT 068 WRITTEN                              P0680160
C*****    IMAGINARY PARTS OF COMPLEX NUMBERS HAVING BOTH INTEGRAL     P0680170
C*****    AND FRACTIONAL PARTS. (NO EXPONENT)                         P0680180
       CHAVC = (3.2,1.86)                                            P0680190
       CHBVC = (2.1,0.0)                                             P0680200
       CHCVC = (37.0,-1.2)                                           P0680210
       CHDVC = (+45.1,+2.2)                                          P0680220
       CMAVS = AIMAG(CHAVC)                                          P0680230
       CMBVS = CMAVS - 1.86                                          P0680240
       CMAVS = AIMAG(CHBVC)                                          P0680250
       CMCVS = CMAVS - 0.0                                           P0680260
       CMAVS = AIMAG(CHCVC)                                          P0680270
       CMDVS = CMAVS + 1.2                                           P0680280
       CMAVS = AIMAG(CHDVC)                                          P0680290
       CMEVS = CMAVS -2.2                                            P0680300
       WRITE (NUVI,0681) CMBVS,CMCVS,CMDVS,CMEVS                     P0680310
C*****    IMAGINARY PARTS OF COMPLEX NUMBERS HAVING ONLY FRACTIONAL   P0680320
C*****    PARTS (NO EXPONENT)                                         P0680330
```

```
      CHAVC = (.789,.00)                                                  P0680340
      CHBVC = (1.2,.789)                                                  P0680350
      CHCVC = (+4.56,-.456)                                              P0680360
      CHDVC = (-12.3,+.001)                                              P0680370
      CMAVS = AIMAG(CHAVC)                                                P0680380
      CMBVS = CMAVS - 0.0                                                 P0680390
      CMAVS = AIMAG(CHBVC)                                                P0680400
      CMCVS = CMAVS - .789                                                P0680410
      CMAVS = AIMAG(CHCVC)                                                P0680420
      CMDVS = CMAVS + .456                                                P0680430
      CMAVS = AIMAG(CHDVC)                                                P0680440
      CMEVS = CMAVS - 0.001                                               P0680450
      WRITE (NUVI,0681) CMBVS,CMCVS,CMDVS,CMEVS                          P0680460
C*****      IMAGINARY PARTS OF COMPLEX NUMBERS HAVING ONLY INTEGRAL       P0680470
C*****      PARTS (NO EXPONENT)                                           P0680480
      CHAVC =(-12.,12.)                                                   P0680490
      CHBVC = (+1.23,0.)                                                  P0680500
      CHCVC = (0.0, -16.0)                                                P0680510
      CHDVC = (-1.1, -32.0)                                               P0680520
      CMAVS = AIMAG(CHAVC)                                                P0680530
      CMBVS = CMAVS - 12.0                                                P0680540
      CMAVS = AIMAG(CHBVC)                                                P0680550
      CMCVS = CMAVS + 0.0                                                 P0680560
      CMAVS = ABS(AIMAG(CHCVC)+AIMAG(CHDVC))                             P0680570
      CMDVS = CMAVS - 48.0                                                P0680580
      CMAVS = AMAX1(AIMAG(CHAVC), AIMAG(CHBVC), AIMAG(CHCVC-CHDVC))       P0680590
      CMEVS = CMAVS - 16.0                                                P0680600
      WRITE (NUVI,0681) CMBVS,CMCVS,CMDVS,CMEVS                          P0680610
C*****      IMAGINARY PARTS OF COMPLEX NUMBERS HAVING A DECIMAL EXPONENT. P0680620
      CHAVC = (2.3E0,1.2E0)                                              P0680630
      CHBVC = (1.2,.56E2)                                                P0680640
      CHCVC = (.24,1.E1)                                                  P0680650
      CHDVC = (1.,+7.8E+1)                                               P0680660
      CHEVC = (1.5, 16.0)                                                 P0680670
      CHFVC = (1.0, -32.0)                                                P0680680
      CHGVC = (1.E0,-7.99E-1)                                            P0680690
      CHHVC = (27.00,.55E-1)                                             P0680700
      CHIVC = (1.E0,2.E-0)                                               P0680710
      CHJVC = (1.2,1.E+1)                                                P0680720
      CHKVC = (1.E-1,+7.E0)                                              P0680730
      CHLVC = (1.7,-99.E-1)                                              P0680740
      CMAVS = AIMAG(CHAVC)                                                P0680750
      CMBVS = CMAVS - 1.2E0                                               P0680760
      CMAVS = AIMAG(CHBVC)                                                P0680770
      CMCVS = CMAVS - .56E2                                               P0680780
      CMAVS = AIMAG(CHCVC)                                                P0680790
      CMDVS = CMAVS - 1.E1                                                P0680800
      CMAVS = AIMAG(CHDVC)                                                P0680810
      CMEVS = CMAVS - 7.8E+1                                             P0680820
      WRITE (NUVI,0681) CMBVS,CMCVS,CMDVS,CMEVS                          P0680830
      CMAVS = SIGN(DIM(AIMAG(CHEVC),AIMAG(CHFVC)), AIMAG(CHFVC))         P0680840
      CMBVS = CMAVS + 48.0                                                P0680850
      CMAVS = AIMAG((1.0, 16.0) + CHEVC + CHFVC)                         P0680860
      CMCVS = CMAVS + 0.0                                                 P0680870
      CMAVS = AIMAG(CHGVC)                                                P0680880
      CMDVS = CMAVS + 7.99E-1                                            P0680890
      CMAVS = AIMAG(CHHVC)                                                P0680900
      CMEVS = CMAVS - .55E-1                                             P0680910
      WRITE (NUVI,0681) CMBVS,CMCVS,CMDVS,CMEVS                          P0680920
      CMAVS = AIMAG(CHIVC)                                                P0680930
      CMBVS = CMAVS - 2.E-0                                               P0680940
      CMAVS = AIMAG(CHJVC)                                                P0680950
      CMCVS = CMAVS - 1.E+1                                               P0680960
      CMAVS = AIMAG(CHKVC)                                                P0680970
      CMDVS = CMAVS - 7.E0                                                P0680980
      CMAVS = AIMAG(CHLVC)                                                P0680990
      CMEVS = CMAVS + 99.E-1                                             P0681000
      WRITE (NUVI,0681) CMBVS,CMCVS,CMDVS,CMEVS                          P0681010
```

```
       WRITE (NUVI,0682)                                               P0681020
0681   FORMAT ( / 4(F20.5 / ))                                         P0681030
0682   FORMAT ( /40H  ALL ABOVE ANSWERS SHOULD BE 0 FOR THIS /         P0681040
       132H  TEST SEGMENT TO BE SUCCESSFUL.)                           P0681050
C*****      END OF TEST SEGMENT 068                                    P0681060
C*****  WHEN EXECUTING ONLY SEGMENT 068, THE  STOP  AND  END  CARDS    P0681070
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                P0681080
C*****  IN COLUMNS  1  AND  2  REMOVED.                                P0681090
C=     STOP                                                            P0681100
C=     END                                                            P0681110
       STOP                                                            P068C1
       END                                                             P068C2
C*******************************************************************P0690010
C*****                                                                 P0690020
C*****                               IFDBL - (069)                     P0690030
C*****                                                                 P0690040
C*******************************************************************P0690050
C*****  GENERAL PURPOSE                                     ASA REF P0690060
C*****     TEST INTRINSIC FUNCTION DBLE (EXPRESS S.P. ARGUMENT    8.2/43P0690070
C*****     IN DOUBLE PRECISION FORM )                        (TABLE 3)P0690080
C*****     INTRINSIC FUNCTIONS DABS,DSIGN,DMIN1,DMAX1,AMAX1            P0690090
C*****     ASSUMED WORKING.                                            P0690100
C*****                                                                 P0690110
C*****   S P E C I F I C A T I O N S  SEGMENT 069                      P0690120
C*****                                                                 P0011650
C*****  WHEN EXECUTING ONLY SEGMENT 069, THE SPECIFICATION STATEMENTS  P0011655
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                 P0011660
C*****  IN COLUMNS  1  AND  2  REMOVED.                                P0011665
C*****                                                                 P0011670
C=     DOUBLE PRECISION   MCAVD,MCBVD,MCCVD,MCDVD,MCEVD,MCFVD,MCGVD     P0011675
       DOUBLE PRECISION   MCAVD,MCBVD,MCCVD,MCDVD,MCEVD,MCFVD,MCGVD     P069A1
C*****                                                                 P0011680
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.    P0690130
C*****                                                                 P0071390
C*****  WHEN EXECUTING ONLY SEGMENT 06 , THE FOLLOW+NG STATEMENT       P0071395
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.         P0071400
C=     NUVI = 6                                                        P0071405
       NUVI = 6                                                        P069B1
C*****                                                                 P0071410
       WRITE (NUVI,0690)                                               P0690140
0690   FORMAT (1H1,1X,39HIFDBL -.(069) INTRINSIC FUNCTION - DBLE/16X,  P0690150
       126HS.P. ARGUMENT IN D.P. FORM / 2X,13HASA REF.- 8.2//2X,7HRESULTS)P0690160
C*****      HEADER FOR SEGMENT 069 WRITTEN                             P0690170
       CMAVS = 0.9765625E-3                                            P0690180
       CMBVS = -.1953125E-2                                            P0690190
       CMCVS = .5859375E-2                                             P0690200
       CMDVS = -.1048576E+7                                            P0690210
       CMEVS = +114688.0                                               P0690220
       MCAVD = 0.0D0                                                   P0690230
       MCBVD = MCAVD * DBLE(CMAVS)                                     P0690240
       MCCVD = DMIN1(DBLE(CMAVS),DBLE(CMEVS))                          P0690250
       MCDVD = MCAVD * MCBVD - DABS(DBLE(CMBVS))                       P0690260
       MCEVD = MCAVD - DSIGN(DBLE(CMCVS),DBLE(CMBVS))                  P0690270
       MCFVD = - DABS(DBLE(CMDVS)) + MCAVD                             P0690280
       MCGVD = DMAX1(DBLE(AMAX1(CMDVS,CMEVS)),MCBVD)                   P0690290
       WRITE(NUVI,691) CMAVS, MCCVD, CMBVS, MCDVD,                     P0690300
      1               CMCVS, MCEVD, CMDVS, MCFVD, CMEVS, MCGVD         P0690310
691    FORMAT(1H0,1X,6HLINE A, E18.7/ 8H  LINE B, D25.14)              P0690320
       WRITE(NUVI, 692)                                                P0690330
692    FORMAT(1H0,38H A COMPARISON OF LINE A AGAINST LINE B /1X,       P0690340
      1 40H IS NEEDED TO CHECK THE VALIDITY OF TEST)                   P0690350
C*****      END OF TEST SEGMENT 069                                    P0690360
C*****  WHEN EXECUTING ONLY SEGMENT 069, THE STOP AND END CARDS        P0690370
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                P0690380
C*****  IN COLUMNS  1  AND  2  REMOVED.                                P0690390
C=     STOP                                                            P0690400
C=     END                                                             P0690410
       STOP                                                            P069C1
```

```
      END                                                            P069C2
C*********************************************************************P0700010
C*****                                                               P0700020
C*****                        IFCPX - (070)                          P0700030
C*****                                                               P0700040
C*********************************************************************P0700050
C*****    GENERAL PURPOSE                                   ASA REF  P0700060
C*****     TEST INTRINSIC FUNCTION CMPLX (EXPRESS TWO REAL    8.2/45 P0700070
C*****     ARGUMENTS IN COMPLEX FORM)                      (TABLE 3) P0700080
C*****    GENERAL COMMENTS                                           P0700090
C*****      SUBTRACTION OF COMPLEX NUMBERS ASSUMED WORKING           P0700100
C*****                                                               P0700110
C*****   S P E C I F I C A T I O N S   SEGMENT 070                   P0700120
C*****                                                               P0011690
C*****   WHEN EXECUTING ONLY SEGMENT 070, THE SPECIFICATION STATEMENTS P0011695
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=              P0011700
C*****   IN COLUMNS  1  AND  2  REMOVED.                             P0011705
C*****                                                               P0011710
C=     COMPLEX CHAVC,CHBVC,CHCVC,CHDVC,CHEVC,CHFVC,CHGVC             P0011715
       COMPLEX CHAVC,CHBVC,CHCVC,CHDVC,CHEVC,CHFVC,CHGVC             P070A1
C*****                                                               P0011720
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.  NO INPUT TAPE. P0700130
C*****   WHEN EXECUTING ONLY SEGMENT 070, THE FOLLOWING STATEMENT    P0071420
C*****   NUVI = 6   MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.     P0071425
C=     NUVI = 6                                                      P0071430
       NUVI = 6                                                      P070B1
       WRITE (NUVI,0700)                                             P0700140
0700   FORMAT (1H1, 1X,40HIFCPX - (070) INTRINSIC FUNCTION - CMPLX/16X, P0700150
      126HEXPRESS TWO REAL ARGUMENTS/16X,15HIN COMPLEX FORM/15H  ASA REF.P0700160
      2- 8.2//2X,7HRESULTS)                                         P0700170
C*****      HEADER FOR SEGMENT 070 WRITTEN                           P0700180
       CMAVS = 23.123                                                P0700190
       CMBVS = -.78                                                  P0700200
       CMCVS = +17.                                                  P0700210
       CMDVS = 157.E-1                                               P0700220
       CMEVS = -.985E1                                               P0700230
       CMFVS = +88.E+0                                               P0700240
       CHAVC = CMPLX(CMAVS,CMBVS)                                    P0700250
       CHBVC = CHAVC - (23.123,-.78)                                 P0700260
       CHAVC = CMPLX(CMBVS,15.0)                                     P0700270
       CHCVC = CHAVC - (-.78,15.0)                                   P0700280
       CHAVC = CMPLX(CMDVS,CMFVS)                                    P0700290
       CHDVC = CHAVC - (157.E-1,+88.E+0)                             P0700300
       CHAVC =   CMPLX(0.0,0.E0)                                     P0700310
       CHEVC = CHAVC                                                 P0700320
       CHAVC = CMPLX(CMEVS,CMFVS)                                    P0700330
       CHFVC = CHAVC - (-.985E1,+88.E+0)                             P0700340
       CHAVC = CMPLX(CMCVS,-0.0E-1)                                  P0700350
       CHGVC = CHAVC - (+17.0,0.0)                                   P0700360
       WRITE (NUVI,0702) CHBVC, CHCVC, CHDVC, CHEVC, CHFVC, CHGVC    P0700370
       WRITE (NUVI,0701)                                            P0700380
0701   FORMAT   (//2X,37HTHE ABOVE ANSWERS SHOULD ALL BE 0 FOR/1X,  P0700390
      136H THIS TEST SEGMENT TO BE SUCCESSFUL.)                     P0700400
0702   FORMAT (6(/F17.7,F17.7))                                     P0700410
C*****      END OF TEST SEGMENT 070                                  P0700420
C*****   WHEN EXECUTING ONLY SEGMENT 070, THE  STOP  AND  END  CARDS P0700430
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=             P0700440
C*****   IN COLUMNS  1  AND  2  REMOVED.                             P0700450
C=     STOP                                                          P0700460
C=     END                                                           P0700470
       STOP                                                          P070C1
       END                                                           P070C2
C*********************************************************************P0710010
C*****                                                               P0710020
C*****                        IFCJG - (071)                          P0710030
C*****                                                               P0710040
C*********************************************************************P0710050
C*****   GENERAL PURPOSE                                    ASA REF  P0710060
```

```
C*****      TEST INTRINSIC FUNCTION CONJG (OBTAIN CONJUGATE OF A    8.2/47P0710070
C*****      COMPLEX ARGUMENT)                                      (TABLE 3)P0710080
C*****   GENERAL COMMENTS                                                   P0710090
C*****      SUBTRACTION OF COMPLEX NUMBERS ASSUMED WORKING                  P0710100
C*****                                                                      P0710110
C*****   S P E C I F I C A T I O N S  SEGMENT 071                           P0710120
C*****                                                                      P0011730
C*****   WHEN EXECUTING ONLY SEGMENT 071, THE SPECIFICATION STATEMENTS      P0011735
C*****   IN COLUMNS  1  AND  2  REMOVED.                                    P0011740
C*****                                                                      P0011745
C=      COMPLEX  CHAVC, CHBVC, CHCVC, CHDVC ,CHEVC                          P0011750
        COMPLEX  CHAVC, CHBVC, CHCVC, CHDVC ,CHEVC                          P071A1
C*****                                                                      P0011755
C*****   O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.        P0710130
C*****                                                                      P0071440
C*****   WHEN EXECUTING ONLY SEGMENT 071, THE FOLLOWING STATEMENT           P0071445
C*****   NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.             P0071450
C=      NUVI = 6                                                            P0071455
        NUVI = 6                                                            P071B1
C*****                                                                      P0071460
        WRITE (NUVI,0710)                                                   P0710140
0710    FORMAT (1H1, 1X,40HIFCJG - (071) INTRINSIC FUNCTION - CONJG/16X,    P0710150
     119HOBTAIN CONJUGATE OF/16X,16HA COMPLEX NUMBER/                       P0710160
     217H  ASA REFS. - 8.2//2X,7HRESULTS)                                   P0710170
C*****      HEADER FOR SEGMENT 071 WRITTEN                                  P0710180
        CHAVC = (1.1,+2.1)                                                  P0710190
        CHBVC = CONJG(CHAVC)                                                P0710200
        CHCVC = CHBVC - (1.1,-2.1)                                          P0710210
        CHEVC = (-2.E0, -3.E-1)                                             P0710220
        CHBVC = CONJG(CHEVC)                                                P0710230
        CHDVC = CHBVC - (-2.E0,3.E-1)                                       P0710240
        WRITE (NUVI,0711) CHCVC, CHDVC                                      P0710250
        CHAVC = (-.2,+.3)                                                   P0710260
        CHBVC = CONJG(CHAVC)                                                P0710270
        CHCVC = CHBVC - (-.2,-.3)                                           P0710280
        CHAVC = (23.1E-1,1.E-2)                                             P0710290
        CHBVC = CONJG(CHAVC)                                                P0710300
        CHDVC = CHBVC - (23.1E-1,-1.E-2)                                    P0710310
        WRITE (NUVI,0711) CHCVC,CHDVC                                       P0710320
        CHBVC = CONJG((1.2,2.2))                                            P0710330
        CHCVC = CHBVC - (1.2,-2.2)                                          P0710340
        CHBVC = CONJG((-1.0,2.0E-1))                                        P0710350
        CHDVC = CHBVC - (-1.0,-2.0E-1)                                      P0710360
        WRITE (NUVI,0711) CHCVC, CHDVC                                      P0710370
        CHBVC = CONJG((.1,.2E0))                                            P0710380
        CHCVC = CHBVC - (.1,-.2E0)                                          P0710390
        CHDVC = CONJG((.0,-0.E0))                                           P0710400
        WRITE (NUVI,0711) CHCVC, CHDVC                                      P0710410
        WRITE (NUVI,0712)                                                   P0710420
0711    FORMAT (4(/  F17.7, F10.7))                                        P0710430
0712    FORMAT (//38H  ALL ABOVE ANSWERS MUST BE 0 FOR THIS/1X,            P0710440
     131H TEST SEGMENT TO BE SUCCESSFUL.)                                   P0710450
C*****      END OF TEST SEGMENT 071                                        P0710460
C*****   WHEN EXECUTING ONLY SEGMENT 071, THE  STOP  AND  END  CARDS       P0710470
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                    P0710480
C*****   IN COLUMNS  1  AND  2  REMOVED.                                    P0710490
C=      STOP                                                                P0710500
C=      END                                                                 P0710510
        STOP                                                                P071C1
        END                                                                 P071C2
C***********************************************************************P0720010
C*****                                                                      P0720020
C*****                         IFBMS - (072)                                P0720030
C*****                                                                      P0720040
C***********************************************************************P0720050
C*****   GENERAL PURPOSE                                        ASA REF P0720060
C*****      TEST THAT ALL INTRINSIC FUNCTIONS WOULD ACCEPT        8.2/32P0720070
C*****      ANY EXPRESSION OF THE TYPE SPECIFIED IN THE         (TABLE 3)P0720080
```

```
C*****    INTRINSIC FUNCTION TABLE - ASA REFS - 8.2/01-47            P0720090
C*****  GENERAL COMMENTS                                            P0720100
C*****     SEGMENTS 055 TO 071 ASSUMED WORKING                      P0720110
C*****                                                              P0720120
C*****  O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE. P0720130
C*****                                                              P0720140
C*****  WHEN EXECUTING ONLY SEGMENT 072, THE FOLLOWING STATEMENT    P0071470
C*****  NUVI = 6   MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.     P0071475
C=     NUVI = 6                                                     P0071480
       NUVI = 6                                                     P072B1
C*****                                                              P0071485
       WRITE (NUVI,0720)                                            P0720150
0720   FORMAT (1H1,1X,37HIFBMS - (072) BASIC FORTRAN INTRINSIC/10X, P0720160
      128HFUNCTIONS ACCEPT EXPRESSIONS/10X,30HOF TYPE SPECIFIED IN I.F.TAP0720170
      2BLE//15H  ASA REF.- 8.2//2X,7HRESULTS)                       P0720180
C*****     HEADER FOR SEGMENT 072 WRITTEN                           P0720190
C*****     TEST ABS - ABSOLUTE VALUE OF REAL ARGUMENT        8.2/11P0720200
       CMAVS = 0.5                                                  P0720210
       CMBVS = -.25                                                 P0720220
       CMCVS = 16.0                                                 P0720230
       CMDVS = -4.0                                                 P0720240
       CMEVS = ABS(CMAVS + CMBVS) + 1.0                             P0720250
       CMFVS = CMEVS - (0.5 - .25) - 1.0                            P0720260
       CMEVS = ABS(0.0 -ABS(CMAVS - CMCVS+ CMDVS))                  P0720270
       CMGVS = CMEVS + (0.5 - 16.0 - 4.0)                           P0720280
       CMEVS = ABS(CMAVS + 1.0 - (CMCVS + CMDVS) + 0.5 * 8.0)       P0720290
       CMHVS = CMEVS + (0.5 + 1.0 - (16.0 - 4.0) + 4.0)             P0720300
       CMEVS = ABS(1.0E0 + (1.0 * 1.0 / 1.0) **2)                   P0720310
       CMIVS = CMEVS - 2.0                                          P0720320
       WRITE (NUVI,0721) CMFVS , CMGVS , CMHVS , CMIVS              P0720330
C*****     TEST OF IABS - ABSOLUTE VALUE OF INTEGER ARGUMENT  8.2/12P0720340
       MCAVI = 2                                                    P0720350
       MCBVI = 10                                                   P0720360
       MCCVI = IABS (MCAVI + MCBVI)                                 P0720370
       MCDVI = MCCVI - 12                                           P0720380
       MCCVI = IABS(MCAVI * 2 + MCBVI / 2) +1                       P0720390
       MCEVI = MCCVI - 10                                           P0720400
       MCCVI = IABS(-MCBVI /(-2) - MCBVI ** 1 + (1 * 2 * 3 / 2 - 3) - 10 P0720410
      1 + 10 + MCBVI / MCAVI - 5)                                   P0720420
       MCFVI = MCCVI - 5                                            P0720430
       MCCVI = IABS(0 - IABS(-5 * 1 / 5  - 5 * IABS(-1)))           P0720440
       MCGVI = MCCVI - 6                                            P0720450
       WRITE (NUVI, 0722) MCDVI , MCEVI , MCFVI , MCGVI             P0720460
C*****     TEST OF FLOAT - CONVERSION FROM INTEGER TO REAL    8.2/29P0720470
       CMEVS = FLOAT (MCAVI + MCBVI)                                P0720480
       CMFVS = CMEVS - 12.0                                         P0720490
       CMEVS = FLOAT(MCAVI * 2 /4 + MCBVI ** 1)                     P0720500
       CMGVS = CMEVS - 11.0                                         P0720510
       CMEVS = FLOAT((23 + 46)/69 + 10 - MCBVI) *2.0 + 1.5          P0720520
       CMHVS = CMEVS - 3.5                                          P0720530
       CMEVS = (76.5 * 1.0 - FLOAT (76 * 1)) * 4.0                  P0720540
       CMIVS = CMEVS - 2.0                                          P0720550
       WRITE (NUVI,0723) CMFVS, CMGVS, CMHVS, CMIVS                 P0720560
C*****     TEST OF IFIX - CONVERSION FROM REAL TO INTEGER     8.2/30P0720570
       MCCVI = IFIX(CMAVS - CMBVS)                                  P0720580
       MCDVI = MCCVI                                                P0720590
       MCCVI = IFIX(CMAVS *1.0 + CMBVS/CMBVS - (CMCVS - CMDVS))     P0720600
       MCEVI = MCCVI + 18                                           P0720610
       MCCVI = 1 + IFIX(2.5 * 2.0) - IFIX(10.0 /2.0)                P0720620
       MCFVI = MCCVI - 1                                            P0720630
       MCCVI = 2 + IFIX(2.5 ** 1.0 + (10.65 + 3.45))                P0720640
       MCGVI = MCCVI - 18                                           P0720650
       WRITE (NUVI,0724) MCDVI, MCEVI, MCFVI, MCGVI                 P0720660
C*****     TEST OF SIGN - TRANSFER OF SIGN WITH REAL ARGUMENTS 8.2/31P0720670
       CMEVS = SIGN(CMAVS+CMDVS,CMDVS-CMBVS)                        P0720680
       CMFVS = CMEVS - (CMAVS + CMDVS)                              P0720690
       CMEVS = SIGN(25.0 + 0.0 * 4.0,-24.4/6.1 * 1.0)              P0720700
       CMGVS = CMEVS + 25.0                                         P0720710
```

```
          CMEVS = SIGN(10.5,SIGN(2.0,-4.5))                                P0720720
          CMHVS = CMEVS + 10.5                                             P0720730
          CMEVS = SIGN(1.0,SIGN(-2.0,SIGN(2.0,-1.0)))                      P0720740
          CMIVS = CMEVS + 1.0                                             P0720750
          WRITE (NUVI,0725) CMFVS, CMGVS, CMHVS, CMIVS                    P0720760
C*****     TEST OF ISIGN - TRANSFER OF SIGN WITH INTEGER ARGUMENT  8.2/32 P0720770
          MCCVI = ISIGN(MCAVI,MCAVI + MCBVI - 13)                         P0720780
          MCDVI = MCCVI + 2                                               P0720790
          MCCVI = ISIGN(10,-5 - 10/2 + 1**2)                             P0720800
          MCEVI = MCCVI + 10                                              P0720810
          MCCVI = ISIGN( 1 + 2 + 3 , ISIGN(-2,7 + 5))                     P0720820
          MCFVI = MCCVI - 6                                               P0720830
          MCCVI = ISIGN(1,ISIGN(-1,ISIGN(+1,-1)))                         P0720840
          MCGVI = MCCVI + 1                                               P0720850
          WRITE (NUVI,0726) MCDVI, MCEVI, MCFVI, MCGVI                    P0720860
C*****     TEST OF COMBINATION OF ABS,IABS,FLOAT,IFIX,SIGN,ISIGN          P0720870
          CMEVS = FLOAT(IABS(IFIX(ABS(-5.0 + SIGN(-1.0,2.0)))))           P0720880
          CMFVS = CMEVS - 4.0                                             P0720890
          MCCVI = IFIX(FLOAT(ISIGN(1+2,IABS(1 + ISIGN(1,-1)))))           P0720900
          MCDVI = MCCVI - 3                                               P0720910
          CMEVS = SIGN(ABS(1.0 + FLOAT(-20)), FLOAT(IFIX(1.0)))           P0720920
          CMGVS = CMEVS - 19.0                                            P0720930
          MCCVI = ISIGN(IABS(IFIX(1.0) - 2) , -((1 + IFIX(-1.0)) +1))     P0720940
          MCEVI = MCCVI + 1                                               P0720950
          WRITE (NUVI,0727) CMFVS, CMGVS, MCDVI, MCEVI                    P0720960
          CMEVS = ABS(SIGN(1.0 + 2.0, FLOAT(IABS(-2))))                   P0720970
          CMFVS = CMEVS - 3.0                                             P0720980
          MCCVI = IABS(IFIX(SIGN(-2.0,2.0)))                             P0720990
          MCDVI = MCCVI - 2                                               P0721000
          CMEVS = 1.2 + FLOAT(1 + 5 - ISIGN(-1,6))                        P0721010
          CMGVS = CMEVS - 6.2                                             P0721020
          MCCVI = 25 - ISIGN(IFIX(2.0),-IABS(-5))                         P0721030
          MCEVI = MCCVI - 27                                              P0721040
        / WRITE (NUVI,0728) CMFVS, CMGVS, MCDVI, MCEVI                    P0721050
C*****     END OF TEST STATEMENTS                                         P0721060
0721  FORMAT ( / 30H   TEST OF ABS IN EXPRESSIONS -/ 4(F17.1/))           P0721070
0722  FORMAT (    31H   TEST OF IABS IN EXPRESSIONS -/ 4(I15/))           P0721080
0723  FORMAT (    32H   TEST OF FLOAT IN EXPRESSIONS -/ 4(F17.1/))        P0721090
0724  FORMAT (    31H   TEST OF IFIX IN EXPRESSIONS -/ 4(I15/))           P0721100
0725  FORMAT (    31H   TEST OF SIGN IN EXPRESSIONS -/ 4(F17.1/))         P0721110
0726  FORMAT (    32H   TEST OF ISIGN IN EXPRESSIONS -/ 4(I15/))          P0721120
0727  FORMAT (    40H   COMBINATION OF ALL INTRINSIC FUNCTIONS,           P0721130
     1   2(/F17.1), 2(/I15))                                             P0721140
0728  FORMAT (  2(F17.1/),2(I15/)/ 35H   ALL ABOVE ANSWERS SHOULD BE 0 FOP0721150
     1R/2X,35HTHIS TEST SEGMENT TO BE SUCCESSFUL.)                        P0721160
C*****     END OF TEST SEGMENT 072                                        P0721170
C*****  WHEN EXECUTING ONLY SEGMENT 072, THE  STOP   AND   END   CARDS    P0721180
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=                  P0721190
C*****  IN COLUMNS  1  AND  2  REMOVED.                                   P0721200
C=    STOP                                                                P0721210
C=    END                                                                 P0721220
      STOP                                                                P072C1
      END                                                                 P072C2
C*******************************************************************P0730010
C*****                                                                    P0730020
C*****                       IFFMS - (073)                                P0730030
C*****                                                                    P0730040
C*******************************************************************P0730050
C*****  GENERAL PURPOSE                                    ASA REF P0730060
C*****   TEST THAT ALL INTRINSIC FUNCTIONS IN FORTRAN WOULD     8.2/07P0730070
C*****   ACCEPT ANY EXPRESSION OF THE TYPE SPECIFIED IN THE    (PG 24)P0730080
C*****   INTRINSIC FUNCTION TABLE - ASA REFS - 8.2/TABLE 3          P0730090
C*****   SEGMENTS 055 - 071 ASSUMED WORKING.                       P0730100
C*****                                                                    P0730110
C*****  S P E C I F I C A T I O N S  SEGMENT 073                    P0730120
C*****                                                                    P0011760
C*****  WHEN EXECUTING ONLY SEGMENT 073, THE SPECIFICATION STATEMENTS P0011765
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=              P0011770
```

```
C*****   IN COLUMNS  1  AND   2  REMOVED.                                      P0011775
C*****                                                                        P0011780
C=      DIMENSION MCA1I(5),AC2S(5,6)                                          P0011785
C=       INTEGER MCA3I(2,3,3)                                                 P0011790
C=      DOUBLE PRECISION DPAVD,DPBVD,DPCVD,DPDVD,DPEVD,DPFVD,DPGVD,           P0011795
C=     1DPA1D(5),FC2D(5,5)                                                    P0011800
        DIMENSION MCA1I(5),AC2S(5,6)                                          P073A1
        INTEGER MCA3I(2,3,3)                                                  P073A2
        DOUBLE PRECISION DPAVD,DPBVD,DPCVD,DPDVD,DPEVD,DPFVD,DPGVD,           P073A3
       1DPA1D(5),FC2D(5,5)                                                    P073A4
C*****                                                                        P0011805
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.  NO INPUT TAPE.        P0730130
C*****                                                                        P0071490
C*****   WHEN EXECUTING ONLY SEGMENT 073, THE FOLLOWING STATEMENT            P0071495
C*****   NUVI = 6   MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.             P0071500
C=      NUVI = 6                                                              P0071505
        NUVI = 6                                                              P073B1
C*****                                                                        P0071510
        WRITE (NUVI,0730)                                                     P0730140
 0730   FORMAT (1H1,1X,41HIFFMS - (073) FORTRAN INTRINSIC FUNCTIONS/16X,      P0730150
       126HACCEPT EXPRESSIONS OF TYPE/16X,22HSPECIFIED IN I.F.TABLE/          P0730160
       223H  ASA REF.- 8.2/TABLE 3//2X,7HRESULTS)                            P0730170
C*****     HEADER FOR SEGMENT 073 WRITTEN                                     P0730180
C*****     TEST OF DABS IN EXPRESSIONS                              8.2/13P0730190
        DPAVD = 1.25D0                                                        P0730200
        DPBVD = - 10.0D0                                                      P0730210
        DPCVD = DABS(DPAVD + DPBVD)                                           P0730220
        DPDVD = DPCVD - 10.0D0 + 1.25D0                                       P0730230
        DPCVD = DABS(1.0D0 + 2.D0 - 3.0D0 * 50.D-1)                           P0730240
        DPEVD = DPCVD - 12.D0                                                 P0730250
        DPCVD = DABS( DPAVD * 1.D0 - 1.25D0 + DPBVD/2.D0) + 1.D0              P0730260
        DPFVD = DPCVD - 6.0D0                                                 P0730270
        DPGVD = 1.0D0 + DABS(2.5D0 - 1.5D0 * 1.0D0) - 2.D0                    P0730280
        WRITE (NUVI,0731) DPDVD, DPEVD, DPFVD, DPGVD                          P0730290
C*****     TEST OF AINT IN EXPRESSIONS                              8.2/14P0730300
        CMAVS = 1.23                                                          P0730310
        CMBVS = 27.998                                                        P0730320
        CMCVS = -9.007E0                                                      P0730330
        CMDVS = AINT(CMAVS + CMBVS - CMCVS)                                   P0730340
        CMEVS = CMDVS - 38.0                                                  P0730350
        CMDVS = AINT(1.0 + 2.0 /1.0 - 3.0 * 2.E0)                             P0730360
        CMFVS = CMDVS + 3.0                                                   P0730370
        CMDVS = AINT(4. + AINT(2.E0 + CMCVS))                                 P0730380
        CMGVS = CMDVS + 3.0                                                   P0730390
        CMDVS = AINT(AINT(AINT( 1.4 - 2.7)))                                  P0730400
        CMHVS = CMDVS + 1.0                                                   P0730410
        WRITE (NUVI,0732) CMEVS, CMFVS, CMGVS, CMHVS                          P0730420
C*****     TEST OF INT IN EXPRESSIONS                               8.2/15P0730430
        MCAVI = INT(1.0 + 2.1 + 3.2 - 8.4 / 2.5 * 2.6)                        P0730440
        MCBVI = MCAVI + 2                                                     P0730450
        MCAVI = INT(100.0/6.0 - (2.0 **4.0) + (((2.0-3.0)+4.0) * 2.0))        P0730460
        MCCVI = MCAVI - 6                                                     P0730470
        MCAVI = INT((100.2/6.1/5.0+4.10) / 2.0)                              P0730480
        MCDVI = MCAVI - 3                                                     P0730490
        MCAVI = INT(9.0/2.0) + INT(5.1/4.0)                                  P0730500
        MCEVI = MCAVI - 5                                                     P0730510
        WRITE (NUVI,0733) MCBVI, MCCVI, MCDVI, MCEVI                          P0730520
C*****     TEST OF IDINT IN EXPRESSIONS                             8.2/16P0730530
        DPA1D(1) = 2.5D1                                                      P0730540
        MCAVI = IDINT(DPBVD / 2.0D0 + 1.5D0)                                  P0730550
        MCBVI = MCAVI + 3                                                     P0730560
        MCAVI = IDINT( 1.0D1 + 5.D0 * 2.D1 / 49.D1) + 1                       P0730570
        MCCVI = MCAVI - 11                                                    P0730580
        MCAVI = IDINT(DPA1D(1))                                               P0730590
        MCDVI = MCAVI - 25                                                    P0730600
        MCAVI = IDINT(DPA1D(1) + DPA1D(1)/4.0D0)                              P0730610
        MCEVI = MCAVI - 31                                                    P0730620
        WRITE (NUVI,0734) MCBVI, MCCVI, MCDVI, MCEVI                          P0730630
```

```
C*****      TEST OF AMOD, MOD IN EXPRESSIONS                       8.2/17-18P0730640
         AC2S(1,1) = 27.0                                                  P0730650
         CMDVS =AMOD(25.0 + AC2S(1,1), 1.0 * 5.0)                          P0730660
         CMEVS = CMDVS - 2.0                                               P0730670
         CMDVS =AMOD(99.0,AMOD(25.0+ 27.0, 5.0))                          P0730680
         CMFVS = CMDVS - 1.0                                               P0730690
         MCA3I(1,2,3) = 5                                                  P0730700
         MCAVI = MOD(98 + 1, MOD(25 + 27,5))                              P0730710
         MCBVI = MCAVI - 1                                                 P0730720
         MCAVI = MOD (MCA3I (1,2,3), 2)                                   P0730730
         MCCVI = MCAVI - 1                                                 P0730740
         WRITE (NUVI,0735) CMEVS, CMFVS, MCBVI, MCCVI                     P0730750
C*****      TEST OF AMAX0, AMAX1, MAX0, MAX1 AND DMAX1 IN EXPRESSIONS      P0730760
C*****                                                             8.2/19-23P0730770
         FC2D(1,1) = 27.0D0                                                P0730780
         CMDVS = AMAX0(5 + 9, MAX0(14 * 2, MAX1( 2.0 /1.0,1.0)))          P0730790
         CMEVS = CMDVS - 28.0                                              P0730800
         CMDVS = AMAX1((AMAX0((MAX0(29,-100)),5 + 10)), 2.0 * 2.0)        P0730810
         CMFVS = CMDVS - 29.0                                              P0730820
         MCAVI = MAX1((AMAX0(25, -(1 * 5))),100.0)                        P0730830
         MCBVI = MCAVI - 100                                               P0730840
         DPCVD = DMAX1(FC2D(1,1),DMAX1(1.0D0, 0.D0 * FC2D(1,1)))          P0730850
         DPDVD = DPCVD - 27.0D0                                            P0730860
         WRITE (NUVI,0736) CMEVS, CMFVS, MCBVI, DPDVD                     P0730870
C*****      TEST OF AMINO, AMIN1, MINO, MIN1 AND DMIN1 IN EXPRESSIONS      P0730880
C*****                                                             8.2/24-27P0730890
         CMDVS = AMIN1(2.5 + AC2S(1,1), AMINO(-5, MINO(0,1)))             P0730900
         CMEVS = CMDVS + 5.0                                               P0730910
         MCAVI = MINO((MIN1( -99., 100.0 - 1.0 * 99.)), 2)                P0730920
         MCBVI = MCAVI + 99                                                P0730930
         MCAVI = MIN1( 2.0,AMIN1( 5. * 3.0, -9.0 /(-9.0)))               P0730940
         MCCVI = MCAVI - 1                                                 P0730950
         DPCVD = DMIN1(FC2D(1,1), DMIN1(2.0D-1,0.0D0))                    P0730960
         DPDVD = DPCVD - 0.0D0                                             P0730970
         WRITE (NUVI,0737) CMEVS, MCBVI, MCCVI, DPDVD                     P0730980
C*****      TEST OF DSIGN,AND DBLE IN EXPRESSIONS            8.2/33,8.2/43P0730990
         DPCVD= DSIGN(FC2D(1,1) * 1.0D1, - 1.0D0)                         P0731000
         DPDVD = DPCVD + 27.0D1                                            P0731010
         DPCVD = DSIGN((DSIGN(2.0D0, -1.0D0) + 0.0D0), .0D0)             P0731020
         DPEVD = DPCVD - 2.0D0                                             P0731030
         DPCVD = DBLE( 2.0 * 4.0 + AC2S(1,1))                             P0731040
         DPFVD = DPCVD - 35.0D0                                            P0731050
         DPCVD = DBLE(-32.00 / 8.0) * DBLE(-2.0)                          P0731060
         DPGVD = DPCVD - 8.0D0                                             P0731070
         WRITE (NUVI,0738) DPDVD, DPEVD, DPFVD, DPGVD                     P0731080
C*****      TEST OF DIM AND IDIM IN EXPRESSIONS                   8.2/34-35P0731090
         CMDVS = DIM( 2.0 * 3.5 /7.0, AC2S(1,1))                          P0731100
         CMEVS = CMDVS - 0.0                                               P0731110
         CMDVS = DIM(DIM(9.0,-5.5), DIM(6.0,0.0))                        P0731120
         CMFVS = CMDVS - 8.5                                               P0731130
         MCA1I(1)=8                                                        P0731140
         MCCVI = IDIM(MCA1I(1) * 1, - (IDIM(0, -3)))                     P0731150
         MCDVI = MCCVI - 11                                                P0731160
         MCCVI = IDIM(((4 + 2 + 3)/3), - 2)                              P0731170
         MCEVI = MCCVI - 5                                                 P0731180
         WRITE (NUVI,9995) CMEVS, CMFVS, MCDVI, MCEVI                     P0731190
C*****      TEST OF SNGL, REAL , AIMAG, CMPLX AND CONJG IN EXPRESSIONS     P0731200
C*****                                                             8.2/36-47P0731210
         CMEVS = SNGL (1.0D0 * 2.D1 + AC2S(1,1))                          P0731220
         CMFVS = CMEVS - 47.0                                             P0731230
         CMEVS = REAL( CONJG((1.0, -2.0)))+ AIMAG((99.0, -7.0))          P0731240
         CMGVS = CMEVS + 6.0                                              P0731250
         CMEVS = AIMAG(CMPLX(REAL((2.0,1.0)), SNGL (1.0D0)))            P0731260
         CMHVS = CMEVS - 1.0D0                                            P0731270
         WRITE (NUVI,0739) CMFVS, CMGVS, CMHVS                           P0731280
C*****      SOME COMBINATIONS OF ABOVE INTRINSIC FUNCTIONS                 P0731290
         CMEVS = AMIN1((FLOAT(IDIM(1+2,0))),(AIMAG(CMPLX(1.0,2.0))))     P0731300
         CMFVS = CMEVS - 2.0                                             P0731310
```

```
      CMEVS = REAL(CMPLX(SNGL(DABS(-DSIGN(DBLE(2.0),1.0D0))),CMAVS))    P0731320
      CMGVS = CMEVS - 2.0                                               P0731330
      WRITE (NUVI,9994) CMFVS, CMGVS                                    P0731340
C*****     END OF TEST STATEMENTS FOR SEGMENT 073                       P0731350
0731  FORMAT (/ 30H   TEST OF DABS IN EXPRESSIONS //4(D23.8/))          P0731360
0732  FORMAT (  30H   TEST OF AINT IN EXPRESSIONS //4(E19.6/))          P0731370
0733  FORMAT (  30H   TEST OF INT IN EXPRESSIONS  //4(I10/))            P0731380
0734  FORMAT (  30H   TEST OF IDINT IN EXPRESSIONS//4(I10/))            P0731390
0735  FORMAT (  35H   TEST OF AMOD, MOD IN EXPRESSIONS //               P0731400
     1 2(E19.6/), 2(I10/))                                              P0731410
0736  FORMAT (  40H   TEST OF AMAX0,AMAX1,MAX0,MAX1 AND DMAX//          P0731420
     1 2(E19.6/), I10/ D23.8)                                           P0731430
0737  FORMAT (  40H1 TEST OF AMIN0,AMIN1,MIN0,MIN1 AND DMIN//           P0731440
     1 E19.6/ 2(I10/), D23.8)                                           P0731450
0738  FORMAT (/ 39H   TEST OF DSIGN AND DBLE IN EXPRESSIONS//4(D23.8/)) P0731460
0739  FORMAT (  35H   TEST OF SNGL,REAL,AIMAG,CMPLX AND /               P0731470
     123H   CONJG IN EXPRESSIONS //3(E19.6/))                           P0731480
9994  FORMAT (  36H   TEST OF SOME COMBINATIONS OF ABOVE/               P0731490
     122H   INTRINSIC FUNCTIONS //2(E19.6/) /40H   ALL ABOVE ANSWERS SHOULP0731500
     2D BE 0 FOR THIS/27H   SEGMENT TO BE SUCCESSFUL.)                  P0731510
9995  FORMAT ( /37H   TEST OF DIM AND IDIM IN EXPRESSIONS/2(E19.6/),    P0731520
     1 2(I10/))                                                         P0731530
C*****     END OF TEST SEGMENT 073                                      P0731540
C*****  WHEN EXECUTING ONLY SEGMENT 073, THE   STOP   AND   END   CARDS P0731550
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=                P0731560
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 P0731570
C=    STOP                                                              P0731580
C=    END                                                              P0731590
      STOP                                                              P073C1
      END                                                              P073C2
C**********************************************************************P0800010
C*****                                                                  P0800020
C*****                     EXPON - 080                                  P0800030
C*****                                                                  P0800040
C**********************************************************************P0800050
C*****  GENERAL PURPOSE                                       ASA REFP0800060
C*****     .TO TEST BASIC EXTERNAL FUNCTION - EXP - EXPONENTIAL   8.3.3  P0800070
C*****     .USED IN SIMPLE ARITHMETIC EXPRESSIONS                TABLE 4P0800080
C*****     .INTRINSIC FUNCTIONS  ABS AND SIGN ASSUMED WORKING           P0800090
C*****      ARGUMENTS ARE POWERS OF 2                                   P0800100
C*****                                                                  P0800110
C*****   NO  S P E C I F I C A T I O N S  SEGMENT 080                   P0800120
C*****                                                                  P0800130
C*****   O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.   P0800140
C*****  WHEN EXECUTING ONLY SEGMENT 080, THE FOLLOWING STATEMENT        P0071520
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS 1 AND 2 REMOVED.         P0071525
C*****                                                                  P0071530
C=    NUVI = 6                                                          P0071535
      NUVI = 6                                                          P080B1
      WRITE(NUVI,800)                                                   P0800150
800   FORMAT(15H1 EXPON - (080)//31H   BASIC EXTERNAL FUNCTION -EXP-    P0800160
     1//26H   (EXPONENTIAL -TYPE REAL)                                  P0800170
     2//27H   ASA REF.- 8.3.3 (TABLE 4)//24H   LINE 1 OF EACH PAIR IS/23H P0800180
     3 HOLLERITH INFORMATION//9H   RESULTS)                             P0800190
C*****    HEADER FOR SEGMENT 080 WRITTEN                                P0800200
C*****  ARGUMENT RANGE FROM -16.0 TO +16.0                              P0800210
      AVS = -16.0                                                       P0800220
      CVS =   4.0                                                       P0800230
      BVS = EXP(AVS)                                                    P0800240
      WRITE (NUVI,801) BVS                                              P0800250
      BVS = EXP(2. * CVS + AVS)                                         P0800260
      WRITE (NUVI,802) BVS                                              P0800270
      BVS = EXP(AVS + (3. * CVS))                                       P0800280
      WRITE (NUVI, 803) BVS                                             P0800290
      BVS = EXP(ABS(AVS) + AVS)                                         P0800300
      WRITE (NUVI, 804) BVS                                             P0800310
      BVS = EXP(-AVS / CVS)                                             P0800320
      WRITE (NUVI, 805) BVS                                             P0800330
```

```
          BVS = EXP(SIGN(AVS + CVS * 2.0, CVS))                      P0800340
          WRITE (NUVI, 806) BVS                                      P0800350
          BVS = EXP(CVS + ABS(AVS) - 4.0)                            P0800360
          WRITE(NUVI, 807) BVS                                       P0800370
          WRITE (NUVI, 808)                                          P0800380
  801     FORMAT( 9H0 X=-16.0,5X,25H0.1125351747192591145E-06/E27.7) P0800390
  802     FORMAT( 9H0 X= -8.0,5X,25H0.3354626279025118388E-03/E27.7) P0800400
  803     FORMAT( 9H0 X= -4.0,5X,25H0.1831563888873418029E-01/E27.7) P0800410
  804     FORMAT( 9H0 X=  0.0,5X,25H0.1000000000000000000E+01/E27.7) P0800420
  805     FORMAT( 9H0 X=  4.0,5X,25H0.5459815003314423908E+02/E27.7) P0800430
  806     FORMAT( 9H0 X=  8.0,5X,25H0.2980957987041728275E+04/E27.7) P0800440
  807     FORMAT( 9H0 X= 16.0,5X,25H0.8886110520507872637E+07/E27.7) P0800450
  808     FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONP0800460
         1 PRINTED TO ,8H7 DIGITS)                                   P0800470
C*****      END OF TEST SEGMENT 080                                  P0800480
C*****   WHEN EXECUTING ONLY SEGMENT 080, THE  STOP  AND  END  CARDS P0800490
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=              P0800500
C*****    IN COLUMNS  1  AND  2  REMOVED.                            P0800510
C=     STOP                                                          P0800520
C=     END                                                           P0800530
       STOP                                                          P080C1
       END                                                           P080C2
C*****************************************************************************P0810010
C*****                                                               P0810020
C*****                          DEXPO - 081                          P0810030
C*****                                                               P0810040
C*****************************************************************************P0810050
C*****   GENERAL PURPOSE                                             P0810060
C*****      TO TEST BASIC EXTERNAL FUNCTION - DEXP - EXPONENTIAL  ASA REFP0810070
C*****      USED IN SIMPLE ARITHMETIC EXPRESSIONS -SAME AS        8.3.3  P0810080
C*****      SEGMENT 080 EXCEPT DOUBLE PRECISION              TABLE 4P0810090
C*****      INTRINSIC FUNCTIONS DABS AND DSIGN ASSUMED WORKING       P0810100
C*****      ARGUMENTS RANGE FROM -16.0D0 TO  +16.0D0, POWERS OF 2    P0810110
C*****                                                               P0810120
C*****   S P E C I F I C A T I O N S  SEGMENT 081                    P0810130
C*****                                                               P0011810
C*****   WHEN EXECUTING ONLY SEGMENT 081, THE SPECIFICATION STATEMENTS P0011815
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=              P0011820
C*****    IN COLUMNS  1  AND  2  REMOVED.                            P0011825
C*****                                                               P0011830
C=     DOUBLE PRECISION AVD, BVD, CVD                                P0011835
       DOUBLE PRECISION AVD, BVD, CVD                                P081A1
C*****                                                               P0011840
C*****   O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE. P0810140
C*****                                                               P0071540
C*****   WHEN EXECUTING ONLY SEGMENT 081, THE FOLLOWING STATEMENT    P0071545
C*****   NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.      P0071550
C=     NUVI = 6                                                      P0071555
       NUVI = 6                                                      P081B1
C*****                                                               P0071560
  810     FORMAT(15H1 DEXPO - (081)//32H  BASIC EXTERNAL FUNCTION -DEXP- P0810150
         1//38H  (EXPONENTIAL -TYPE DOUBLE PRECISION)                P0810160
         2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H P0810170
         3 HOLLERITH INFORMATION//9H  RESULTS)                       P0810180
          WRITE (NUVI, 810)                                          P0810190
C*****      HEADER FOR SEGMENT 081 WRITTEN                           P0810200
          AVD = -16.0D0                                              P0810210
          CVD =   4.0D0                                              P0810220
          BVD = DEXP(AVD)                                            P0810230
          WRITE (NUVI, 811) BVD                                      P0810240
          BVD = DEXP(2. * CVD + AVD)                                 P0810250
          WRITE (NUVI, 812) BVD                                      P0810260
          BVD = DEXP(AVD + (3. * CVD))                               P0810270
          WRITE (NUVI, 813) BVD                                      P0810280
          BVD = DEXP(DABS(AVD) + AVD)                                P0810290
          WRITE( NUVI, 814) BVD                                      P0810300
          BVD = DEXP(-AVD / CVD)                                     P0810310
          WRITE (NUVI, 815) BVD                                      P0810320
```

```
          BVD = DEXP(DSIGN(AVD + CVD * 2.0D0, CVD))                    P0810330
          WRITE (NUVI, 816) BVD                                        P0810340
          BVD = DEXP(CVD + DABS(AVD) - 4.0)                            P0810350
          WRITE (NUVI, 817) BVD                                        P0810360
          WRITE (NUVI, 818)                                            P0810370
811       FORMAT( 9H0 X=-16.0,5X,25H0.1125351747192591145D-06/D34.14)  P0810380
812       FORMAT( 9H0 X= -8.0,5X,25H0.3354626279025118388D-03/D34.14)  P0810390
813       FORMAT( 9H0 X= -4.0,5X,25H0.1831563888873418029D-01/D34.14)  P0810400
814       FORMAT( 9H0 X=  0.0,5X,25H0.1000000000000000000D+01/D34.14) - P0810410
815       FORMAT( 9H0 X=  4.0,5X,25H0.5459815003314423908D+02/D34.14)  P0810420
816       FORMAT( 9H0 X=  8.0,5X,25H0.2980957987041728275D+04/D34.14)  P0810430
817       FORMAT( 9H0 X= 16.0,5X,25H0.8886110520507872637D+07/D34.14)  P0810440
818       FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONP0810450
         A PRINTED TO ,9H14 DIGITS)                                    P0810460
C*****      END OF TEST SEGMENT 081                                    P0810470
C*****   WHEN EXECUTING ONLY SEGMENT 081, THE   STOP   AND   END   CARDS  P0810480
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                 P0810490
C*****   IN COLUMNS  1  AND  2  REMOVED.                               P0810500
C=     STOP                                                            P0810510
C=     END                                                             P0810520
       STOP                                                            P081C1
       END                                                             P081C2
C********************************************************************************P0820010
C*****                                                                 P0820020
C*****                         CEXPO - (082)                          P0820030
C*****                                                                 P0820040
C********************************************************************************P0820050
C*****   GENERAL PURPOSE                                      ASA REF.P0820060
C*****      .TO TEST THE BASIC EXTERNAL FUNCTION- CEXP          8.3.3  P0820070
C*****      .TESTING RANGE EXTENDS FROM 0 TO 16 FOR MODULUS    (TABLE 4)P0820080
C*****       AND ARGUMENT, VARIES BY STEPS OF PI/3 MAGNITUDE          P0820090
C*****      .INTRINSIC FUNCTIONS CMPLX, SNGL, MOD ASSUMED WORKING     P0820100
C*****                                                                 P0820110
C*****    S P E C I F I C A T I O N S  SEGMENT 082                    P0820120
C*****                                                                 P0011850
C*****   WHEN EXECUTING ONLY SEGMENT 082, THE SPECIFICATION STATEMENTS P0011855
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=             P0011860
C*****   IN COLUMNS  1  AND  2  REMOVED.                              P0011865
C*****                                                                 P0011870
C=     COMPLEX EP1C(30), AVC, BVC                                     P0011875
C=     DOUBLE PRECISION AVD, BVD                                      P0011880
       COMPLEX EP1C(30), AVC, BVC                                     P082A1
       DOUBLE PRECISION AVD, BVD                                      P082A2
C*****                                                                 P0011885
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.   NO INPUT TAPE. P0820130
C*****                                                                 P0071570
C*****   WHEN EXECUTING ONLY SEGMENT 082, THE FOLLOWING STATEMENT     P0071575
C*****   NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.       P0071580
C=     NUVI = 6                                                       P0071585
       NUVI = 6                                                       P082B1
C*****                                                                 P0071590
       WRITE(NUVI,820)                                                P0820140
820    FORMAT(15H1 CEXPO - (082)//32H  BASIC EXTERNAL FUNCTION -CEXP-  P0820150
      1// 29H  (EXPONENTIAL -TYPE COMPLEX)//27H  ASA REF.- 8.3.3 (TABLE 4P0820160
      2)//20H  (COMPLEX ARGUMENT)/8X,15HEXPECTED RESULT /8X,15HFUNCTION RP0820170
      3ESULT)                                                         P0820180
C*****   LOG OF 10                                                    P0820190
       BVD = 2.3025850929940D0                                       P0820200
C*****   SINE OF 60 DEGREES                                           P0820210
       AVD = .86602540378444D0                                       P0820220
C*****    INITIALIZE EP1C (EXPECTED VALUES)                           P0820230
       EP1C(1) = CMPLX(0.5E-7,SNGL(-AVD*1.D-7))                      P0820240
       EP1C(2) = CMPLX(2.5E-7,SNGL(-AVD*5.D-7))                      P0820250
       EP1C(3) = (1.E-6,0.0)                                         P0820260
       EP1C(4) = (5.E-6,0.0)                                         P0820270
       EP1C(5) = CMPLX(0.5E-5,SNGL(AVD*1.D-5))                       P0820280
       EP1C(6) = CMPLX(2.5E-5,SNGL(AVD*5.D-5))                       P0820290
       EP1C(7) = CMPLX(-.5E-4,SNGL(AVD * 1.D-4))                     P0820300
```

```
          EP1C(8) = CMPLX(-2.5E-4,SNGL(AVD*5.D-4))                          P0820310
          EP1C(9) = (-1.E-3,0.0)                                            P0820320
          EP1C(10) = (-5.E-3,0.0)                                           P0820330
          EP1C(11) = CMPLX(-0.5E-2,SNGL(-AVD*1.D-2))                        P0820340
          EP1C(12) = CMPLX(-2.5E-2,SNGL(-AVD * 5.D-2))                      P0820350
          EP1C(13) = CMPLX(0.5E-1,SNGL(-AVD*1.D-1))                         P0820360
          EP1C(14) = CMPLX(2.5E-1,SNGL(-AVD*5.D-1))                         P0820370
          EP1C(15) = (1.0,0.0)                                              P0820380
          EP1C(16) = (5.0,0.0)                                              P0820390
          EP1C(17) = CMPLX(0.5E1,SNGL(AVD * 1.D1))                          P0820400
          EP1C(18) = CMPLX(2.5E1,SNGL(AVD * 5.D1))                          P0820410
          EP1C(19) = CMPLX(-0.5E2,SNGL(AVD * 1.D2))                         P0820420
          EP1C(20) = CMPLX(-2.5E2,SNGL(AVD * 5.D2))                         P0820430
          EP1C(21) = (-1.E3,0.0)                                            P0820440
          EP1C(22) = (-5.E3,0.0)                                            P0820450
          EP1C(23) = CMPLX(-0.5E4,SNGL(-AVD * 1.D4))                        P0820460
          EP1C(24) = CMPLX(-2.5E4,SNGL(-AVD * 5.D4))                        P0820470
          EP1C(25) = CMPLX(0.5E5,SNGL(-AVD * 1.D5))                         P0820480
          EP1C(26) = CMPLX(2.5E5,SNGL(-AVD * 5.D5))                         P0820490
          EP1C(27) = (1.E6,0.0)                                             P0820500
          EP1C(28) = (5.E6,0.0)                                             P0820510
          EP1C(29) = CMPLX(0.5E7,SNGL(AVD * 1.D7))                          P0820520
          EP1C(30) = CMPLX(2.5E7,SNGL(AVD * 5.D7))                          P0820530
          IVI = 0                                                          P0820540
      821 IVI = IVI + 1                                                    P0820550
          IF ( MOD(IVI,2).EQ.0) GO TO 822                                  P0820560
          XIVS = ((IVI + 1)/2) - 8                                         P0820570
          AVS = BVD * XIVS                                                 P0820580
          GO TO 823                                                        P0820590
C*****  1.609  IS LOG OF 5                                                 P0820600
      822 XIVS = (IVI / 2) - 8                                             P0820610
          AVS = BVD * XIVS + 1.60943791243410D0                           P0820620
C*****  1.047 IS PI/3                                                      P0820630
      823 AVC =  CMPLX(AVS,SNGL(1.0471975511966D0 * XIVS))                 P0820640
          BVC = CEXP(AVC)                                                  P0820650
          WRITE(NUVI, 824) AVC, EP1C(IVI), BVC                            P0820660
          IF (IVI - 10) 825, 827, 825                                     P0820670
      825 IF (IVI - 20) 826, 827, 826                                     P0820680
      826 IF (IVI - 30) 821, 828, 828                                     P0820690
      827 WRITE(NUVI, 829)                                                 P0820700
          GO TO 821                                                        P0820710
      828 CONTINUE                                                         P0820720
829       FORMAT(22H1 CEXPO - (082) -CEXP-)                               P0820730
      824 FORMAT(3H0 (,E14.7,1H,,E14.7,1H),2(/8X,2E16.7))                  P0820740
C*****     END OF TEST SEGMENT 082                                        P0820750
C*****  WHEN EXECUTING ONLY SEGMENT 082, THE STOP AND END CARDS           P0820760
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                    P0820770
C*****   IN COLUMNS  1  AND  2  REMOVED.                                   P0820780
C=    STOP                                                                 P0820790
C=    END                                                                  P0820800
      STOP                                                                 P082C1
      END                                                                  P082C2
C************************************************************************P0830010
C*****                                                                     P0830020
C*****                         LOGTM - 083                                 P0830030
C*****                                                                     P0830040
C************************************************************************P0830050
C*****   GENERAL PURPOSE                                                   P0830060
C*****     .TO TEST BASIC EXTERNAL FUNCTION - ALOG -           ASA REF P0830070
C*****       NATURAL LOG -USED IN SIMPLE ARITHMETIC EXPRESSIONS    8.3.3 P0830080
C*****        INTRINSIC FUNCTIONS ABS,AMIN1,INT,MINO,FLOAT,    TABLE 4 P0830090
C*****        SIGN ASSUMED WORKING                                         P0830100
C*****        ARGUMENTS ARE POWERS(OR SUMS) OF 2                           P0830110
C*****                                                                     P0830120
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.        P0830130
C*****                                                                     P0071600
C*****  WHEN EXECUTING ONLY SEGMENT 083, THE FOLLOWING STATEMENT           P0071605
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.             P0071610
```

```
C=      NUVI = 6                                                         P0071615
        NUVI = 6                                                         P083B1
C*****                                                                   P0071620
830     FORMAT(15H1 LOGTM - (083)//32H  BASIC EXTERNAL FUNCTION -ALOG-   P0830140
     1//26H  (NATURAL LOG -TYPE REAL)                                    P0830150
     2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H  P0830160
     3 HOLLERITH INFORMATION//9H  RESULTS)                               P0830170
        WRITE (NUVI, 830)                                                P0830180
C*****     HEADER FOR SEGMENT 083 WRITTEN                                P0830190
        AVS = .25                                                        P0830200
        CVS = 2.0                                                        P0830210
        MVI = -2                                                         P0830220
        BVS = ALOG(AVS / 2.0)                                            P0830230
        WRITE (NUVI, 831) BVS                                            P0830240
        BVS = ALOG(AVS)                                                  P0830250
        WRITE (NUVI, 832) BVS                                            P0830260
        BVS = ALOG(AVS * CVS)                                            P0830270
        WRITE (NUVI, 833) BVS                                            P0830280
        BVS = ALOG(AVS * CVS ** 2)                                       P0830290
        WRITE (NUVI, 834) BVS                                            P0830300
        BVS = ALOG(AMIN1(AVS * 2.0 + ABS(FLOAT(MVI) / CVS),CVS))         P0830310
        WRITE (NUVI, 835) BVS                                            P0830320
        BVS = ALOG(SIGN(FLOAT(MINO(MVI,INT(CVS))),AVS))                  P0830330
        WRITE (NUVI, 836) BVS                                            P0830340
831     FORMAT( 9H0 X=0.125,5X,19H-2.0794415416798359/14X,F9.6)         P0830350
832     FORMAT( 9H0 X=0.25 ,5X,19H-1.3862943611198906/14X,F 9.6)        P0830360
833     FORMAT( 9H0 X=0.5  ,5X,19H-0.6931471805599453/14X,F10.7)        P0830370
834     FORMAT( 9H0 X=1.0  ,5X,19H 0.0000000000000000/14X,F10.7)        P0830380
835     FORMAT( 9H0 X=1.5  ,5X,19H 0.4054651081081644/14X,F10.7)        P0830390
836     FORMAT( 9H0 X=2.0  ,5X,19H 0.6931471805599453/14X,F10.7)        P0830400
        WRITE (NUVI, 837)                                                P0830410
837     FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONP0830420
     1 PRINTED TO ,8H7 DIGITS)                                          P0830430
C*****     END OF TEST SEGMENT 083                                       P0830440
C*****  WHEN EXECUTING ONLY SEGMENT 083, THE  STOP  AND  END  CARDS      P0830450
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                   P0830460
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  P0830470
C=      STOP                                                             P0830480
C=      END                                                             P0830490
        STOP                                                             P083C1
        END                                                             P083C2
C********************************************************************P0840010
C*****                                                                   P0840020
C*****                     DPLOG - 084                                   P0840030
C*****                                                                   P0840040
C********************************************************************P0840050
C*****  GENERAL PURPOSE                                                  P0840060
C*****     TO TEST BASIC EXTERNAL FUNCTION - DLOG -            ASA REF    P0840070
C*****     NATURAL LOG -TYPE DOUBLE PRECISION                  8.3.3     P0840080
C*****     USED IN SIMPLE ARITHMETIC EXPRESSIONS              TABLE 4     P0840090
C*****     INTRINSIC FUNCTIONS DMIN1,DABS,DBLE,FLOAT,DSIGN,              P0840100
C*****     MINO,DINT, ASSUMED WORKING                                    P0840110
C*****     ARGUMENTS ARE POWERS OF 2                                     P0840120
C*****                                                                   P0840130
C*****  S P E C I F I C A T I O N S  SEGMENT 084                         P0840140
C*****                                                                   P0011890
C*****  WHEN EXECUTING ONLY SEGMENT 084, THE SPECIFICATION STATEMENTS    P0011895
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=                  P0011900
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  P0011905
C*****                                                                   P0011910
C=      DOUBLE PRECISION AVD, BVD, CVD                                   P0011915
        DOUBLE PRECISION AVD, BVD, CVD                                   P084A1
C*****                                                                   P0011920
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      P0840150
C*****                                                                   P0071630
C*****  WHEN EXECUTING ONLY SEGMENT 084, THE FOLLOWING STATEMENT         P0071635
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.           P0071640
C=      NUVI = 6                                                         P0071645
```

```
          NUVI = 6                                                     P084B1
C*****                                                                 P0071650
840       FORMAT(15H1 DPLOG - (084)//32H  BASIC EXTERNAL FUNCTION -DLOG- P0840160
     1//38H   (NATURAL LOG -TYPE DOUBLE PRECISION)                     P0840170
     2//27H   ASA REF.- 8.3.3 (TABLE 4)//24H   LINE 1 OF EACH PAIR IS/23H P0840180
     3 HOLLERITH INFORMATION//9H   RESULTS)                            P0840190
          WRITE (NUVI, 840)                                            P0840200
C*****    HEADER FOR SEGMENT 084 WRITTEN                               P0840210
          AVO = .25D0                                                  P0840220
          CVO = 2.0D0                                                  P0840230
          MVI = -2                                                     P0840240
          BVD = OLOG(AVO / 2.0D0)                                      P0840250
          WRITE (NUVI, 841) BVO                                        P0840260
          BVO = OLOG(AVO)                                              P0840270
          WRITE( NUVI, 842) BVD                                        P0840280
          BVO = OLOG(AVO * CVO)                                        P0840290
          WRITE(NUVI, 843) BVO                                         P0840300
          BVO = OLOG(AVO * CVO ** 2)                                   P0840310
          WRITE (NUVI, 844) BVD                                        P0840320
          BVO = OLOG(OMIN1(AVO * 2.0D0 +OABS(OBLE(FLOAT(MVI))/CVO), CVO)) P0840330
          WRITE (NUVI, 845) BVO                                        P0840340
          BVO = OLOG(OSIGN(DBLE(FLOAT(MINO(MVI,IOINT(CVD)))),AVO))     P0840350
          WRITE (NUVI, 846) BVD                                        P0840360
          WRITE (NUVI, 847)                                            P0840370
841       FORMAT( 9H0 X=0.125,5X,23H-2.07944154167983590+00/1P034.13)  P0840380
842       FORMAT( 9H0 X=0.25 ,5X,23H-1.38629436111989060+00/1P034.13)  P0840390
843       FORMAT( 9H0 X=0.5  ,5X,23H-0.69314718055994530+00/  035.14)  P0840400
844       FORMAT( 9H0 X=1.0  ,5X,23H 0.000000000000000     /  D35.14)  P0840410
845       FORMAT( 9H0 X=1.5  ,5X,23H 0.40546510810816440+00/  035.14)  P0840420
846       FORMAT( 9H0 X=2.0  ,5X,23H 0.69314718055994530+00/  035.14)  P0840430
847       FORMAT(//37H   LINE 2 OF EACH PAIR IS THE FUNCTION/25H   CALCULATIONP0840440
     A PRINTEO TO ,9H14 OIGITS)                                        P0840450
C*****    ENO OF TEST SEGMENT 084                                      P0840460
C*****    WHEN EXECUTING ONLY SEGMENT 084, THE  STOP  ANO  END  CAROS  P0840470
C*****    WHICH APPEAR AS COMMENT CAROS MUST HAVE THE C=               P0840480
C*****    IN COLUMNS  1  ANO  2  REMOVEO.                              P0840490
C=        STOP                                                         P0840500
C=        ENO                                                          P0840510
          STOP                                                         P084C1
          ENO                                                          P084C2
C*************************************************************************P0850010
C*****                                                                 P0850020
C*****                        CXLOG - (085)                            P0850030
C*****                                                                 P0850040
C*************************************************************************P0850050
C*****    GENERAL PURPOSE                                     ASA REF P0850060
C*****    .TO TEST BASIC EXTERNAL FUNCTION - CLOG -           ASA REF P0850070
C*****    (COMPLEX LOG)                                        8.3.3  P0850080
C*****    TESTING RANGE EXTENOS FROM 0 TO 5.E7 FOR MOOULUS    TABLE 4 P0850090
C*****    ANO ARGUMENT VARIES BY STEPS OF PI/3 MAGNITUOE             P0850100
C*****    INTRINSIC FUNCTIONS CMPLX, SNGL, MOO ASSUMEO WORKING       P0850110
C*****                                                                 P0850120
C*****    S P E C I F I C A T I O N S  SEGMENT 085                     P0850130
C*****                                                                 P0011930
C*****    WHEN EXECUTING ONLY SEGMENT 085, THE SPECIFICATION STATEMENTS P0011935
C*****    WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=               P0011940
C*****    IN COLUMNS  1  ANO  2  REMOVEO.                              P0011945
C*****                                                                 P0011950
C=        COMPLEX EP1C(30), AVC, BVC                                   P0011955
C=        DOUBLE PRECISION AVD, BVO                                    P0011960
          COMPLEX EP1C(30), AVC, BVC                                   P085A1
          DOUBLE PRECISION AVO, BVD                                    P085A2
C*****                                                                 P0011965
C*****    O U T P U T - T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE. P0850140
C*****                                                                 P0071660
C*****    WHEN EXECUTING ONLY SEGMENT 085, THE FOLLOWING STATEMENT     P0071665
C*****    NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 ANO 2 REMOVEO.       P0071670
C=        NUVI = 6                                                     P0071675
```

```
         NUVI = 6                                                       P085B1
C*****                                                                  P0071680
      WRITE (NUVI, 850)                                                 P0850150
850   FORMAT( 15H1 CXLOG - (085) //32H  BASIC EXTERNAL FUNCTION -CLOG-  P0850160
     1// 29H  (NATURAL LOG -TYPE COMPLEX)//27H  ASA REF.- 8.3.3 (TABLE 4P0850170
     2)//20H  (COMPLEX ARGUMENT)/ 8X,15HEXPECTED RESULT /8X,15HFUNCTION P0850180
     3RESULT)                                                           P0850190
C*****  LOG OF 10                                                       P0850200
      BVD = 2.3025850929940D0                                           P0850210
C*****  SINE OF 60 DEGREES                                              P0850220
      AVD = .86602540378444D0                                           P0850230
C*****  INITIALIZE EP1C (EXPECTED VALUES)                               P0850240
      EP1C(1) = CMPLX(0.5E-7,SNGL(-AVD*1.D-7))                          P0850250
      EP1C(2) = CMPLX(2.5E-7,SNGL(-AVD*5.D-7))                          P0850260
      EP1C(3) = (1.E-6,0.0)                                             P0850270
      EP1C(4) = (5.E-6,0.0)                                             P0850280
      EP1C(5) = CMPLX(0.5E-5,SNGL(AVD*1.D-5))                           P0850290
      EP1C(6) = CMPLX(2.5E-5,SNGL(AVD*5.D-5))                           P0850300
      EP1C(7) = CMPLX(-.5E-4,SNGL(AVD * 1.D-4))                         P0850310
      EP1C(8) = CMPLX(-2.5E-4,SNGL(AVD*5.D-4))                          P0850320
      EP1C(9) = (-1.E-3,0.0)                                            P0850330
      EP1C(10) = (-5.E-3,0.0)                                           P0850340
      EP1C(11) = CMPLX(-0.5E-2,SNGL(-AVD*1.D-2))                        P0850350
      EP1C(12) = CMPLX(-2.5E-2,SNGL(-AVD * 5.D-2))                      P0850360
      EP1C(13) = CMPLX(0.5E-1,SNGL(-AVD*1.D-1))                         P0850370
      EP1C(14) = CMPLX(2.5E-1,SNGL(-AVD*5.D-1))                         P0850380
      EP1C(15) = (1.0,0.0)                                              P0850390
      EP1C(16) = (5.0,0.0)                                              P0850400
      EP1C(17) = CMPLX(0.5E1,SNGL(AVD * 1.D1))                          P0850410
      EP1C(18) = CMPLX(2.5E1,SNGL(AVD * 5.D1))                          P0850420
      EP1C(19) = CMPLX(-0.5E2,SNGL(AVD * 1.D2))                         P0850430
      EP1C(20) = CMPLX(-2.5E2,SNGL(AVD * 5.D2))                         P0850440
      EP1C(21) = (-1.E3,0.0)                                            P0850450
      EP1C(22) = (-5.E3,0.0)                                            P0850460
      EP1C(23) = CMPLX(-0.5E4,SNGL(-AVD * 1.D4))                        P0850470
      EP1C(24) = CMPLX(-2.5E4,SNGL(-AVD * 5.D4))                        P0850480
      EP1C(25) = CMPLX(0.5E5,SNGL(-AVD * 1.D5))                         P0850490
      EP1C(26) = CMPLX(2.5E5,SNGL(-AVD * 5.D5))                         P0850500
      EP1C(27) = (1.E6,0.0)                                             P0850510
      EP1C(28) = (5.E6,0.0)                                             P0850520
      EP1C(29) = CMPLX(0.5E7,SNGL(AVD * 1.D7))                          P0850530
      EP1C(30) = CMPLX(2.5E7,SNGL(AVD * 5.D7))                          P0850540
C*****  YVS COMPENSATES FOR -2PI AND +2PI GENERATED BY USE OF XIVS*PI/3 P0850550
C*****  FOR EXPECTED IMAGINARY VALUES, TAKES VALUES +6,0,-6 DURING RANGEP0850560
      YVS = 6.                                                          P0850570
      IVI = 0                                                           P0850580
851   IVI = IVI +1                                                      P0850590
      IF (MOD(IVI, 2) .EQ. 0) GO TO 852                                 P0850600
      XIVS = ((IVI + 1)/2) - 8                                          P0850610
      AVS = BVD * XIVS                                                  P0850620
      GO TO 853                                                         P0850630
C*****    1.609 IS LOG OF 5                                             P0850640
852   XIVS = (IVI / 2) - 8                                              P0850650
      AVS = (BVD * XIVS) + 1.6094379124341D0                           P0850660
C*****    1.047 IS PI/3                                                 P0850670
853   AVC = CMPLX (AVS, SNGL(1.0471975511966D0 * (XIVS + YVS)))        P0850680
      BVC = CLOG (EP1C(IVI))                                            P0850690
      WRITE (NUVI, 854) EP1C(IVI), AVC, BVC                            P0850700
      IF(IVI - 10) 855, 858, 855                                       P0850710
855   IF (IVI - 20) 856, 859, 856                                      P0850720
856   IF (IVI - 22) 857, 7850, 857                                     P0850730
857   IF (IVI - 30) 851, 7851, 7851                                    P0850740
858   YVS = 0.0                                                         P0850750
859   WRITE (NUVI, 7852)                                               P0850760
      GO TO 851                                                         P0850770
7850  YVS = -6.0                                                        P0850780
      GO TO 851                                                         P0850790
7851  CONTINUE                                                          P0850800
```

```
854      FORMAT(3H0 (,E14.7,1H,,E14.7,1H),2(/8X,2E16.7))            P0850810
7852     FORMAT(22H1 CXLOG - (085) -CLOG-)                          P0850820
C*****      END OF TEST SEGMENT 085                                 P0850830
C*****   WHEN EXECUTING ONLY SEGMENT 085, THE STOP AND END CARDS    P0850840
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=             P0850850
C*****   IN COLUMNS 1  AND  2 REMOVED.                              P0850860
C=       STOP                                                       P0850870
C=       END                                                        P0850880
         STOP                                                       P085C1
         END                                                        P085C2
C*******************************************************************P0860010
C*****                                                              P0860020
C*****                           COLOG - 086                        P0860030
C*****                                                              P0860040
C*******************************************************************P0860050
C*****   GENERAL PURPOSE                                            P0860060
C*****      TO TEST BASIC EXTERNAL FUNCTION - ALOG10 -      ASA REF P0860070
C*****      COMMON LOG - TYPE REAL                           8.3.3  P0860080
C*****      USED IN SIMPLE ARITHMETIC EXPRESSIONS          TABLE 4P0860090
C*****      INTRINSIC FUNCTIONS ABS,AINT,AMAX1,SIGN, ASSUMED WORKING P0860100
C*****      ARGUMENT RANGE  0.5 TO 16.0 ,POWERS OF 2                P0860110
C*****                                                              P0860120
C*****   O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE. P0860130
C*****                                                              P0071690
C*****   WHEN EXECUTING ONLY SEGMENT 086, THE FOLLOWING STATEMENT   P0071695
C*****   NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.     P0071700
C=       NUVI = 6                                                   P0071705
         NUVI = 6                                                   P086B1
C*****                                                              P0071710
860      FORMAT(15H1 COLOG - (086)//34H  BASIC EXTERNAL FUNCTION -ALOG10- P0860140
     1//25H   (COMMON LOG -TYPE REAL)                               P0860150
     2//27H   ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H P0860160
     3 HOLLERITH INFORMATION//9H   RESULTS)                         P0860170
         WRITE (NUVI, 860)                                          P0860180
C*****      HEADER FOR SEGMENT 086 WRITTEN                          P0860190
         AVS = -2.0                                                 P0860200
         CVS = -4.0                                                 P0860210
         BVS = ALOG10(AVS / CVS)                                    P0860220
         WRITE (NUVI, 861) BVS                                      P0860230
         BVS = ALOG10(ABS(AVS + 1.0))                              P0860240
         WRITE (NUVI, 862) BVS                                      P0860250
         BVS = ALOG10( -AVS)                                        P0860260
         WRITE (NUVI, 863) BVS                                      P0860270
         BVS = ALOG10(AINT(AVS + 2.0 - CVS))                       P0860280
         WRITE (NUVI, 864) BVS                                      P0860290
         BVS = ALOG10(AMAX1(AVS * CVS, CVS * 2.0))                 P0860300
         WRITE (NUVI, 865) BVS                                      P0860310
         BVS = ALOG10(SIGN(CVS,(-AVS)) **2)                        P0860320
         WRITE (NUVI, 866) BVS                                      P0860330
         WRITE (NUVI, 867)                                          P0860340
861      FORMAT( 8H0 X= 0.5,5X,25H-0.3010299956639811952137/8X,  F15.7) P0860350
862      FORMAT( 8H0 X= 1.0,5X,25H 0.00000000000000000000000/8X,  F15.7) P0860360
863      FORMAT( 8H0 X= 2.0,5X,25H 0.3010299956639811952137/8X,  F15.7) P0860370
864      FORMAT( 8H0 X= 4.0,5X,25H 0.6020599913279623904275/8X,  F15.7) P0860380
865      FORMAT( 8H0 X= 8.0,5X,25H 0.9030899869919435856412/8X,  F15.7) P0860390
866      FORMAT( 8H0 X=16.0,5X,25H 1.2041199826559247808550/8X,  F15.7) P0860400
867      FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONP0860410
     1 PRINTED TO ,8H7 DIGITS)                                      P0860420
C*****      END OF TEST SEGMENT 086                                 P0860430
C*****   WHEN EXECUTING ONLY SEGMENT 086, THE  STOP  AND  END  CARDS P0860440
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=             P0860450
C*****   IN COLUMNS  1  AND  2  REMOVED.                            P0860460
C=       STOP                                                       P0860470
C=       END                                                        P0860480
         STOP                                                       P086C1
         END                                                        P086C2
C*******************************************************************P0870010
C*****                                                              P0870020
```

```
C*****                            DCLOG - 087                                   P0870030
C*****                                                                          P0870040
C*************************************************************************P0870050
C*****    GENERAL PURPOSE                                                        P0870060
C*****          TO TEST BASIC EXTERNAL FUNCTION - DLOG10 -          ASA REFP0870070
C*****          COMMON LOG - TYPE DOUBLE PRECISION                   8.3.3  P0870080
C*****          SAME AS SEGMENT 086 EXCEPT FOR TYPE                TABLE 4P0870090
C*****          INTRINSIC FUNCTIONS DABS,IDINT,FLOAT,OBLE,                   P0870100
C*****          DMAX1,DSIGN ASSUMED WORKING                                  P0870110
C*****          ARGUMENT RANGE  0.5 TO 16.0   POWERS OF 2                    P0870120
C*****                                                                          P0870130
C*****    S P E C I F I C A T I O N S   SEGMENT 087                          P0870140
C*****                                                                          P0011970
C*****    WHEN EXECUTING ONLY SEGMENT 087, THE SPECIFICATION STATEMENTS      P0011975
C*****    WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                     P0011980
C*****    IN COLUMNS  1  ANO  2  REMOVEO.                                    P0011985
C*****                                                                          P0011990
C=     OOUBLE PRECISION AVD, BVO, CVO                                        P0011995
       OOUBLE PRECISION AVD, BVD, CVO                                        P087A1
C*****                                                                          P0012000
C*****    O U T P U T   T A P E   ASSIGNMENT STATEMENT.   NO INPUT TAPE.     P0870150
C*****                                                                          P0071720
C*****    WHEN EXECUTING ONLY SEGMENT 087, THE FOLLOWING STATEMENT          P0071725
C*****    NUVI = 6   MUST HAVE THE C= IN COLUMNS 1 ANO 2 REMOVEO.           P0071730
C=     NUVI = 6                                                             P0071735
       NUVI = 6                                                             P087B1
C*****                                                                          P0071740
870    FORMAT(15H1 OCLOG - (087)//34H  BASIC EXTERNAL FUNCTION -OLOG10-     P0870160
      1//37H  (COMMON LOG -TYPE DOUBLE PRECISION).                          P0870170
      2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H   P0870180
      3 HOLLERITH INFORMATION//9H  RESULTS)                                 P0870190
       WRITE (NUVI, 870)                                                    P0870200
C*****    HEAOER FOR SEGMENT 087 WRITTEN                                     P0870210
       AVO = -2.0D0                                                         P0870220
       CVO = -4.000                                                         P0870230
       BVD = DLOG10(AVD / CVD)                                              P0870240
       WRITE (NUVI, 871) BVO                                                P0870250
       BVO = DLOG10(DABS(AVO + 1.000))                                      P0870260
       WRITE (NUVI, 872) BVO                                                P0870270
       BVD = DLOG10( -AVO)                                                  P0870280
       WRITE (NUVI, 873) BVD                                                P0870290
       BVD = DLOG10(DBLE(FLOAT(IDINT(AVD + 2.0D0 - CVD))))                  P0870300
       WRITE (NUVI, 874) BVD                                                P0870310
       BVO = DLOG10(DMAX1(AVD * CVD, CVD * 2.0D0))                          P0870320
       WRITE (NUVI, 875) BVD                                                P0870330
       BVO = DLOG10(OSIGN(CVO,(-AVD)) **2)                                  P0870340
       WRITE (NUVI, 876) BVO                                                P0870350
       WRITE (NUVI, 877)                                                    P0870360
871    FORMAT( 8H0 X= 0.5,5X,29H-0.3010299956639811952137D+00/D34.14)      P0870370
872    FORMAT( 8H0 X= 1.0,5X,29H 0.00000000000000000000000     /D34.14)    P0870380
873    FORMAT( 8H0 X= 2.0,5X,29H 0.3010299956639811952137D+00/D34.14)      P0870390
874    FORMAT( 8H0 X= 4.0,5X,29H 0.6020599913279623904275D+00/D34.14)      P0870400
875    FORMAT( 8H0 X= 8.0,5X,29H 0.9030899869991943585641D+00/O34.14)      P0870410
876    FORMAT( 8H0 X=16.0,5X,29H 1.204119982655924780855D0+00/1P033.13)    P0870420
877    FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONP0870430
      A PRINTEO TO ,9H14 DIGITS)                                           P0870440
C*****    END OF TEST SEGMENT 087                                           P0870450
C*****    WHEN EXECUTING ONLY SEGMENT 087, THE  STOP  AND  END  CARDS       P0870460
C*****    WHICH APPEAR AS COMMENT CAROS MUST HAVE THE C=                    P0870470
C*****    IN COLUMNS  1  AND  2  REMOVEO.                                   P0870480
C=     STOP                                                                 P0870490
C=     ENO                                                                  P0870500
       STOP                                                                 P087C1
       END                                                                  P087C2
C*************************************************************************P0880010
C*****                                                                          P0880020
C*****                            SINUS - 088                                   P0880030
C*****                                                                          P0880040
```

```
C******************************************************************P0880050
C***** GENERAL PURPOSE                                      ASA REFP0880060
C*****    TO TEST BASIC EXTERNAL FUNCTION - SIN -            8.3.3  P0880070
C*****    TRIGONOMETRIC SINE - TYPE REAL                    TABLE 4P0880080
C*****    INTRINSIC FUNCTION SNGL ASSUMED WORKING                  P0880090
C*****    ARGUMENTS FROM 0 TO 2 PI                                 P0880100
C*****                                                             P0880110
C***** S P E C I F I C A T I O N S  SEGMENT 088                    P0880120
C*****                                                             P0012010
C***** WHEN EXECUTING ONLY SEGMENT 088, THE SPECIFICATION STATEMENTSP0012015
C***** WHICH APPEAR AS COMMENT CAROS MUST HAVE THE C=              P0012020
C***** IN COLUMNS  1  ANO  2  REMOVEO.                             P0012025
C*****                                                             P0012030
C=    DOUBLE PRECISION AVO, BVO, CVO, DVO, EVD, PIVO               P0012035
      DOUBLE PRECISION AVD, BVD, CVD, DVD, EVO, PIVD               P088A1
C*****                                                             P0012040
C***** O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE. P0880130
C*****                                                             P0071750
C***** WHEN EXECUTING ONLY SEGMENT 088, THE FOLLOWING STATEMENT    P0071755
C***** NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 ANO 2 REMOVED.      P0071760
C=    NUVI = 6                                                     P0071765
      NUVI = 6                                                     P088B1
C*****                                                             P0071770
      WRITE (NUVI, 880)                                            P0880140
880   FORMAT(15H1 SINUS - (088)//31H  BASIC EXTERNAL FUNCTION -SIN-P0880150
     1//33H  (TRIGONOMETRIC SINE -TYPE REAL)                       P0880160
     2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H P0880170
     3 HOLLERITH INFORMATION//9H  RESULTS)                         P0880180
C*****    HEAOER FOR SEGMENT 088 WRITTEN                           P0880190
      AVO = 3.140625D+0                                            P0880200
      BVD = 0.96130371093750-3                                     P0880210
      CVD = 0.572204589843750-5                                    P0880220
      DVD = 0.5960464477539060-6                                   P0880230
      EVD = 0.317865095470560-7                                    P0880240
C*****PI IS SUM OF AVO TO EVD, PARTS ARE EXPRESSED IN SUMS OF POWERS OF P0880250
C*****2, TO PERMIT A POSSIBLE 20 DECIMAL DIGIT ARGUMENT TO BE CREATED P0880260
      PIVD = EVD + DVD + CVD + BVD + AVD                           P0880270
      AVS = 1.0                                                    P0880280
      CVS = 2.0                                                    P0880290
      BVS = SIN(CVS - 2.0 * AVS)                                   P0880300
      WRITE (NUVI, 881) BVS                                        P0880310
      BVS = SIN(AVS)                                               P0880320
      WRITE (NUVI, 882) BVS                                        P0880330
      BVS = SIN (CVS)                                              P0880340
      WRITE (NUVI, 883) BVS                                        P0880350
      BVS = SIN(AVS + CVS)                                         P0880360
      WRITE (NUVI,884) BVS                                         P0880370
      BVS = SIN(SNGL(PIVD))                                        P0880380
      WRITE (NUVI, 885) BVS                                        P0880390
      BVS = SIN(2. * CVS)                                          P0880400
      WRITE (NUVI, 886) BVS                                        P0880410
      BVS = SIN(2.0 + CVS + AVS)                                   P0880420
      WRITE (NUVI, 887) BVS                                        P0880430
      BVS = SIN(CVS * (AVS + CVS))                                 P0880440
      WRITE (NUVI, 888) BVS                                        P0880450
      BVS = SIN(SNGL(2.0D0 * PIVD))                                P0880460
      WRITE (NUVI, 889) BVS                                        P0880470
      WRITE (NUVI, 7880)                                           P0880480
881   FORMAT( 9H0 X= 0.0 ,5X,15H 0.000000000000   /14X, F10.7)    P0880490
882   FORMAT( 9H0 X= 1.0 ,5X,15H+0.841470984808   /14X, F10.7)    P0880500
883   FORMAT( 9H0 X= 2.0 ,5X,15H+0.909297426826   /14X, F10.7)    P0880510
884   FORMAT( 9H0 X= 3.0 ,5X,15H+0.141120008060   /14X, F10.7)    P0880520
885   FORMAT( 9H0 X= (PI),5X,15H 0.000000000000   /14X, F10.7)    P0880530
886   FORMAT( 9H0 X= 4.0 ,5X,15H-0.756802495308   /14X, F10.7)    P0880540
887   FORMAT( 9H0 X= 5.0 ,5X,15H-0.958924274663   /14X, F10.7)    P0880550
888   FORMAT( 9H0 X= 6.0 ,5X,15H-0.279415498198   /14X, F10.7)    P0880560
889   FORMAT( 9H0 X=(2PI),5X,15H 0.000000000000   /14X, F10.7)    P0880570
7880  FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONP0880580
```

```
    1 PRINTED TO ,8H7 DIGITS)                                        P0880590
C*****     END OF TEST SEGMENT 088                                   P0880600
C*****  WHEN EXECUTING ONLY SEGMENT 088, THE  STOP   AND   END   CARDS  P0880610
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=               P0880620
C*****  IN COLUMNS  1  AND  2  REMOVED.                              P0880630
C=     STOP                                                          P0880640
C=     END                                                           P0880650
       STOP                                                          P088C1
       END                                                           P088C2
C********************************************************************P0890010
C*****                                                               P0890020
C*****                          DPSIN - 089                          P0890030
C*****                                                               P0890040
C********************************************************************P0890050
C*****   GENERAL PURPOSE                                   ASA REFP0890060
C*****      TO TEST BASIC EXTERNAL FUNCTION - DSIN -          8.3.3  P0890070
C*****      TRIGONOMETRIC SINE - TYPE DOUBLE PRECISION      TABLE 4P0890080
C*****      SAME AS SEGMENT 088 EXCEPT D.P.                          P0890090
C*****      INTRINSIC FUNCTION DSIGN ASSUMED WORKING                 P0890100
C*****      ARGUMENTS FROM 0 TO 2 PI                                 P0890110
C*****                                                               P0890120
C*****   S P E C I F I C A T I O N S  SEGMENT 089                    P0890130
C*****                                                               P0012050
C*****  WHEN EXECUTING ONLY SEGMENT 089, THE SPECIFICATION STATEMENTS  P0012055
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=               P0012060
C*****  IN COLUMNS  1  AND  2  REMOVED.                              P0012065
C*****                                                               P0012070
C=     DOUBLE PRECISION AVD, BVD, CVD, DVD, EVD, PIVD, XVD, FVD, GVD  P0012075
       DOUBLE PRECISION AVD, BVD, CVD, DVD, EVD, PIVD, XVD, FVD, GVD  P089A1
C*****                                                               P0012080
C*****   O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE. P0890140
C*****                                                               P0071780
C*****  WHEN EXECUTING ONLY SEGMENT 089, THE FOLLOWING STATEMENT     P0071785
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.       P0071790
C=     NUVI = 6                                                      P0071795
       NUVI = 6                                                      P089B1
C*****                                                               P0071800
890    FORMAT(15H1 DPSIN - (089)//32H  BASIC EXTERNAL FUNCTION -DSIN-  P0890150
      1//33H  (TRIGONOMETRIC SINE -TYPE D.P.)                        P0890160
      2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H P0890170
      3 HOLLERITH INFORMATION//9H  RESULTS)                          P0890180
       WRITE (NUVI, 890)                                             P0890190
C*****     HEADER FOR SEGMENT 089 WRITTEN                            P0890200
       AVD = 3.140625D+0                                             P0890210
       BVD = 0.9613037109375D-3                                      P0890220
       CVD = 0.57220458984375D-5                                     P0890230
       DVD = 0.5960464477753906D-6                                   P0890240
       EVD = 0.31786509547056D-7                                     P0890250
C*****PI IS SUM OF AVD TO EVD, PARTS ARE EXPRESSED IN SUMS OF POWERS OF P0890260
C*****2, TO PERMIT A POSSIBLE 20 DECIMAL DIGIT ARGUMENT TO BE CREATED  P0890270
       PIVD = EVD + DVD + CVD + BVD + AVD                            P0890280
       FVD = 1.0D0                                                   P0890290
       GVD = 2.0D0                                                   P0890300
       XVD = DSIN(GVD - 2.0D0 * FVD)                                 P0890310
       WRITE (NUVI, 891) XVD                                         P0890320
       XVD = DSIN(FVD)                                               P0890330
       WRITE (NUVI, 892) XVD                                         P0890340
       XVD = DSIN(GVD)                                               P0890350
       WRIT  ( UVI, 893) XVD                                         P0890360
       XV     IN(GVD + FVD)                                          P0890370
       W   E (NUVI, 894) XVD                                         P0890380
       X D = DSIN(PIVD)                                              P0890390
       RITE (NUVI, 895) XVD                                          P0890400
       XVD = DSIN(2. * GVD)                                          P0890410
       WRITE (NUVI, 896) XVD                                         P0890420
       XVD = DSIN(2.0 +FVD + GVD)                                    P0890430
       WRITE (NUVI, 897) XVD                                         P0890440
       XVD = DSIN(GVD * (FVD + GVD))                                 P0890450
```

```
          WRITE (NUVI, 898) XVD                                            P0890460
          XVD = DSIN(DSIGN(2.0D0 * PIVD, GVD))                             P0890470
          WRITE (NUVI, 899) XVD                                            P0890480
          WRITE (NUVI, 7890)                                               P0890490
891    FORMAT(9H0 X= 0.0 ,    31H  0.00000000000000000000000    / D31.14) P0890500
892    FORMAT(9H0 X= 1.0 ,    31H +0.84147098480789650665250D+00 /D31.14) P0890510
893    FORMAT(9H0 X= 2.0 ,    31H +0.90929742682568169539602D+00 /D31.14) P0890520
894    FORMAT(9H0 X= 3.0 ,    31H +0.14112000805986722210074D+00 /D31.14) P0890530
895    FORMAT(9H0 X= (PI),    31H  0.00000000000000000000000    / D31.14) P0890540
896    FORMAT(9H0 X= 4.0 ,    31H -0.75680249530792825137264D+00 /D31.14) P0890550
897    FORMAT(9H0 X= 5.0 ,    31H -0.95892427466313846889315D+00 / D31.14) P0890560
898    FORMAT(9H0 X= 6.0 ,    31H -0.27941549819892587281156D+00 / D31.14) P0890570
899    FORMAT(9H0 X=(2PI),    31H  0.00000000000000000000000    / D31.14) P0890580
7890   FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONP0890590
      A PRINTED TO ,9H14 DIGITS)                                          P0890600
C*****     END OF TEST SEGMENT 089                                        P0890610
C*****  WHEN EXECUTING ONLY SEGMENT 089, THE  STOP  AND  END  CARDS       P0890620
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                     P0890630
C*****  IN COLUMNS  1  AND  2  REMOVED.                                    P0890640
C=    STOP                                                                 P0890650
C=    END                                                                  P0890660
      STOP                                                                 P089C1
      END                                                                  P089C2
C****************************************************************** P0900010
C*****                                                                     P0900020
C*****                   CSICO - (090)                                     P0900030
C*****                                                                     P0900040
C****************************************************************** P0900050
C*****  GENERAL PURPOSE                                        ASA REF P0900060
C*****     TO TEST BASIC EXTERNAL FUNCTIONS  -CSIN- AND -CCOS-    8.3.3 P0900070
C*****     COMPLEX SINE AND COSINE                             TABLE 4P0900080
C*****     INTRINSIC FUNCTION CMPLX ASSUMED WORKING                       P0900090
C*****                                                                     P0900100
C*****  S P E C I F I C A T I O N S  SEGMENT 090                          P0900110
C*****                                                                     P0012090
C*****  WHEN EXECUTING ONLY SEGMENT 090, THE SPECIFICATION STATEMENTS     P0012095
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=                    P0012100
C*****  IN COLUMNS  1  AND  2  REMOVED.                                    P0012105
C*****                                                                     P0012110
C=    DIMENSION L1I (10)                                                   P0012115
C=    COMPLEX AVC, BVC                                                     P0012120
      DIMENSION L1I (10)                                                   P090A1
      COMPLEX AVC, BVC                                                     P090A2
C*****                                                                     P0012125
C*****  O U T P U T - T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      P0900120
C*****                                                                     P0071810
C*****  WHEN EXECUTING ONLY SEGMENT 090, THE FOLLOWING STATEMENT          P0071815
C*****   NUVI = 6 MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.            P0071820
C=    NUVI = 6                                                             P0071825
      NUVI = 6                                                             P090B1
C*****                                                                     P0071830
      WRITE (NUVI, 900)                                                    P0900130
900    FORMAT(15H1 CSICO - (090)//40H  BASIC EXTERNAL FUNCTIONS -CSIN , CP0900140
      1COS- //39H  (TRIG. SINE AND COSINE -TYPE COMPLEX)//26H  ASA REF 8.P0900150
      23.3 (TABLE 4) //10H  FUNCTION, 10X,7HRESULTS //)                   P0900160
      DATA LAZVI,LBZVI, LCZVI,LDZVI/2H0( ,2H, ,2H1/,1H)/                  P0900170
      DATA L1I(1),L1I(2),L1I(3),L1I(4),L1I(5)/                            P0900180
      -     2H1 ,   2H2 ,   2H3 ,   2H4 ,   2H5 /,                        P0900190
      -     L1I(6),L1I(7),L1I(8),L1I(9),L1I(10)/                          P0900200
      -     2H6 ,   2H7 ,   2H8 ,   2H9 ,  2H10 /                         P0900210
      AVC = (1.0,1.0)                                                     P0900220
      BVC = CSIN (AVC)                                                    P0900230
      WRITE(NUVI, 901) BVC                                                P0900240
      BVC = CCOS(AVC)                                                    P0900250
      WRITE (NUVI, 902) BVC                                               P0900260
      IVI = 0                                                             P0900270
905    IVI = IVI + 1                                                      P0900280
      AVS = IVI                                                           P0900290
```

```
          BVS = 1. / AVS                                              P0900300
          AVC = CMPLX (AVS,BVS)                                        P0900310
          BVC = CSIN(AVC) ** 2 + CCOS(AVC) ** 2                        P0900320
          WRITE(NUVI, 904) LAZVI, L1I(IVI),LBZVI,LCZVI,L1I(IVI),LDZVI, BVC P0900330
904       FORMAT(  A2,A2, A2,A2,A2,A1,4X,2F12.7)                       P0900340
          IF(IVI - 10) 905, 906, 906                                  P0900350
906       CONTINUE                                                    P0900360
901       FORMAT(/13H  TABLE VALUE,4X,22H 1.2984576   0.6349639 /17H  CSIN(1P0900370
         1.,1.) =  ,F10.7,F12.7)                                      P0900380
902       FORMAT(/13H  TABLE VALUE,4X,22H 0.8337300  -0.9888977 /17H  CCOS(1P0900390
         1.,1.) =  ,F10.7,F12.7 ///35H   CSIN(X)**2 + CCOS(X)**2 = 1.0,0.0 / P0900400
         2 40H0 ARGUMENT       RESULTS SHOULD BE 1.0,0.0 )            P0900410
C*****      END OF TEST SEGMENT 090                                   P0900420
C*****   WHEN EXECUTING ONLY SEGMENT 090, THE STOP AND END CARDS      P0900430
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=               P0900440
C*****    IN COLUMNS  1  AND  2 REMOVED.                              P0900450
C=      STOP                                                          P0900460
C=      END                                                           P0900470
        STOP                                                          P090C1
        END                                                           P090C2
C****************************************************************************P0910010
C*****                                                                P0910020
C*****                      COSNS - 091                               P0910030
C*****                                                                P0910040
C****************************************************************************P0910050
C*****   GENERAL PURPOSE                                     ASA REFP0910060
C*****      TO TEST BASIC EXTERNAL FUNCTION - COS -          8.3.3  P0910070
C*****      TRIGONOMETRIC COSINE - TYPE REAL                TABLE 4P0910080
C*****      SAME AS SEGMENT       EXCEPT FOR COSINE                   P0910090
C*****      INTRINSIC FUNCTION SNGL ASSUMED WORKING                  P0910100
C*****      ARGUMENTS FROM 0 TO 2 PI                                 P0910110
C*****                                                                P0910120
C*****   S P E C I F I C A T I O N S  SEGMENT 091                     P0910130
C*****                                                                P0012130
C*****   WHEN EXECUTING ONLY SEGMENT 091, THE SPECIFICATION STATEMENTS P0012135
C*****   WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=              P0012140
C*****    IN COLUMNS  1  AND  2  REMOVED.                             P0012145
C*****                                                                P0012150
C=      DOUBLE PRECISION AVD, BVD, CVD, DVD, EVD, PIVD                P0012155
        DOUBLE PRECISION AVD, BVD, CVD, DVD, EVD, PIVD                P091A1
C*****                                                                P0012160
C*****   O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.  P0910140
C*****                                                                P0071840
C*****   WHEN EXECUTING ONLY SEGMENT 091, THE FOLLOWING STATEMENT     P0071845
C*****   NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.       P0071850
C=      NUVI = 6                                                      P0071855
        NUVI = 6                                                      P091B1
C*****                                                                P0071860
910       FORMAT(15H1 COSNS - (091)//31H  BASIC EXTERNAL FUNCTION -COS- P0910150
         1//35H  (TRIGONOMETRIC COSINE -TYPE REAL)                    P0910160
         2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H P0910170
         3 HOLLERITH INFORMATION//9H  RESULTS)                        P0910180
        WRITE (NUVI, 910)                                             P0910190
C*****      HEADER FOR SEGMENT 091 WRITTEN                            P0910200
        AVD = 3.140625D+0                                             P0910210
        BVD = 0.96130371109375D-3                                     P0910220
        CVD = 0.57220458984375D-5                                     P0910230
        DVD = 0.5960464477753906D-6                                   P0910240
        EVD = 0.3178650955470566D-7                                   P0910250
C*****PI IS SUM OF AVD TO EVD, PARTS ARE EXPRESSED IN SUMS OF POWERS OF P0910260
C*****2, TO PERMIT A POSSIBLE 20 DECIMAL DIGIT ARGUMENT TO BE CREATED P0910270
        PIVD = EVD + DVD + CVD + BVD + AVD                            P0910280
        AVS = 1.0                                                     P0910290
        CVS = 2.0                                                     P0910300
        BVS = COS(CVS - 2.0 * AVS)                                    P0910310
        WRITE (NUVI, 911) BVS                                         P0910320
        BVS = COS(AVS)                                                P0910330
        WRITE (NUVI, 912) BVS                                         P0910340
```

```
      BVS = COS(CVS)                                                   P0910350
      WRITE (NUVI, 913) BVS                                            P0910360
      BVS = COS(AVS + CVS)                                             P0910370
      WRITE (NUVI, 914) BVS                                            P0910380
      BVS = COS(SNGL(PIVD))                                            P0910390
      WRITE (NUVI, 915) BVS                                            P0910400
      BVS = COS(2. * CVS)                                              P0910410
      WRITE (NUVI, 916) BVS                                            P0910420
      BVS = COS(2.0 + CVS + AVS)                                       P0910430
      WRITE (NUVI, 917) BVS                                            P0910440
      BVS = COS(CVS * (AVS + CVS))                                     P0910450
      WRITE (NUVI, 918) BVS                                            P0910460
      BVS = COS(SNGL(2.0D0 * PIVD))                                    P0910470
      WRITE (NUVI, 919) BVS                                            P0910480
      WRITE (NUVI, 7910)                                               P0910490
911   FORMAT( 9H0 X= 0.0 ,5X,15H+1.000000000000   /14X, F10.7)        P0910500
912   FORMAT( 9H0 X= 1.0 ,5X,15H+0.540302305868   /14X, F10.7)        P0910510
913   FORMAT( 9H0 X= 2.0 ,5X,15H-0.416146836547   /14X, F10.7)        P0910520
914   FORMAT( 9H0 X= 3.0 ,5X,15H-0.989992496600   /14X, F10.7)        P0910530
915   FORMAT( 9H0 X= (PI),5X,15H-1.000000000000   /14X, F10.7)        P0910540
916   FORMAT(9H0 X= 4.0 ,5X,15H-0.653643620864   /14X, F10.7)         P0910550
917   FORMAT( 9H0 X= 5.0 ,5X,15H+0.283662185463   /14X, F10.7)        P0910560
918   FORMAT( 9H0 X= 6.0 ,5X,15H+0.960170286650   /14X, F10.7)        P0910570
919   FORMAT( 9H0 X=(2PI),5X,15H+1.000000000000   /14X, F10.7)        P0910580
7910  FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONP0910590
     1 PRINTED TO ,8H7 OIGITS)                                        P0910600
C*****     END OF TEST SEGMENT 091                                    P0910610
C*****  WHEN EXECUTING ONLY SEGMENT 091, THE  STOP  AND  END  CARDS   P0910620
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                P0910630
C*****  IN COLUMNS  1  AND  2  REMOVED.                               P0910640
C=    STOP                                                          . P0910650
C=    END                                                             P0910660
      STOP                                                            P091C1
      ENO                                                             P091C2
C****************************************************************************P0920010
C*****                                                                P0920020
C*****                        OPCOS - (092)                           P0920030
C*****                                                                P0920040
C****************************************************************************P0920050
C*****  GENERAL PURPOSE                                      ASA REFP0920060
C*****     TO TEST BASIC EXTERNAL FUNCTION - OCOS -            8.3.3  P0920070
C*****     TRIGONOMETRIC COSINE -TYPE DOUBLE PRECISION      TABLE 4P0920080
C*****     SAME AS SEGMENT 091 EXCEPT D.P.                            P0920090
C*****     INTRINSIC FUNCTION DMAX1 ASSUMED WORKING                   P0920100
C*****     ARGUMENTS FROM 0 TO 2 PI                                   P0920110
C*****                                                                P0920120
C*****  S P E C I F I C A T I O N S  SEGMENT 092                      P0920130
C*****                                                                P0012170
C*****  WHEN EXECUTING ONLY SEGMENT 092, THE SPECIFICATION STATEMENTS P0012175
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                P0012180
C*****  IN COLUMNS  1  AND  2  REMOVED.                               P0012185
C*****                                                                P0012190
C=    OOUBLE PRECISION AVD, BVD, CVD, DVO, EVD, FVO, GVO, PIVD, XVD   P0012195
      OOUBLE PRECISION AVD, BVD, CVD, DVD, EVD, FVD, GVD, PIVD, XVD   P092A1
C*****                                                                P0012200
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.   P0920140
C*****                                                                P0071870
C*****  WHEN EXECUTING ONLY SEGMENT 092, THE FOLLOWING STATEMENT      P0071875
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.        P0071880
C=    NUVI = 6                                                        P0071885
      NUVI = 6                                                        P092B1
C*****                                                                P0071890
920   FORMAT(15H1 DPCOS - (092)//32H  BASIC EXTERNAL FUNCTION -DCOS-  P0920150
     1//35H  (TRIGONOMETRIC COSINE -TYPE D.P.)                        P0920160
     2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H P0920170
     3 HOLLERITH INFORMATION//9H  RESULTS)                            P0920180
      WRITE (NUVI, 920)                                               P0920190
      AVD = 3.140625D+0                                               P0920200
```

```
         BVD = 0.9613037109375D-3                                           P0920210
         CVD = 0.572045898437SD-5                                           P0920220
         DVD = 0.596046447753906D-6                                         P0920230
         EVD = 0.31786509547056D-7                                          P0920240
C*****PI IS SUM OF AVD TO EVD, PARTS ARE EXPRESSED IN SUMS OF POWERS OF P0920250
C*****2, TO PERMIT A POSSIBLE 20 DECIMAL DIGIT ARGUMENT TO BE CREATED   P0920260
         PIVD = EVD + DVD + CVD + BVD + AVD                                 P0920270
         FVD = 1.0D0                                                        P0920280
         GVD = 2.0D0                                                        P0920290
         XVD = DCDS(GVD - 2.0D0 * FVD)                                      P0920300
         WRITE (NUVI, 921) XVD                                              P0920310
         XVD = DCDS(FVD)                                                    P0920320
         WRITE (NUVI, 922) XVD                                              P0920330
         XVD = DCDS(GVD)                                                    P0920340
         WRITE (NUVI, 923) XVD                                              P0920350
         XVD = DCOS(GVD + FVD)                                              P0920360
         WRITE (NUVI, 924) XVD                                              P0920370
         XVD = DCOS(PIVD)                                                   P0920380
         WRITE (NUVI, 925) XVD                                              P0920390
         XVD = DCDS(2. * GVD)                                               P0920400
         WRITE (NUVI, 926) XVD                                              P0920410
         XVD = DCDS(2.0 + FVD + GVD)                                        P0920420
         WRITE (NUVI, 927) XVD                                              P0920430
         XVD = DCDS(GVD * (FVD + GVD))                                      P0920440
         WRITE (NUVI, 928) XVD                                              P0920450
         XVD = DCOS(DMAX1(2.0D0 * PIVD, GVD))                               P0920460
         WRITE (NUVI, 929) XVD                                              P0920470
         WRITE (NUVI, 7992)                                                 P0920480
921      FORMAT(9H0 X= 0.0 ,31H +0.10000000000000000000000D+01 / D31.14)  P0920490
922      FORMAT(9H0 X= 1.0 ,31H +0.54030230586813971740094D+00 /D31.14)   P0920500
923      FORMAT(9H0 X= 2.0 ,31H -0.41614683654714238699757D+00 / D31.14)  P0920510
924      FORMAT(9H0 X= 3.0 ,31H -0.98999249660044545727157D+00 / D31.14)  P0920520
925      FDRMAT(9H0 X= (PI),31H -0.10000000000000000000000D+01 / D31.14)  P0920530
926      FORMAT(9H0 X= 4.0 ,31H -0.65364362086361191463917D+00 / D31.14)  P0920540
927      FORMAT(9H0 X= 5.0 ,31H +0.28366218546322626446664D+00 / D31.14)  P0920550
928      FDRMAT(9H0 X= 6.0 ,31H +0.96017028665036602054565D+00 / D31.14)  P0920560
929      FDRMAT(9H0 X=(2PI),31H +0.10000000000000000000000D+01 / D31.14)  P0920570
7992     FDRMAT(//37H  LINE 2 DF EACH PAIR IS THE FUNCTIDN/25H  CALCULATIONP0920580
        A PRINTED TD ,9H14 DIGITS)                                         P0920590
C*****      END DF SEGMENT 092                                             P0920600
C*****   WHEN EXECUTING DNLY SEGMENT 092, THE  STDP  AND  END  CARDS       P0920610
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                    P0920620
C*****   IN COLUMNS  1  AND  2  REMDVED.                                   P0920630
C=     STOP                                                                P0920640
C=     END                                                                 P0920650
       STDP                                                                P092C1
       END                                                                 P092C2
C*********************************************************************P0940010
C*****                                                                     P0940020
C*****                        TANGH - 094                                  P0940030
C*****                                                                     P0940040
C*********************************************************************P0940050
C*****   GENERAL PURPOSE                                              ASA REFP0940060
C*****      TO TEST BASIC EXTERNAL FUNCTION - TANH -                  8.3.3 P0940070
C*****      HYPERBDLIC TANGENT -TYPE REAL                                   P0940080
C*****      USED IN SIMPLE ARITHMETIC EXPRESSIDNS                           P0940090
C*****      INTRINSIC FUNCTIDNS ABS,FLDAT,AMIND,AMAX0,INT                   P0940100
C*****      ASSUMED WORKING                                                 P0940110
C*****      ARGUMENTS FROM 0.0 TD 8.0                                       P0940120
C*****                                                                      P0940130
C*****   D U T P U T  T A P E  ASSIGNMENT STATEMENT.  ND INPUT TAPE.        P0940140
C*****   WHEN EXECUTING DNLY SEGMENT 094, THE FOLLOWING STATEMENT           P0071900
C*****   NUVI = 6  MUST HAVE THE C=  IN COLUMNS 1 AND 2 REMDVED.            P0071905
C*****                                                                      P0071910
C=     NUVI = 6                                                             P0071915
       NUVI = 6                                                             P094B1
940      FORMAT(15H1 TANGH - (094)//32H  BASIC EXTERNAL FUNCTION -TANH-     P0940150
        1//33H  (HYPERBDLIC TANGENT -TYPE REAL)                            P0940160
```

```
      2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H   LINE 1 OF EACH PAIR IS/23H P0940170
      3 HOLLERITH INFORMATION//9H  RESULTS)                               P0940180
       WRITE (NUVI, 940)                                                  P0940190
C*****    HEADER FOR SEGMENT 094 WRITTEN                                  P0940200
       AVS = 2.0                                                          P0940210
       CVS = -0.5                                                         P0940220
       IVI = 6                                                            P0940230
       BVS = TANH(FLOAT(IVI) - 3.0 * AVS)                                 P0940240
       WRITE (NUVI, 941) BVS                                              P0940250
       BVS = TANH(AVS)                                                    P0940260
       WRITE (NUVI, 942) BVS                                              P0940270
       BVS = TANH(AVS + ABS(CVS))                                         P0940280
       WRITE (NUVI, 943) BVS                                              P0940290
       BVS = TANH(AMINO(IVI,8) - AVS)                                     P0940300
       WRITE (NUVI, 944) BVS                                              P0940310
       BVS = TANH(AMAXO(IVI,INT(AVS)))                                    P0940320
       WRITE (NUVI, 945) BVS                                              P0940330
       BVS = TANH(AVS ** 4 / AVS)                                         P0940340
       WRITE (NUVI, 946) BVS                                              P0940350
       WRITE (NUVI, 947)                                                  P0940360
941    FORMAT(7H0 X=0.0,5X,12H0.0000000000 /F21.7)                       P0940370
942    FORMAT(7H0 X=2.0,5X,12H0.9640275801 /F21.7)                       P0940380
943    FORMAT(7H0 X=2.5,5X,12H0.9866142982 /F21.7)                       P0940390
944    FORMAT(7H0 X=4.0,5X,12H0.9993292997 /F21.7)                       P0940400
945    FORMAT(7H0 X=6.0,5X,12H0.9999877117 /F21.7)                       P0940410
946    FORMAT(7H0 X=8.0,5X,12H0.9999997749 /F21.7)                       P0940420
947    FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONP0940430
      1 PRINTED TO , 8H7 OIGITS )                                        P0940440
C*****    END OF TEST SEGMENT 094                                        P0940450
C*****  WHEN EXECUTING ONLY SEGMENT 094, THE  STOP  AND  ENO  CAROS      P0940460
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                   P0940470
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  P0940480
C=     STOP                                                              P0940490
C=     ENO                                                              P0940500
       STOP                                                             P094C1
       END                                                             P094C2
C***********************************************************************P0950010
C*****                                                                 P0950020
C*****                         SQROT - (095)                           P0950030
C*****                                                                 P0950040
C***********************************************************************P0950050
C*****  GENERAL PURPOSE                                        ASA REFP0950060
C*****     TO TEST BASIC EXTERNAL FUNCTION - SQRT -            8.3.3   P0950070
C*****     (SQUARE ROOT - TYPE REAL)                          TABLE 4P0950080
C*****     USEO IN SIMPLE ARITHMETIC EXPRESSIONS                      P0950090
C*****     INTRINSIC FUNCTIONS FLOAT,INT,AMINO,MAX0                   P0950100
C*****     ASSUMEO WORKING                                            P0950110
C*****     ARGUMENTS ARE ALL PRIME NUMBERS                            P0950120
C*****                                                                P0950130
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.   P0950140
C*****                                                                P0071920
C*****  WHEN EXECUTING ONLY SEGMENT 095, THE FOLLOWING STATEMENT      P0071925
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 ANO 2 REMOVEO.        P0071930
C=     NUVI = 6                                                       P0071935
       NUVI = 6                                                       P095B1
C*****                                                                P0071940
950    FORMAT(15H1 SQROT - (095)//32H  BASIC EXTERNAL FUNCTION -SQRT-   P0950150
      1//26H  (SQUARE ROOT -TYPE REAL)                                 P0950160
      2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H   LINE 1 OF EACH PAIR IS/23H P0950170
      3 HOLLERITH INFORMATION//9H  RESULTS)                               P0950180
       WRITE (NUVI, 950)                                                  P0950190
C*****    HEAOER FOR SEGMENT 095 WRITTEN                                  P0950200
       AVS = 2.0                                                          P0950210
       IVI = 3                                                            P0950220
       CVS = 17.0                                                         P0950230
       BVS = SQRT(FLOAT(( IVI + INT(AVS)) / 2))                           P0950240
       WRITE (NUVI, 951) BVS                                              P0950250
       BVS = SQRT(AMINO(MAXO(IVI,2), INT(CVS)))                           P0950260
```

```
         WRITE (NUVI, 952) BVS                                          P0950270
         BVS = SQRT(CVS)                                                P0950280
         WRITE (NUVI, 953) BVS                                          P0950290
         BVS = SQRT(2.0 * CVS - FLOAT(IVI))                             P0950300
         WRITE (NUVI, 954) BVS                                          P0950310
         BVS = SQRT(FLOAT(IVI + 1) + 5.0 * CVS)                         P0950320
         WRITE (NUVI, 955) BVS                                          P0950330
         WRITE (NUVI, 956)                                              P0950340
951      FORMAT ( 8H0  X= 2.0,4X,16H1.41421356237310 / F21.7)          P0950350
952      FORMAT ( 8H0  X= 3.0,4X,16H1.73205080756888 / F21.7)          P0950360
953      FORMAT ( 8H0  X=17.0,4X,16H4.12310562561766 / F21.7)          P0950370
954      FORMAT ( 8H0  X=31.0,4X,16H5.56776436283002 / F21.7)          P0950380
955      FORMAT ( 8H0  X=89.0,4X,16H9.43398113205660 / F21.7)          P0950390
956      FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONP0950400
        1 PRINTED TO , 8H7 DIGITS )                                     P0950410
C*****       END OF TEST SEGMENT 095                                    P0950420
C*****   WHEN EXECUTING ONLY SEGMENT 095, THE   STOP   AND   END   CARDS  P0950430
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                  P0950440
C*****   IN COLUMNS  1  AND  2  REMOVED.                                P0950450
C=       STOP                                                           P0950460
C=       END                                                           P0950470
         STOP                                                           P095C1
         END                                                           P095C2
C***********************************************************************P0960010
C*****                                                                  P0960020
C*****                      DSQRO - (096)                              P0960030
C*****                                                                  P0960040
C***********************************************************************P0960050
C*****   GENERAL PURPOSE                                      ASA REFP0960060
C*****       TO TEST BASIC EXTERNAL FUNCTION - DSQRT -        8.3.3  P0960070
C*****       (SQUARE ROOT - TYPE D.P.)                       TABLE 4P0960080
C*****       USED IN SIMPLE EXPRESSIONS                                P0960090
C*****        INTRINSIC FUNCTIONS DBLE,IABS,FLOAT ASSUMED WORKING      P0960100
C*****        ARGUMENTS ARE ALL PRIME NUMBERS                         P0960110
C*****                                                                  P0960120
C*****   S P E C I F I C A T I O N S  SEGMENT 096                      P0960130
C*****                                                                  P0012210
C*****   WHEN EXECUTING ONLY SEGMENT 096, THE SPECIFICATION STATEMENTS P0012215
C*****   WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=               P0012220
C*****   IN COLUMNS  1  AND  2  REMOVED.                               P0012225
C*****                                                                  P0012230
C=       DOUBLE PRECISION BVD                                          P0012235
         DOUBLE PRECISION BVD                                          P096A1
C*****                                                                  P0012240
C*****   O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.   P0960140
C*****                                                                  P0071950
C*****   WHEN EXECUTING ONLY SEGMENT 096, THE FOLLOWING STATEMENT      P0071955
C*****   NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.        P0071960
C=       NUVI = 6                                                      P0071965
         NUVI = 6                                                      P096B1
C*****                                                                  P0071970
960      FORMAT(15H1 DSQRO - (096)//33H  BASIC EXTERNAL FUNCTION -DSQRT- P0960150
        1//26H  (SQUARE ROOT -TYPE D.P.)                               P0960160
        2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H P0960170
        3 HOLLERITH INFORMATION//9H  RESULTS)                          P0960180
         WRITE (NUVI, 960)                                             P0960190
C*****       HEADER FOR SEGMENT 096 WRITTEN                            P0960200
         AVS = 3.0                                                     P0960210
         IVI = -2                                                      P0960220
         CVS = 17.0                                                    P0960230
         BVD = DSQRT(DBLE(FLOAT(IABS(IVI)) + AVS - 3.0))               P0960240
         WRITE (NUVI, 961) BVD                                         P0960250
         BVD = DSQRT(0.0D0 + AVS)                                      P0960260
         WRITE (NUVI, 962) BVD                                         P0960270
         BVD = DSQRT(CVS - AVS + 3.0D0)                                P0960280
         WRITE (NUVI, 963) BVD                                         P0960290
         BVD = DSQRT(2.0D0 * CVS - DBLE(AVS))                          P0960300
         WRITE (NUVI, 964) BVD                                         P0960310
```

```
            BVD = DSQRT(DBLE(FLOAT(-IVI)+ AVS) * CVS + FLOAT(IVI ** 2))      P0960320
            WRITE (NUVI, 965) BVD                                            P0960330
            WRITE (NUVI, 966)                                                P0960340
  961       FORMAT ( 8H0 X= 2.0,5X,25H1.4142135623730950488D+00/8X,1PD24.13) P0960350
  962       FORMAT ( 8H0 X= 3.0,5X,25H1.7320508075688772935D+00/8X,1PD24.13) P0960360
  963       FORMAT ( 8H0 X=17.0,5X,25H4.1231056256176605498D+00/8X,1PD24.13) P0960370
  964       FORMAT ( 8H0 X=31.0,5X,25H5.5677643628300219221D+00/8X,1PD24.13) P0960380
  965       FORMAT ( 8H0 X=89.0,5X,25H9.4339811320566038113D+00/8X,1PD24.13) P0960390
  966       FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONP0960400
           A PRINTED TO ,9H14 DIGITS)                                        P0960410
      C*****      END OF TEST SEGMENT 096                                    P0960420
      C*****   WHEN EXECUTING ONLY SEGMENT 096, THE  STOP  AND  END  CARDS   P0960430
      C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                P0960440
      C*****   IN COLUMNS  1  AND  2  REMOVED.                               P0960450
      C=    STOP                                                             P0960460
      C=    END                                                             P0960470
            STOP                                                             P096C1
            END                                                             P096C2
      C***************************************************************************P0970010
      C*****                                                                 P0970020
      C*****                      CSQRO - (097)                             P0970030
      C*****                                                                 P0970040
      C***************************************************************************P0970050
      C*****   GENERAL PURPOSE                                      ASA REFP0970060
      C*****                                                                 P0970070
      C*****      TO TEST BASIC EXTERNAL FUNCTION  -CSQRT-          8.3.3   P0970080
      C*****      (SQUARE ROOT OF A COMPLEX NUMBER )               TABLE 4P0970090
      C*****      ARGUMENTS ARE EP1C(11)  TO  EP1C(20)                     P0970100
      C*****      EXPECTED RESULTS ARE EP1C(1)  TO  EP1C(10)               P0970110
      C*****   S P E C I F I C A T I O N S  SEGMENT 097                     P0970120
      C*****                                                                 P0970070
      C*****   WHEN EXECUTING ONLY SEGMENT 097 THE SPECIFICATION STATEMENTS  P0012250
      C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                P0012255
      C*****   IN COLUMNS  1  AND  2  REMOVED.                               P0012265
      C*****                                                                 P0012270
      C=    COMPLEX EP1C(30), AVC, BVC                                       P0012275
            COMPLEX EP1C(30), AVC, BVC                                       P097A1
      C*****                                                                 P0012280
      C*****   O U T P U T - T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.  P0970130
      C*****                                                                 P0071980
      C*****   WHEN EXECUTING ONLY SEGMENT 097, THE FOLLOWING STATEMENT      P0071985
      C*****   NUVI = 6  MUST HAVE THE C=  IN COLUMNS 1 AND 2 REMOVED.       P0071990
      C=    NUVI = 6                                                         P0071995
            NUVI = 6                                                         P097B1
      C*****                                                                 P0072000
            WRITE (NUVI, 970)                                                P0970140
  970       FORMAT(15H1 CSQRO - (097)//33H  BASIC EXTERNAL FUNCTION -CSQRT-  P0970150
           1//29H  (SQUARE ROOT -TYPE COMPLEX)//27H  ASA REF.- 8.3.3 (TABLE 4)P0970160
           2//24H  LINE 1 OF EACH PAIR IS /20H  THE EXPECTED VALUE //9H  RESULP0970170
           3T )                                                              P0970180
      C*****      INITIALIZE EP1C (EXACT VALUES)                             P0970190
            EP1C(1) = (0.9950042,0.0998334)                                  P0970200
            EP1C(2) = (0.9800666,0.1986693)                                  P0970210
            EP1C(3) = (0.9553365,0.2955202)                                  P0970220
            EP1C(4) = (0.9210610,0.3894183)                                  P0970230
            EP1C(5) = (0.8775826,0.4794255)                                  P0970240
            EP1C(6) = (0.8253356,0.5646425)                                  P0970250
            EP1C(7) = (0.7648422,0.6442177)                                  P0970260
            EP1C(8) = (0.6967067,0.7173561)                                  P0970270
            EP1C(9) = (0.5403023,0.8414710)                                  P0970280
            EP1C(10) = (0.4161468,-0.9092974)                                P0970290
            EP1C(11) = (0.9800666,0.1986693)                                 P0970300
            EP1C(12) = (0.9210610,0.3894183)                                 P0970310
            EP1C(13) = (0.8253356,0.5646425)                                 P0970320
            EP1C(14) = (0.6967067,0.7173561)                                 P0970330
            EP1C(15) = (0.5403023,0.8414710)                                 P0970340
            EP1C(16) = (0.3623577,0.9320391)                                 P0970350
            EP1C(17) = (0.1699671,0.9854497)                                 P0970360
```

```
        EP1C(18) = (-0.0291995,0.9995736)                                   P0970370
        EP1C(19) = (-0.4161468,0.9092974)                                   P0970380
        EP1C(20) = (-0.6536436,-0.7568025)                                  P0970390
        IVI = 0                                                             P0970400
971     JVI = 1                                                             P0970410
972     IVI = IVI + 1                                                       P0970420
        JVI = JVI + 1                                                       P0970430
        AVC = CSQRT(EP1C(IVI + 10) * (10. ** ((2 * JVI) - 8)))              P0970440
        BVC =   EP1C(IVI) * 10. ** (JVI - 4)                                P0970450
        WRITE (NUVI, 973) BVC, AVC                                          P0970460
973     FORMAT( 2H0 2E14.7/2X,2E14.7)                                       P0970470
        IF (JVI - 6) 972, 974, 974                                          P0970480
974     IF (IVI - 10) 971, 975, 975                                         P0970490
975     WRITE (NUVI, 976)                                                   P0970500
976     FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/13H  CALCULATIONP0970510
     1)                                                                     P0970520
C*****     END OF TEST SEGMENT 097                                          P0970530
C*****  WHEN EXECUTING ONLY SEGMENT 097 THE STOP AND END CARDS              P0970540
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                     P0970550
C*****  IN COLUMNS  1  AND  2  REMOVED.                                     P0970560
C=      STOP                                                                P0970570
C=      END                                                                P0970580
        STOP                                                                P097C1
        END                                                                P097C2
C*******************************************************************P0980010
C*****                                                                      P0980020
C*****                       ARCTG - (098)                                  P0980030
C*****                                                                      P0980040
C*******************************************************************P0980050
C*****  GENERAL PURPOSE                                           ASA REFP0980060
C*****      TO TEST BASIC EXTERNAL FUNCTION - ATAN -                8.3.3 P0980070
C*****      (TRIGONOMETRIC ARCTANGENT, SINGLE ARGUMENT -TYPE REAL)TABLE 4P0980080
C*****      USED IN SIMPLE ARITHMETIC EXPRESSIONS                           P0980090
C*****      INTRINSIC FUNCTION ABS,FLOAT,AMAX1,INT                          P0980100
C*****       ASSUMED WORKING                                               P0980110
C*****      ARGUMENTS ARE POWERS (OR SUMS) OF 2                            P0980120
C*****                                                                      P0980130
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.         P0980140
C*****                                                                      P0072010
C*****  WHEN EXECUTING ONLY SEGMENT 098, THE FOLLOWING STATEMENT            P0072015
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS 1 AND 2 REMOVED.             P0072020
C=      NUVI = 6                                                            P0072025
        NUVI = 6                                                            P098B1
C*****                                                                      P0072030
        WRITE (NUVI, 980)                                                   P0980150
980     FORMAT(15H1 ARCTG - (098)//32H  BASIC EXTERNAL FUNCTION -ATAN-      P0980160
     1//25H  (ARCTANGENT -TYPE REAL)                                        P0980170
     2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H     P0980180
     3 HOLLERITH INFORMATION//9H  RESULTS)                                  P0980190
C*****      HEADER FOR SEGMENT 098 WRITTEN                                  P0980200
        AVS = .125                                                          P0980210
        CVS = -.25                                                          P0980220
        IVI = 2                                                             P0980230
        BVS = ATAN(AMAX1(AVS,CVS))                                          P0980240
        WRITE (NUVI, 981) BVS                                               P0980250
        BVS = ATAN(AVS * 2.0)                                               P0980260
        WRITE(NUVI, 982) BVS                                                P0980270
        BVS = ATAN (ABS(CVS) + AVS)                                         P0980280
        WRITE(NUVI, 983) BVS                                                P0980290
        BVS = ATAN(-CVS * AMAX0(IVI, INT(AVS)))                             P0980300
        WRITE(NUVI, 984) BVS                                                P0980310
        BVS = ATAN (FLOAT(IVI) * CVS - (2.0 * AVS))                         P0980320
        WRITE (NUVI, 985) BVS                                               P0980330
        BVS = ATAN(1.0)                                                     P0980340
        WRITE (NUVI, 986) BVS                                               P0980350
        WRITE (NUVI, 987)                                                   P0980360
981     FORMAT(10H0 X= 0.125,5X,15H 0.124354994547,/10X,F15.7)             P0980370
982     FORMAT(10H0 X= 0.250,5X,15H 0.244978663127,/10X,F15.7)             P0980380
```

```
983     FORMAT(10H0 X= 0.375,5X,15H 0.358770670271,/10X,F15.7)           P0980390
984     FORMAT(10H0 X= 0.500,5X,15H 0.463647609001,/10X,F15.7)           P0980400
985     FORMAT(10H0 X=-0.750,5X,15H-0.643501108793,/10X,F15.7)           P0980410
986     FORMAT(10H0 X= 1.000,5X,15H 0.785398163397,/10X,F15.7)           P0980420
987     FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONP0980430
       1 PRINTED TO ,8H7 DIGITS )                                         P0980440
C*****     END OF TEST SEGMENT 098                                       P0980450
C*****  WHEN EXECUTING ONLY SEGMENT 098, THE STOP AND END CARDS          P0980460
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                   P0980470
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  P0980480
C=     STOP                                                              P0980490
C=     ENO                                                              P0980500
       STOP                                                              P098C1
       END                                                               P098C2
C*********************************************************************P0990010
C*****                                                                   P0990020
C*****                          OACTG - (099)                            P0990030
C*****                                                                   P0990040
C*********************************************************************P0990050
C*****  GENERAL PURPOSE                                        ASA REFP0990060
C*****       TO TEST BASIC EXTERNAL FUNCTION - DATAN -           8.3.3  P0990070
C*****       (TRIGONOMETRIC ARCTANGENT,SINGLE ARGUMENT -TYPE O.P.) TABLE 4P0990080
C*****       USEO IN SIMPLE ARITHMETIC EXPRESSIONS                       P0990090
C*****       INTRINSIC FUNCTIONS DSIGN,FLOAT,DBLE ASSUMED WORKING        P0990100
C*****       ARGUMENTS ARE POWERS (OR SUMS) OF 2                         P0990110
C*****                                                                   P0990120
C*****   S P E C I F I C A T I O N S   SEGMENT 099                       P0990130
C*****                                                                   P0012290
C*****  WHEN EXECUTING ONLY SEGMENT 099, THE SPECIFICATION STATEMENTS    P0012295
C*****  WHICH APPEAR AS COMMENT CARDS  MUST HAVE THE C=                  P0012300
C*****  IN COLUMNS 1  AND  2 REMOVED.                                    P0012305
C*****                                                                   P0012310
C=     DOUBLE PRECISION AVD, BVD, CVD                                    P0012315
       DOUBLE PRECISION AVO, BVD, CVO                                    P099A1
C*****                                                                   P0012320
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.  NO INPUT TAPE.   P0990140
C*****                                                                   P0072040
C*****  WHEN EXECUTING ONLY SEGMENT 099, THE FOLLOWING STATEMENT         P0072045
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.           P0072050
C=     NUVI = 6                                                          P0072055
       NUVI = 6                                                          P099B1
C*****                                                                   P0072060
C*****       HEADER FOR SEGMENT 099 WRITTEN                              P0990150
       WRITE(NUVI, 990)                                                  P0990160
990    FORMAT(15H1 DACTG - (099)//33H  BASIC EXTERNAL FUNCTION -DATAN-   P0990170
       1//25H  (ARCTANGENT -TYPE D.P.)                                   P0990180
       2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H P0990190
       3 HOLLERITH INFORMATION//9H  RESULTS)                             P0990200
       AVD = -.125D0                                                     P0990210
       CVD = .25D0                                                       P0990220
       IVI = 2                                                           P0990230
       BVO = OATAN(OSIGN(AVD,CVO))                                       P0990240
       WRITE (NUVI, 991) BVD                                             P0990250
       BVD = OATAN(2.0 * (-AVO))                                         P0990260
       WRITE(NUVI, 992) BVO                                              P0990270
       BVO = OATAN(CVD - AVO)                                            P0990280
       WRITE(NUVI, 993) BVO                                              P0990290
       BVO = OATAN(OBLE(FLOAT(IVI) / 4.0))                               P0990300
       WRITE (NUVI, 994) BVO                                             P0990310
       BVD = DATAN (OSIGN(1.000 - CVD, AVD))                             P0990320
       WRITE(NUVI, 995) BVD                                              P0990330
       BVD = DATAN(DBLE(FLOAT(IVI ** 2)) * CVD)                          P0990340
       WRITE (NUVI, 996) BVD                                             P0990350
       WRITE (NUVI, 997)                                                 P0990360
991    FORMAT(10H0 X= 0.125,5X,19H 0.124354994547D+00 /10X,D24.12)       P0990370
992    FORMAT(10H0 X= 0.250,5X,19H 0.244978663127D+00 /10X,D24.12)       P0990380
993.   FORMAT(10H0 X= 0.375,5X,19H 0.358770670271D+00 /10X,D24.12)       P0990390
994    FORMAT(10H0 X= 0.500,5X,19H 0.463647609001D+00 /10X,D24.12)       P0990400
```

```
995    FORMAT(10H0 X=-0.750,5X,19H-0.6435011087930+00 /10X,024.12)         P0990410
996    FORMAT(10H0 X= 1.000,5X,19H 0.785398163397D+00 /10X,D24.12)         P0990420
997    FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONP0990430
      1 PRINTEO TO ,9H12 OIGITS )                                          P0990440
C*****     ENO OF TEST SEGMENT 099                                         P0990450
C****  WHEN EXECUTING ONLY SEGMENT 099, THE STOP AND END CARDS             P0990460
C****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                     P0990470
C****   IN COLUMNS  1  AND  2  REMOVED.                                    P0990480
C=     STOP                                                                P0990490
C=     END                                                                 P0990500
       STOP                                                                P099C1
       ENO                                                                 P099C2
C**********************************************************************P1000010
C*****                                                                      P1000020
C*****                    ACTG2 - (100)                                     P1000030
C*****                                                                      P1000040
C**********************************************************************P1000050
C****   GENERAL PURPOSE                                        ASA REFP1000060
C*****     TO TEST BASIC EXTERNAL FUNCTION - ATAN2 -            8.3.3  P1000070
C*****     (TRIGONOMETRIC ARCTANGENT, TWO ARGUMENTS -TYPE REAL)  TABLE 4P1000080
C*****     USEO IN SIMPLE ARITHMETIC EXPRESSIONS                            P1000090
C*****     INTRINSIC FUNCTIONS AMIN1,FLOAT,AMAX0  ASSUMEO WORKING           P1000100
C*****     ARGUMENTS ARE POWERS (OR SUMS) OF 2                              P1000110
C*****                                                                      P1000120
C*****   O U T P U T   T A P E  ASSIGNMENT STATEMENTS.  NO INPUT TAPE.      P1000130
C*****                                                                      P0072070
C****  WHEN EXECUTING ONLY SEGMENT 100, THE FOLLOWING STATEMENT            P0072075
C****  NUVI = 6   MUST HAVE THE C=  IN COLUMNS 1 ANO 2 REMOVEO.            P0072080
C=     NUVI = 6                                                            P0072085
       NUVI = 6                                                            P100B1
C*****                                                                      P0072090
       WRITE(NUVI, 1000)                                                   P1000140
1000   FORMAT(15H1 ACTG2 - (100)//33H  BASIC EXTERNAL FUNCTION -ATAN2-     P1000150
      1//37H  (ARCTANGENT, 2 ARGUMENT -TYPE REAL)                         P1000160
      2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H P1000170
      3 HOLLERITH INFORMATION//9H  RESULTS)                               P1000180
       AVS = .125                                                         P1000190
       CVS = -.25                                                         P1000200
       IVI = 2                                                            P1000210
       BVS = ATAN2(ABS(AMIN1(AVS,CVS)),FLOAT(IVI))                        P1000220
       WRITE (NUVI, 1001) BVS                                             P1000230
       BVS = ATAN2(CVS ** 2, AVS * 2.0)                                   P1000240
       WRITE (NUVI, 1002) BVS                                             P1000250
       BVS = ATAN2 (AVS - CVS, -(4.0 * CVS))                              P1000260
       WRITE (NUVI, 1003) BVS                                             P1000270
       BVS = ATAN2(-CVS/AVS, AMAX0(IVI,4))                                P1000280
       WRITE (NUVI, 1004) BVS                                             P1000290
       BVS = ATAN2(-.09375,AVS)                                           P1000300
       WRITE (NUVI, 1005) BVS                                             P1000310
       BVS = ATAN2(FLOAT(IVI), 2.0)                                       P1000320
       WRITE (NUVI, 1006) BVS                                             P1000330
       WRITE (NUVI, 1007)                                                 P1000340
1001   FORMAT(10H0 X= 0.125,5X,15H 0.124354994547,/10X,F15.7)             P1000350
1002   FORMAT(10H0 X= 0.250,5X,15H 0.244978663127,/10X,F15.7)             P1000360
1003   FORMAT(10H0 X= 0.375,5X,15H 0.358770670271,/10X,F15.7)             P1000370
1004   FORMAT(10H0 X= 0.500,5X,15H 0.463647609001,/10X,F15.7)             P1000380
1005   FORMAT(10H0 X=-0.750,5X,15H-0.643501108793,/10X,F15.7)             P1000390
1006   FORMAT(10H0 X= 1.000,5X,15H 0.785398163397,/10X,F15.7)             P1000400
1007   FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONP1000410
      1 PRINTED TO ,8H7 OIGITS )                                          P1000420
C*****     ENO OF TEST SEGMENT 100                                         P1000430
C****  WHEN EXECUTING ONLY SEGMENT 100, THE STOP ANO ENO CARDS            P1000440
C****  WHICH APPEAR AS COMMENT CAROS MUST HAVE THE C=                     P1000450
C****   IN COLUMNS  1  AND  2  REMOVED.                                   P1000460
^=     STOP                                                                P1000470
c=     ENO                                                                 P1000480
       STOP                                                                P100C1
       ENO                                                                 P100C2
```

```
C************************************************************************P1010010
C****                                                                    P1010020
C****                     DATN2 - (101)                                  P1010030
C****                                                                    P1010040
C************************************************************************P1010050
C****    GENERAL PURPOSE                                         ASA REFP1010060
C****         TO TEST BASIC EXTERNAL FUNCTION - DATAN2 -           8.3.3 P1010070
C****         (TRIGONOMETRIC ARCTANGENT, TWO ARGUMENT -TYPE D.P.) TABLE 4P1010080
C****         USED IN SIMPLE ARITHMETIC EXPRESSIONS                      P1010090
C****         INTRINSIC FUNCTIONS DMIN1,DMAX1,DSIGN,DBLE,FLOAT           P1010100
C****       ASSUMED WORKING                                              P1010110
C****       ARGUMENTS ARE POWERS (OR SUMS) OF 2                          P1010120
C****                                                                    P1010130
C****   S P E C I F I C A T I O N S  SEGMENT 101                         P1010140
C****                                                                    P0012330
C****   WHEN EXECUTING ONLY SEGMENT 101, THE SPECIFICATION STATEMENTS    P0012335
C****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=  IN COLUMNS       P0012340
C****   1  AND  2  REMOVED.                                              P0012345
C****                                                                    P0012350
C=      DOUBLE PRECISION AVD, BVD, CVD                                   P0012355
        DOUBLE PRECISION AVD, BVD, CVD                                   P101A1
C****                                                                    P0012360
C****    O U T P U T - T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE     P1010150
C****                                                                    P0072100
C****   WHEN EXECUTING ONLY SEGMENT 101, THE FOLLOWING STATEMENT         P0072105
C****   NUVI = 6  MUST HAVE THE C=  IN COLUMNS 1 AND 2 REMOVED.          P0072110
C=      NUVI = 6                                                         P0072115
        NUVI = 6                                                         P101B1
C****                                                                    P0072120
        WRITE (NUVI, 1010)                                               P1010160
 1010   FORMAT(15H1 DATN2 - (101)//36H  BASIC EXTERNAL FUNCTION -DATAN2- P1010170
       1//37H  (ARCTANGENT, 2 ARGUMENT -TYPE D.P.)                       P1010180
       2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23HP1010190
       3 HOLLERITH INFORMATION//9H  RESULTS)                             P1010200
        AVD = .125                                                       P1010210
        CVD = -.25                                                       P1010220
        IVI = 2                                                          P1010230
        BVD = DATAN2( DMIN1( AVD,-CVD), 2.0D0/ DBLE(FLOAT(IVI)))         P1010240
        WRITE (NUVI, 1011) BVD                                           P1010250
        BVD = DATAN2( AVD, FLOAT( IVI) * (-CVD))                         P1010260
        WRITE (NUVI, 1012) BVD                                           P1010270
        BVD = DATAN2 (DSIGN(2.0D0 * CVD + AVD, AVD), DMAX1(AVD,CVD,1.0D0))P1010280
        WRITE (NUVI, 1013) BVD                                           P1010290
        BVD = DATAN2(DMIN1(AVD,.0625D0),DMAX1(AVD,CVD))                  P1010300
        WRITE (NUVI, 1014) BVD                                           P1010310
        BVD = DATAN2(DABS(CVD) * DSIGN(AVD, CVD) * 6.D0, .25D0)          P1010320
        WRITE (NUVI, 1015) BVD                                           P1010330
        BVD = DATAN2 (DBLE(FLOAT(IVI)),AVD * FLOAT(IVI **4))             P1010340
        WRITE (NUVI, 1016) BVD                                           P1010350
        WRITE (NUVI, 1017)                                               P1010360
 1011   FORMAT(10H0 X= 0.125,5X,19H 0.124354994547D+00  /10X,D24.12)     P1010370
 1012   FORMAT(10H0 X= 0.250,5X,19H 0.244978663127D+00  /10X,D24.12)     P1010380
 1013   FORMAT(10H0 X= 0.375,5X,19H 0.358770670271D+00  /10X,D24.12)     P1010390
 1014   FORMAT(10H0 X= 0.500,5X,19H 0.463647609001D+00  /10X,D24.12)     P1010400
 1015   FORMAT(10H0 X=-0.750,5X,19H-0.643501108793D+00  /10X,D24.12)     P1010410
 1016   FORMAT(10H0 X= 1.000,5X,19H 0.785398163397D+00  /10X,D24.12)     P1010420
 1017   FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONP1010430
       1 PRINTED TO ,9H12 DIGITS )                                       P1010440
C****     END OF TEST SEGMENT 101                                        P1010450
C****   WHEN EXECUTING ONLY SEGMENT 101  THE STOP AND END CARDS          P1010460
C****   WHICH APPEAR AS COMMENT CARDS  MUST HAVE THE C=                  P1010470
C****   IN COLUMNS  1  AND  2  REMOVED.                                  P1010480
C=      STOP                                                             P1010490
C=      END                                                             P1010500
        STOP                                                             P101C1
        END                                                             P101C2
C************************************************************************P1020010
C****                                                                    P1020020
```

```
C*****                              DMODA - (102)                              P1020030
C*****                                                                         P1020040
C*************************************************************************P1020050
C*****    GENERAL PURPOSE                                         ASA REFP1020060
C*****        TO TEST BASIC EXTERNAL FUNCTION - DMOD -              8.3.3  P1020070
C*****        (REMAINDERING -TYPE DOUBLE PRECISION)               TABLE 4P1020080
C*****        INTRINSIC FUNCTIONS DBLE,FLOAT,IDINT, ASSUMED WORKING        P1020090
C*****                                                                     P1020100
C*****    S P E C I F I C A T I O N S   SEGMENT 102                        P1020110
C*****                                                                     P0012370
C*****    WHEN EXECUTING ONLY SEGMENT 102, THE SPECIFICATION STATEMENTS    P0012375
C*****    WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=                 P0012380
C*****    IN COLUMNS  1  AND  2  REMOVED.                                  P0012385
C*****                                                                     P0012390
C=     DOUBLE PRECISION AVD,BVD,CVD,DVD,EVD,FVD,GVD                        P0012395
       DOUBLE PRECISION AVD,BVD,CVD,DVD,EVD,FVD,GVD                        P102A1
C*****                                                                     P0012400
C*****    O U T P U T - T A P E  ASSIGNMENT STATEMENT.   NO INPUT TAPE.    P1020120
C*****                                                                     P0072130
C*****    WHEN EXECUTING ONLY SEGMENT 102 THE FOLLOWING STATEMENT          P0072135
C*****    NUVI = 6   MUST HAVE THE C= IN COLUMNS  1  AND  2  REMOVED.      P0072140
C=     NUVI = 6                                                           P0072145
       NUVI = 6                                                           P102B1
C*****                                                                     P0072150
       WRITE (NUVI, 1020)                                                 P1020130
 1020  FORMAT(15H1 DMODA - (102)//32H   BASIC EXTERNAL FUNCTION -DMOD-    P1020140
      1//39H  (REMAINDERING -TYPE DOUBLE PRECISION)//27H   ASA REF.- 8.3.3P1020150
      2 (TABLE 4)// 9H   RESULTS)                                         P1020160
       AVD = 16.0625D0                                                    P1020170
       BVD = -4.0D0                                                       P1020180
       CVD = -8.125D0                                                     P1020190
       DVD = 2.5D0                                                        P1020200
       EVD = -1.0D0                                                       P1020210
       FVD =  1.0D0                                                       P1020220
       FVD = DMOD(AVD, BVD)                                               P1020230
       GVD = FVD - 0.0625D0                                               P1020240
       WRITE (NUVI, 1021) GVD                                             P1020250
       FVD = 2.0D0                                                        P1020260
       FVD = DMOD(CVD, DVD)                                               P1020270
       GVD = FVD + 0.625D0                                                P1020280
       WRITE (NUVI, 1021) GVD                                             P1020290
       FVD = 3.0D0                                                        P1020300
       FVD = DMOD(BVD, EVD)                                               P1020310
       GVD = FVD + 0.0D0                                                  P1020320
       WRITE (NUVI, 1021) GVD                                             P1020330
       FVD = 4.0D0                                                        P1020340
       FVD = DMOD(BVD, AVD)                                               P1020350
       GVD = FVD - (BVD-(DBLE(FLOAT(IDINT(BVD/AVD)))) * AVD)              P1020360
       WRITE (NUVI, 1021) GVD                                             P1020370
       WRITE (NUVI, 1022)                                                 P1020380
 1021  FORMAT(//D25.14)                                                   P1020390
 1022  FORMAT(//18H   END OF DMOD TEST//40H   ALL ABOVE ANSWERS SHOULD BE 0P1020400
      1 FOR THIS/32H   TEST SEGMENT TO BE SUCCESSFUL.)                    P1020410
C*****      END OF TEST SEGMENT 102                                       P1020420
C*****    WHEN EXECUTING ONLY SEGMENT 102  THE STOP AND END CARDS         P1020430
C*****    WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=                P1020440
C*****    IN COLUMNS  1  AND  2  REMOVED.                                 P1020450
C=     STOP                                                              P1020460
C=     END                                                               P1020470
       STOP                                                              P102C1
       END                                                               P102C2
C*************************************************************************P1030010
C*****                                                                     P1030020
C*****                              CABSA - (103)                           P1030030
C*****                                                                     P1030040
C*************************************************************************P1030050
C*****    GENERAL PURPOSE                                         ASA REFP1030060
C*****        .TO TEST BASIC EXTERNAL FUNCTION  -CABS-              8.3.3  P1030070
```

```
C*****         (MODULUS OF A COMPLEX NUMBER)                           TABLE 4P1030080
C*****         ARGUMENTS ARE ARRAY EP1C(30), FUNCTIONS FROM              P1030090
C*****           ODD NUMBERED ARGUMENTS PRINTED AS SET 1 AND 2           P1030100
C*****           FROM EVEN NUMBERED ARGUMENTS                            P1030110
C*****           SET 1 RESULTS SHOULD BE .1 E-6 TO .1 E+8                P1030120
C*****           SET 2 RESULTS SHOULD BE .5 E-6 TO .5 E+8                P1030130
C*****                                                                   P1030140
C*****  S P E C I F I C A T I O N S  SEGMENT 103                         P1030150
C*****                                                                   P0012410
C*****  WHEN EXECUTING ONLY SEGMENT 103  THE SPECIFICATION STATEMENTS    P0012415
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                   P0012420
C*****   IN COLUMNS  1  AND  2  REMOVED.                                 P0012425
C*****                                                                   P0012430
C=     COMPLEX EP1C(30)                                                  P0012435
       COMPLEX EP1C(30)                                                  P103A1
C*****                                                                   P0012440
C*****  O U T P U T - T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     P1030160
C*****                                                                   P0072160
C*****  WHEN EXECUTING ONLY SEGMENT 103 THE FOLLOWING STATEMENT          P0072165
C*****   NUVI = 6  MUST HAVE THE C= IN COLUMNS  1 AND 2 REMOVED.         P0072170
C=     NUVI = 6                                                          P0072175
       NUVI = 6                                                          P103B1
C*****                                                                   P0072180
       WRITE (NUVI, 1030)                                                P1030170
1030   FORMAT(15H1 CABSA - (103)//32H  BASIC EXTERNAL FUNCTION -CABS-    P1030180
      1//31H  (MODULUS OF A COMPLEX NUMBER)//27H  ASA REF.- 8.3.3 (TABLE P1030190
      24)//9H  RESULTS//10X,5HSET 1,15X,5HSET 2 )                        P1030200
C*****INITIALIZE EP1C(EXACT VALUES)                                      P1030210
       EP1C(1) = (0.5E-7,-0.866025E-7)                                   P1030220
       EP1C(2) = (2.5E-7,-4.330125E-7)                                   P1030230
       EP1C(3) = (1.E-6,0.0)                                             P1030240
       EP1C(4) = (5.E-6,0.0)                                             P1030250
       EP1C(5) = (0.5E-5,0.866025E-5)                                    P1030260
       EP1C(6) = (2.5E-5,4.330125E-5)                                    P1030270
       EP1C(7) = (-0.5E-4,0.866025E-4)                                   P1030280
       EP1C(8) = (-2.5E-4,4.330125E-4)                                   P1030290
       EP1C(9) = (-1.E-3,0.0)                                            P1030300
       EP1C(10) = (-5.E-3,0.0)                                           P1030310
       EP1C(11) = (-0.5E-2,-0.866025E-2)                                 P1030320
       EP1C(12) = (-2.5E-2,-4.330125E-2)                                 P1030330
       EP1C(13) = (0.5E-1,-0.866025E-1)                                  P1030340
       EP1C(14) = (2.5E-1,-4.330125E-1)                                  P1030350
       EP1C(15) = (1.0,0.0)                                              P1030360
       EP1C(16) = (5.0,0.0)                                              P1030370
       EP1C(17) = (0.5E1,0.866025E1)                                     P1030380
       EP1C(18) = (2.5E1,4.330125E1)                                     P1030390
       EP1C(19) = (-0.5E2,0.866025E2)                                    P1030400
       EP1C(20) = (-2.5E2,4.330125E2)                                    P1030410
       EP1C(21) = (-1.E3,0.0)                                            P1030420
       EP1C(22) = (-5.E3,0.0)                                            P1030430
       EP1C(23) = (-0.5E4,-0.866025E4)                                   P1030440
       EP1C(24) = (-2.5E4,-4.330125E4)                                   P1030450
       EP1C(25) = (0.5E5,-0.866025E5)                                    P1030460
       EP1C(26) = (2.5E5,-4.330125E5)                                    P1030470
       EP1C(27) = (1.E6,0.0)                                             P1030480
       EP1C(28) = (5.E6,0.0)                                             P1030490
       EP1C(29) = (0.5E7,0.866025E7)                                     P1030500
       EP1C(30) = (2.5E7,4.330125E7)                                     P1030510
       IVI = - 1                                                         P1030520
1031   IVI = IVI + 2                                                     P1030530
       AVS = CABS (EP1C(IVI))                                            P1030540
       BVS = CABS (EP1C(IVI + 1))                                        P1030550
       WRITE (NUVI, 1032) AVS, BVS                                       P1030560
1032   FORMAT(1H0, E17.6, 2X, E17.6)                                     P1030570
       IF (IVI - 29) 1031, 1033, 1033                                    P1030580
1033   WRITE (NUVI, 1034)                                                P1030590
1034   FORMAT(//39H  VALUES IN EACH SET SHOULD BE POSITIVE /39H   .1 FOR SP1030600
      1ET 1 (.5 FOR SET 2), EXPONENT /35H  RANGE FROM -06 TO +08 IN SEQUEP1030610
```

```
         2NCE )                                                             P1030620
C*****      END OF TEST SEGMENT 103                                         P1030630
C*****   WHEN EXECUTING ONLY SEGMENT 103   THE STOP AND END CARDS           P1030640
C*****   WHICH APPEAR AS COMMENT CARDS   MUST HAVE THE C=                    P1030650
C*****   IN COLUMNS  1  AND  2  REMOVED.                                     P1030660
C=     STOP                                                                  P1030670
C=     END                                                                   P1030680
       STOP                                                                  P103C1
       END                                                                   P103C2
C************************************************************************P1100010
C*****                                                                       P1100020
C*****                            BSFTS - (110)                             P1100030
C*****                                                                       P1100040
C************************************************************************P1100050
C*****   GENERAL PURPOSE                                         ASA REF P1100060
C*****      TEST OF ALL STATEMENT FUNCTIONS THAT HAVE BEEN DEFINED          P1100070
C*****      IN TEST SEGMENT 005                                   8.1.2P1100080
C*****   GENERAL COMMENTS                                                    P1100090
C*****      INTRINSIC AND EXTERNAL FUNCTIONS ASSUMED WORKING                 P1100100
C*****   INTRINSIC AND BASIC EXTERNAL FUNCTIONS DECLARED IN A     10.1.7 P1100110
C*****   TYPE STATEMENT OF SAME TYPE AS TABLES 3 AND 4             5.3 P1100120
C*****                                                                       P1100130
C*****   S P E C I F I C A T I O N S  SEGMENT 110                            P1100140
C*****                                                                       P0012450
C*****   WHEN EXECUTING ONLY SEGMENT 110, THE SPECIFICATION STATEMENTS       P0012455
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                      P0012460
C*****   IN COLUMNS  1  AND  2  REMOVED.                                     P0012465
C*****                                                                       P0012470
C=     INTEGER IFIX                                                          P0012475
C=     REAL  ABS, SQRT                                                       P0012480
       INTEGER IFIX                                                          P110A1
       REAL  ABS, SQRT                                                       P110A2
C*****                                                                       P0012485
C*****   WHEN EXECUTING ONLY SEGMENT 110, THE SEGMENT 005, WHICH             P1100150
C*****   CONTAINS THE STATEMENT FUNCTIONS BEING TESTED HERE MUST BE          P1100160
C*****   INSERTED AFTER THE SPECIFICATION STATEMENTS OF SEGMENT 110.         P1100170
C************************************************************************P0050010
C*****                                                                       P0050020
C*****                            BSFDF - (005)                             P0050030
C*****                                                                       P0050040
C************************************************************************P0050050
C*****   GENERAL PURPOSE                                         ASA REF P0050060
C*****      DEFINING STATEMENT FUNCTIONS THAT ARE TO BE TESTED               P0050070
C*****      IN SEGMENT 110 (BASIC FORTRAN) AND 111 (FULL FORTRAN)  8.1.1P0050080
C*****      HEADER FOR SEGMENT 005                                           P0050090
C*****      DEFINING EXPRESSION CONTAINS CONSTANTS AND VARIABLES             P0050100
       CMAFS(CAWVS,CBWVS) = CAWVS * 2. + CBWVS                               P0050110
       CMBFS(MAWVI,MBWVI,MCWVI) =(MAWVI + MBWVI + MCWVI)/3                    P0050120
       MCAFI(MAWVI,MBWVI) = MAWVI ** MBWVI                                   P0050130
       MCBFI(CAWVS,CBWVS,CCWVS) = (CAWVS + CBWVS + CCWVS) * 2.0              P0050140
C*****    DEFINING EXPRESSION CONTAINS CONSTANTS, VARIABLES AND              P0050150
C*****       INTRINSIC FUNCTIONS                                             P0050160
       CMCFS(CAWVS,CBWVS,CCWVS) = ABS(CAWVS**2 - (CBWVS+CCWVS)**2)           P0050170
       CMDFS(MAWVI,MBWVI) = ISIGN((MAWVI+MBWVI),(MAWVI-MBWVI))               P0050180
       MCCFI(MAWVI,MBWVI,CAWVS) = MAWVI**2 + MBWVI**2 + IFIX(CAWVS)**2       P0050190
       MCDFI(CAWVS,CBWVS,CCWVS,CDWVS,CEWVS) = (CAWVS + CBWVS + CCWVS +       P0050200
      1CDWVS +CEWVS) ** (ABS(CAWVS))                                        P0050210
C*****      DEFINING EXPRESSION CONTAINS PREVIOUSLY DEFINED STATEMENT        P0050220
C*****       FUNCTIONS AND/OR EXTERNAL FUNCTION REFERENCES                   P0050230
       CMEFS(CAWVS,CBWVS) = CMBFS(1,2,3) + SQRT((CAWVS + CBWVS))             P0050240
       CMFFS(MAWVI,MBWVI,MCWVI) = MCCFI(MAWVI,MBWVI,3.0) + MCWVI **2         P0050250
       MCEFI(MAWVI,MBWVI) = MCAFI(MAWVI,MBWVI) ** MCAFI(MAWVI,MBWVI)         P0050260
       MCFFI(CAWVS,CBWVS,CCWVS) = SQRT(CAWVS) + SQRT(CBWVS) + EXP(CCWVS) P0050270
C*****      DEFINING EXPRESSION CONTAINS CONSTANTS, VARIABLES, INTRINSIC     P0050280
C*****       OR EXTERNAL FUNCTION REFERENCES AND PREVIOUSLY DEFINED          P0050290
C*****       STATEMENT FUNCTIONS.                                            P0050300
       CMGFS(MAWVI,MBWVI,CAWVS,CBWVS) = FLOAT(MAWVI ** 2) - CMAFS(CAWVS, P0050310
      1CBWVS) + SQRT((FLOAT(MAWVI + MBWVI)))                                P0050320
```

```
              MCGFI(MAWVI,MBWVI,MCWVI,CAWVS) = MCEFI(MAWVI,MBWVI) - MCEFI(MAWVI,P0050330
        1MCWVI) + IFIX(EXP(CAWVS))                                            P0050340
C*****      END OF TEST SEGMENT 005                                           P0050350
C*****                                                                        P1100180
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.  NO INPUT TAPE.        P1100190
C*****                                                                        P0072190
C*****   WHEN EXECUTING ONLY SEGMENT 110, THE FOLLOWING STATEMENT             P0072195
C*****   NUVI = 6   MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.              P0072200
C=     NUVI = 6                                                               P0072205
       NUVI = 6                                                               P110B1
C*****                                                                        P0072210
       WRITE (NUVI,1100)                                                      P1100200
1100   FORMAT(39H1 BSFTS - (110) STATEMENT FUNCTION TEST/23X,16HINTEGER AP1100210
      1NO REAL//18H  ASA REF. - 8.1.2// 9H   RESULTS)                         P1100220
C*****      HEADER FOR SEGMENT 110 WRITTEN                                    P1100230
       CMAVS = 9.0 - CMAFS(2.0, 3.0 + 2.0)                                    P1100240
       CMBVS = CMBFS(2/2, 1+1, 1*3) -2.0                                      P1100250
       MCAVI = MCAFI(IFIX(5.0),5) - (5 ** 5)                                  P1100260
       MCBVI = MCBFI(1.0,2.0,3.0) - MCAFI(6,2) + 24                           P1100270
       WRITE (NUVI,1108) CMAVS, CMBVS, MCAVI, MCBVI                           P1100280
       CMAVS = CMCFS(4.0,2.0,2.0)                                             P1100290
       CMBVS = CMOFS(-1,-4) - 5.0                                             P1100300
       MCAVI = MCCFI(9*2/18, (4**2)/8, 3.0) - 14                              P1100310
       MCBVI = MCOFI(1.,2.1,3.,4.,5.) -15                                     P1100320
       WRITE (NUVI,1108) CMAVS, CMBVS, MCAVI, MCBVI                           P1100330
       CMAVS = CMEFS(2.0,1.0 * 2.0) - 4.0                                     P1100340
       MCAVI = 3                                                              P1100350
       CMBVS = CMFFS(1,2, MCAVI) - 23.                                        P1100360
       MCAVI = MCEFI(2,2) - (4 ** 4)                                          P1100370
       MCBVI = MCFFI(9.0,4.0,CMBVS * CMBVS * 0.0) - 6                         P1100380
       WRITE (NUVI,1108) CMAVS, CMBVS, MCAVI, MCBVI                           P1100390
       CMAVS = CMGFS(3,13,2.0,5.0) - 4.0                                      P1100400
       CMBVS = CMGFS(IFIX(SQRT(CMAFS(2.,5.))),IFIX(CMFFS(1,2,3) -10.),        P1100410
      1 CMBFS(1,2,3), CMOFS(-1,-4)) - 4.0                                     P1100420
       MCAVI = MCGFI(2,2,2,0.0) - 1                                           P1100430
       MCBVI = MCGFI(MCAFI(2,1), MCBFI(1.0,0.,.0), IFIX(SQRT(CMGFS(3,13,      P1100440
      12.0,5.0))),EXP(0.0) - 1.0)-1                                           P1100450
       WRITE (NUVI,1108) CMAVS, CMBVS, MCAVI, MCBVI                           P1100460
       WRITE (NUVI,1109)                                                      P1100470
1108   FORMAT ( /2(F20.10 /),2(I19/ ))                                        P1100480
1109   FORMAT ( /36H  ALL ABOVE ANSWERS SHOULD BE 0 FOR /                     P1100490
      137H  THIS TEST SEGMENT TO BE SUCCESSFUL.)                              P1100500
C*****      END OF TEST SEGMENT 110                                           P1100510
C*****   WHEN EXECUTING ONLY SEGMENT 110, THE  STOP  AND  END  CARDS          P1100520
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                      P1100530
C*****   IN COLUMNS  1  AND  2  REMOVED.                                      P1100540
C=     STOP                                                                   P1100550
C=     END                                                                    P1100560
       STOP                                                                   P110C1
       END                                                                    P110C2
C*************************************************************************P1110010
C*****                                                                        P1110020
C*****                      FSFTS - (111)                                     P1110030
C*****                                                                        P1110040
C*************************************************************************P1110050
C*****   GENERAL PURPOSE                                            ASA REF P1110060
C*****      TEST STATEMENT FUNCTIONS THAT HAVE BEEN DEFINED IN       8.1.2P1110070
C*****      SEGMENT 006 (FOR FULL FORTRAN TEST ONLY)                          P1110080
C*****   GENERAL COMMENTS                                                     P1110090
C*****      INTRINSIC AND EXTERNAL FUNCTIONS ASSUMED WORKING                  P1110100
C*****   INTRINSIC AND BASIC EXTERNAL FUNCTIONS DECLARED IN A       10.1.7 P1110110
C*****   TYPE STATEMENT OF SAME TYPE AS TABLES 3 AND 4                5.3 P1110120
C*****                                                                        P1110130
C*****   S P E C I F I C A T I O N S  SEGMENT 111                             P1110140
C*****                                                                        P0012490
C*****   WHEN EXECUTING ONLY SEGMENT 111, THE SPECIFICATION STATEMENTS        P0012495
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                       P0012500
C*****   IN COLUMNS  1  AND  2  REMOVED.                                      P0012505
```

```
C*****                                                               P0012510
C=      DOUBLE PRECISION DPAFD,DPBFD,DPCFD,DPDFD,DPFFD,DPGFD,DPEFD,DPHFD P0012515
C=      DDOUBLE PRECISION DPAVD, DPBVD, DPCVD, DPDVD ,DAWVD,DBWVD,DCWVD   P0012520
C=      DDUBLE PRECISION DPA1D(5),FC2D(5,5)                             P0012525
C=      DDOUBLE PRECISION DBLE, DEXP                                    P0012530
C=      CDMPLEX CMPLX, CEXP                                             P0012535
C=      COMPLEX CHAVC,CHBVC,CHCVC,CHDVC,CHEVC,CHFVC                     P0012540
C=      CDMPLEX CHAFC, CHBFC, CHCFC, CHDFC,CAWVC, CBWVC                 P0012545
C=      LOGICAL A3B(2,2,2)                                             P0012550
C=      LOGICAL MCFVB, MCHVB, ABFB, BCFB, IEFB, KLFB                    P0012555
C=     - ,MCEVB,MCIVB,MCKVB,ATVB, AWVB,BWVB,CWVB,DWVB,EWVB,SWVB,TWVB    P0012560
      DOUBLE PRECISION DPAVD, DPBVD, DPCVD, DPDVD ,DAWVD,DBWVD,DCWVD    P111A1
      DOUBLE PRECISION DPAFD, DPBFD,DPCFD,DPDFD,DPFFD,DPGFD,DPEFD,DPHFD P111A2
      DOUBLE PRECISION DPA1D(5), FC2D(5,5)                             P111A3
      COMPLEX CHAVC,CHBVC,CHCVC,CHDVC,CHEVC,CHFVC                      P111A4
      CDMPLEX CHAFC, CHBFC, CHCFC, CHDFC,CAWVC, CBWVC                  P111A5
      LOGICAL A3B(2,2,2)                                              P111A6
      LDGICAL MCFVB, MCHVB, ABFB, BCFB, IEFB, KLFB                     P111A7
     - ,MCEVB,MCIVB,MCKVB,ATVB, AWVB,BWVB,CWVB,DWVB,EWVB,SWVB,TWVB     P111A8
      COMPLEX CMPLX, CEXP                                             P111A9
      DOUBLE PRECISION DBLE, DEXP                                     P111AA
C*****                                                               P0012565
C*****   WHEN EXECUTING ONLY SEGMENT 111, THE SEGMENT 006, WHICH     P1110150
C*****   CONTAINS THE STATEMENT FUNCTIONS BEING TESTED HERE MUST BE  P1110160
C*****   INSERTED AFTER THE SPECIFICATION STATEMENTS OF SEGMENT 111. P1110170
C*******************************************************************P0060010
C*****                                                               P0060020
C*****                         FSFDF - (006)                         P0060030
C*****                                                               P0060040
C*******************************************************************P0060050
C*****   GENERAL PURPOSE                                 ASA REF P0060060
C*****     DEFINING STATEMENT FUNCTIONS THAT ARE TD BE TESTED     8.1.1P0060070
C*****     IN SEGMENT 111 (FULL FDRTRAN STATEMENT FUNCTIDN TEST)    P0060080
C*****     HEADER FDR SEGMENT 006                                   P0060090
C*****     D.P. STATEMENT FUNCTIDNS CDNTAINING CDNSTANTS AND VARIABLES P0060100
      DPAFD(DAWVD,DBWVD) = (DAWVD + DBWVD) ** 2                       P0060110
      DPBFD(DAWVD,DBWVD,DCWVD) = (DAWVD + DBWVD - DCWVD) ** 3         P0060120
      DPCFD(DAWVD,DBWVD,DCWVD) = 3.0D0 *  (DAWVD + DBWVD + DCWVD)/2.D0 P0060130
C*****     D.P. STATEMENT FUNCTIONS CDNTAINING CONSTANTS, VARIABLES  P0060140
C*****     AND INTRINSIC FUNCTION REFERENCES                        P0060150
      DPDFD(DAWVD,DBWVD) = DSIGN(DAWVD, -(DBWVD))                     P0060160
      DPEFD(DAWVD,DBWVD,CAWVC,CAWVS) = DBLE(CAWVS + AIMAG(CAWVC))     P0060170
     1+ DMAX1(DAWVD,DBWVD + 1.D0)                                    P0060180
C*****     D.P. STATEMENT FUNCTIDNS CDNTAINING CDNSTANTS, VARIABLES, P0060190
C*****     INTRINSIC FUNCTION AND PREVIDUSLY DEFINED STATEMENT FUNCTION P0060200
C*****     REFERENCES                                               P0060210
      DPFFD(DAWVD,DBWVD,CAWVS) = DPAFD(DAWVD,DBWVD) -(2.D0 * DAWVD *  P0060220
     1 DBWVD) + (DBLE(CAWVS) * 2.D0 )                                P0060230
      DPGFD(DAWVD,DBWVD,CAWVS,CAWVC) = DPBFD(DAWVD,DBWVD,DBLE(CAWVS)) P0060240
     1 - DBLE(AIMAG(CAWVC)) + 5.0D0                                  P0060250
C*****     D.P. STATEMENT FUNCTIONS CDNTAINING CONSTANTS, VARIABLES, P0060260
C*****     INTRINSIC FUNCTION, PREVIDUSLY DEFINED STATEMENT FUNCTIDN P0060270
C*****     AND EXTERNAL FUNCTIDN REFERENCES                         P0060280
      DPHFD(DAWVD,DBWVD,CAWVS) = DPFFD(DAWVD,DBWVD +1.0D0, CAWVS) * 2.D0P0060290
     1 + DEXP(DAWVD) - (DBLE(CAWVS) * 2 .D0)-DEXP(DAWVD)             P0060300
C*****     COMPLEX STATEMENT FUNCTIDNS CONTAINING CONSTANTS AND VARIABLESP0060310
      CHAFC(CAWVC,CBWVC) = CAWVC * (2.0,2.0) + CBWVC + (2.0,2.0)      P0060320
C*****     COMPLEX STATEMENT FUNCTION CONTAINING CDNSTANTS, VARIABLES, P0060330
C*****     AND INTRINSIC FUNCTION REFERENCES                        P0060340
      CHBFC(CAWVC,CBWVC,CAWVS) = CAWVC - CBWVC + CMPLX(CAWVS,CAWVS)   P0060350
C*****     COMPLEX STATEMENT FUNCTION CONTAINING CDNSTANTS,         P0060360
C*****     VARIABLES, INTRINSIC AND EXTERNAL FUNCTION REFERENCES     P0060370
      CHCFC(CAWVC,CBWVC,CAWVS,CBWVS) = (CAWVC - CBWVC) + CEXP (CMPLX  P0060380
     1 (CAWVS,CBWVS)) -  CMPLX(CAWVS,CBWVS)                          P0060390
C*****     COMPLEX STATEMENT FUNCTION CONTAINING CONSTANTS, VARIABLES, P0060400
C*****     INTRINSIC, EXTERNAL AND PREVIDUSLY DEFINED STATEMENT FUNCTIDN P0060410
C*****     REFERENCES                                               P0060420
      CHDFC(CAWVC,CBWVC,CAWVS,CBWVS) = CHCFC(CAWVC,CBWVC,CAWVS +CAWVS, P0060430
```

```
      1 2.0 * CBWVS)  + CMPLX(1.0,2.0)                                 P0060440
C*****    STATEMENT FUNCTION CONTAINING LOGICAL VARIABLES             P0060450
      ABFB(AWVB, BWVB, DWVB) = AWVB .AND. BWVB .DR. .FALSE..AND.DWVB  P0060460
C*****    STATEMENT FUNCTION CONTAINING CDNSTANTS, VARIABLES AND      P0060470
C*****  INTRINSIC FUNCTIONS                                           P0060480
      BCFB(EWVB,CWVB,BAWVS,BCWVS) = EWVB .AND.(BAWVS * ABS(BCWVS) .GT. P0060490
      1  0.5).AND..NDT. CWVB                                          P0060500
C*****  STATEMENT FUNCTIDN CONTAINING PREVIOUSLY DEFINED STATEMENT    P0060510
C*****    FUNCTIDN AND AN INTRINSIC FUNCTIDN REFERENCE                P0060520
      IEFB(EWVB,ATVB,CWVB,BAWVS,BCWVS) = ATVB .AND.EWVB .AND. CWVB .DR. P0060530
      1 AMAX1(BAWVS,BCWVS) .GT. 600. .DR.  BCFB (EWVB,CWVB,BAWVS,BCWVS) P0060540
C*****  STATEMENT FUNCTIDN CONTAINING BASIC EXTERNAL FUNCTION REFERENCE P0060550
      KLFB(SWVB,TWVB,ATVB,BAWVS) = SWVB .AND..NOT. TWVB.OR.(SQRT(BAWVS) P0060560
      1  .GT. 9.0) .OR. ATVB                                          P0060570
C*****    END DF TEST SEGMENT 006                                     P0060580
C*****                                                                P1110180
C*****  D U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.  P1110190
C*****                                                                P0072220
C*****  WHEN EXECUTING ONLY SEGMENT 111, THE FOLLDWING STATEMENT      P0072225
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.        P0072230
C=    NUVI = 6                                                        P0072235
      NUVI = 6                                                        P111B1
C*****                                                                P0072240
      WRITE (NUVI,1110)                                               P1110200
 1110 FDRMAT(39H1 FSFTS - (111) STATEMENT FUNCTIDN TEST//             P1110210
      1 39H  DDUBLE PRECISIDN, CDMPLEX AND LDGICAL//                  P1110220
      218H   ASA REF. - 8.1.2//10H   RESULTS )                        P1110230
C*****    HEADER FDR SEGMENT 111 WRITTEN                              P1110240
C*****    CONSTANTS USED IN THIS SEGMENT                             P1110250
      CHAVC = (1.0,2.0)                                               P1110260
      CHBVC = (-2.0,3.0)                                              P1110270
      DPA1D(2) = 3.5D0                                                P1110280
      ATVB = .FALSE.                                                  P1110290
      PPDVS = 18.                                                     P1110300
      RRDVS = 21.0                                                    P1110310
      ATVS = 18.0                                                     P1110320
      MCFVB = .TRUE.                                                  P1110330
      FC2D(2,2) = 1.75D0                                              P1110340
C*****    TEST OF D.P. STATEMENT FUNCTIDNS                            P1110350
      DPAVD = DPAFD(3.5D0,DPA1D(2)) - 49.0D0                          P1110360
      DPBVD = DPBFD(1.D0,DPA1D(2)- 2.5D0,DBLE(1.0)) - 1.0D0           P1110370
      DPCVD = DPCFD(0.D0,1.0D0,DPA1D(2)+ 0.5D0) - 7.5D0              P1110380
      DPDVD = DPDFD(DBLE(AIMAG(CHAVC)),FC2D(2,2)) + 2.0D0             P1110390
      WRITE (NUVI,1118) DPAVD, DPBVD, DPCVD, DPDVD                    P1110400
      DPAVD = DPEFD(1.0D0, FC2D(2,2) *2.D0,(1.0,-4.),AMAX1(2.0,4.0))  P1110410
      1  - 4.5D0                                                      P1110420
      DPBVD = DPFFD(DPA1D(2), FC2D(2,2)-1.75D0,5.00) - 22.25D0        P1110430
      DPCVD = DPGFD(2.D0/.2D1,DPA1D(2) - 2.5D0,1.0,CHAVC) - 4.0D0     P1110440
      DPDVD= DPHFD(3.5D0, FC2D(2,2) - 2.75D0,5.0) - 34.5D0           P1110450
      WRITE (NUVI,1118) DPAVD, DPBVD, DPCVD, DPDVD                    P1110460
C*****    TEST DF CDMPLEX STATEMENT FUNCTIONS                         P1110470
      CHCVC = CHAFC((2.0,2.),CHAVC) - (3.0,12.0)                      P1110480
      CHDVC = CHBFC((4.0,-8.5),CHBVC,1.0) - (7.0,-10.5)              P1110490
      CHEVC = CHCFC((1.0,1.0) **2,CHAVC, 0.000, AIMAG(CHAVC) -2.0)    P1110500
      CHFVC = CHDFC((0.0,0.0)     ,CHAVC, 0.000 , SNGL (DMIN1(0.D0,4.D0))P1110510
      1)-(1.0,0.0)                                                    P1110520
      WRITE (NUVI,1117) CHCVC, CHDVC, CHEVC, CHFVC                    P1110530
      WRITE (NUVI, 1119)                                              P1110540
C*****  TEST OF LOGICAL STATEMENT FUNCTIDN                            P1110550
      MCEVB = PPDVS .GT. 60.0                                         P1110560
      A3B(1,1,1) = ATVS .LE. 20.9 .AND. ABFB(.TRUE.,.TRUE.,.FALSE.)   P1110570
      MCHVB  = BCFB(.TRUE.,.FALSE.,PPDVS,21.0) .AND..NDT.PPDVS.GE.RRDVS P1110580
      MCIVB = .NOT. (IEFB(.FALSE.,ATVB,.TRUE.,650.,-5.11).AND.ATVB)   P1110590
      MCKVB = MCFVB.AND.KLFB(.TRUE.,.TRUE.,.TRUE.,100.).AND..NDT.MCEVB P1110600
      WRITE (NUVI,1116) A3B(1,1,1), MCHVB, MCIVB, MCKVB               P1110610
 1116 FORMAT(///4(L4)//38H THE FOUR ABDVE ANSWERS SHOULD BE TRUE/     P1110620
      1 35H  FOR THIS SEGMENT TO BE SUCCESSFUL)                       P1110630
 1117 FORMAT(/ 4(F16.7,F14.7/))                                       P1110640
```

```
1118  FORMAT (/ 4(D30.18/))                                                 P1110650
1119  FORMAT (/ 40H  ALL ABOVE ANSWERS SHOULD BE 0 FOR THIS/                 P1110660
      140H  TEST SEGMENT TO BE SUCCESSFUL. VALUES /40H  WITH EXPONENTS LEP1110670
      2SS THAN    10**(-14) /22H  ARE CONSIDERED ZERO )                      P1110680
C*****      END OF TEST SEGMENT 111                                          P1110690
C*****  WHEN EXECUTING ONLY SEGMENT 111, THE  STOP  AND  END  CARDS          P1110700
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                       P1110710
C*****  IN COLUMNS  1  AND  2   REMOVED.                                      P1110720
C=     STOP                                                                   P1110730
C=     END                                                                    P1110740
       STOP                                                                   P111C1
       END                                                                    P111C2
C************************************************************************P1400010
C*****                                                                        P1400020
C*****                         CPXAD - (140)                                  P1400030
C*****                                                                        P1400040
C************************************************************************P1400050
C*****                         GENERAL PURPOSE                                P1400060
C*****     TO TEST ADDITION AND SUBTRACTION OF COMPLEX NUMBERS    ASA REFP1400070
C*****        INCLUDES OPERATIONS WITH UP TO 9 TERMS              6.1   P1400080
C*****        DOES NOT TEST FOR ACCURACY                                      P1400090
C*****                                                                        P1400100
C*****ADDITION AND SUBTRACTION OF 2 TERMS                                     P1400110
C*****                                                                        P1400120
C*****   S P E C I F I C A T I O N S   SEGMENT 140                            P1400130
C*****                                                                        P0012570
C*****  WHEN EXECUTING ONLY SEGMENT 140, THE SPECIFICATION STATEMENTS         P0012575
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                        P0012580
C*****  IN COLUMNS  1  AND  2   REMOVED.                                      P0012585
C*****                                                                        P0012590
C=     COMPLEX  AVC, BVC, CVC, DVC, EVC, FVC, GVC, HVC, IVC, JVC, AAVC,       P0012595
C=    1 ABVC,BAVC,BBVC,CCVC,CDVC,BCVC,DCVC                                    P0012600
       COMPLEX  AVC, BVC, CVC, DVC, EVC, FVC, GVC, HVC, IVC, JVC, AAVC,       P140A1
      1 ABVC,BAVC,BBVC,CCVC,CDVC,BCVC,DCVC                                    P140A2
C*****                                                                        P0012605
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT.   NO INPUT TAPE.       P1400140
C*****  WHEN EXECUTING ONLY SEGMENT 140, THE FOLLOWING STATEMENT              P0072250
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS 1 AND 2 REMOVED.               P0072255
C*****                                                                        P0072260
C=     NUVI = 6                                                               P0072265
       NUVI = 6                                                               P140B1
       WRITE (NUVI, 1401)                                                     P1400150
1401  FORMAT(1H1,1X,34HCPXAD - (140) COMPLEX ADDITION AND/16X,                P1400160
      111HSUBTRACTION//2X,14HASA REF. - 6.1//2X,7HRESULTS//)                  P1400170
       AVC=(1.467,2.560)                                                      P1400180
       BVC=(3.568,7.480)                                                      P1400190
       CVC=AVC+BVC                                                            P1400200
       DVC=AVC+(3.568,7.480)                                                  P1400210
       EVC=(1.9467,2.9560)+BVC                                               P1400220
       FVC=(1.467,2.560)+(3.568,7.480)                                       P1400230
       GVC=AVC-BVC                                                            P1400240
       HVC = (.1467E+1,.2560E1) - BVC                                         P1400250
       IVC = AVC - (3568E-3,.7480E+1)                                         P1400260
       JVC=(1.467,2.560)-(3.568,7.480)                                       P1400270
C*****ADDITION AND SUBTRACTION OF 3 TERMS                                     P1400280
       AAVC=AVC+BVC-CVC                                                       P1400290
       ABVC=AVC+(3.568,7.480)-DVC                                            P1400300
       BAVC=(1.467,2.560)+BVC-CVC                                            P1400310
       BBVC=(1.467,2.560)+(3.568,7.480)-FVC                                  P1400320
       BCVC=AVC-BVC-GVC                                                       P1400330
       CCVC=(1.467,2.560)-BVC-HVC                                            P1400340
       CDVC=AVC-(3.568,7.480)-IVC                                            P1400350
       DCVC=(1.467,2.560)-(3.568,7.480)-JVC                                  P1400360
       WRITE(NUVI,1402) AAVC,ABVC,BAVC,BBVC,BCVC,CCVC,CDVC,DCVC              P1400370
C*****ADDITION AND SUBTRACTION OF 5 TERMS                                     P1400380
       AAVC=AVC-(1.89,6.48)-AAVC-BVC+(0.0,9.830)                            P1400390
       ABVC=AVC-(1.89,6.48)-AAVC-BVC+(0.0,9.830)                            P1400400
       WRITE(NUVI,1402)ABVC                                                   P1400410
```

```
 1402 FORMAT(2X,2F8.4)                                                 P1400420
      AAVC=AVC-(1.89,6.48)-BVC+(0.0,9.83)+CVC                          P1400430
C*****ADDITION AND SUBTRACTION OF 6 TERMS                              P1400440
      ABVC=AVC-(1.89,6.48)-BVC+(0.0,9.83)+CVC-AAVC                     P1400450
      WRITE(NUVI,1402) ABVC                                            P1400460
C*****ADDITION AND SUBTRACTION OF 8 TERMS                              P1400470
      AAVC=AVC+BVC-CVC+(0.34,6.45)-(4.54,6.85)+DVC+(1.0,0.0)-EVC       P1400480
C*****ADDITION AND SUBTRACTION OF 9 TERMS                              P1400490
      ABVC=AVC+BVC-CVC+(0.34,6.45)-(4.54,6.85)+DVC+(1.0,0.0)-EVC-AAVC  P1400500
      WRITE (NUVI,1403) ABVC                                           P1400510
 1403 FORMAT(2X,2F8.4//2X,35HTEST IS POSITIVE IF NUMBERS PRINTED/2X    P1400520
     117HABOVE ARE 0.0,0.0)                                            P1400530
C*****      END OF TEST SEGMENT 140                                    P1400540
C*****   WHEN EXECUTING ONLY SEGMENT 140, THE   STOP   AND   END  CARDS P1400550
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                P1400560
C*****    IN COLUMNS  1  AND  2  REMOVED.                              P1400570
C=    STOP                                                             P1400580
C=    END                                                             P1400590
      STOP                                                             P140C1
      END                                                             P140C2
C******************************************************************P1410010
C*****                                                                 P1410020
C*****                      CPXMU - (141)                              P1410030
C******************************************************************P1410040
C*****                    GENERAL PURPOSE                              P1410050
C*****     TO TEST MULTIPLICATION OF COMPLEX NUMBERS         ASA REFP1410060
C*****     INCLUDES OPERATIONS WITH UP TO 10 TERMS           6.1    P1410070
C*****     DOES NOT TEST FOR ACCURACY                                  P1410080
C*****                                                                 P1410090
C*****                                                                 P1410100
C*****  S P E C I F I C A T I O N S   SEGMENT 141                      P1410110
C*****                                                                 P0012610
C*****   WHEN EXECUTING ONLY SEGMENT 141, THE SPECIFICATION STATEMENTS P0012615
C*****   WHICH APPEAR AS COMMENTS MUST HAVE THE  C=                    P0012620
C*****   IN COLUMNS  1  AND  2  REMOVED.                               P0012625
C*****                                                                 P0012630
C=    COMPLEX AVC, BVC, CVC, DVC, EVC, FVC, GVC, HVC, IVC, JVC         P0012635
C=   1   ,AAVC, ABVC, BAVC, BBVC                                       P0012640
      COMPLEX AVC, BVC, CVC, DVC, EVC, FVC, GVC, HVC, IVC, JVC         P141A1
     1   ,AAVC, ABVC, BAVC, BBVC                                       P141A2
C*****                                                                 P0012645
C*****   O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.  P1410120
C*****                                                                 P0072270
C*****   WHEN EXECUTING ONLY SEGMENT 141, THE FOLLOWING STATEMENT      P0072275
C*****   NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  AND  2  REMOVED.   P0072280
C*****                                                                 P0072285
C=    NUVI = 6                                                         P0072290
      NUVI = 6                                                         P141B1
C*****                                                                 P0072295
      WRITE (NUVI, 1411)                                               P1410130
 1411 FORMAT (1H1,1 X,36HCPXMU - (141) COMPLEX MULTIPLICATION//2X,     P1410140
     114HASA REF. - 6.1//2X,7HRESULTS//)                              P1410150
C*****MULTIPLICATION OF TWO TERMS                                      P1410160
      AVC = (-0.5,0.86602)                                            P1410170
      BVC = (-0.5,-0.86602)                                           P1410180
      AAVC = (AVC * BVC )                                             P1410190
      ABVC =   AVC * (-0.5,-0.86602)                                  P1410200
      BAVC = (-0.5,0.86602) * BVC                                     P1410210
      BBVC = (-0.5,0.86602)*(-0.5,-0.86602)                           P1410220
      WRITE(NUVI,1412) AAVC,ABVC,BAVC,BBVC                            P1410230
C*****MULTIPLICATION OF 3 TERMS                                        P1410240
      AVC=(0.0,1.0)                                                   P1410250
      BVC=(1.0,0.0)                                                   P1410260
      CVC=(0.0,-1.0)                                                  P1410270
      AAVC=AVC*BVC*CVC                                                P1410280
      ABVC=(0.0,1.0)*BVC*(0.0,-1.0)                                   P1410290
      WRITE(NUVI,1412) AAVC,ABVC                                      P1410300
 1412  FORMAT(2X,2F8.3)                                               P1410310
```

```
C*****MULTIPLICATION OF 4 TERMS                                             P1410320
      AVC=(0.30901,0.95105)                                                 P1410330
      BVC=(-0.80901,0.58778)                                                P1410340
      CVC=(-0.80901,-0.58778)                                               P1410350
      DVC=(0.30901,-0.95105)                                                P1410360
      AAVC=AVC*BVC*CVC*DVC                                                  P1410370
      ABVC=AVC*(-0.80901,0.58778)*CVC*(0.30901,-0.95105)                    P1410380
      WRITE(NUVI,1412) AAVC,ABVC                                            P1410390
C*****MULTIPLICATION OF 5 TERMS                                             P1410400
      AVC=(0.5,0.86602)                                                     P1410410
      BVC=(-0.5,0.86602)                                                    P1410420
      CVC = (1.0,0.0)                                                       P1410430
      DVC=(-0.5,-0.86602)                                                   P1410440
      EVC=(0.5,-0.86602)                                                    P1410450
      AAVC=AVC*BVC*CVC*DVC*EVC                                              P1410460
      ABVC=AVC*(-0.5,0.86602)*CVC*(-0.5,-0.86602)*EVC                       P1410470
      WRITE(NUVI,1412) AAVC,ABVC                                            P1410480
C*****MULTIPLICATION OF 6 TERMS                                             P1410490
      AVC = (0.98480,0.17364)                                               P1410500
      BVC=(-0.17364,0.98480)                                                P1410510
      CVC=(-0.86602,0.5)                                                    P1410520
      DVC=(-0.93969,-0.34202)                                              P1410530
      EVC=(0.34202,-0.93969)                                               P1410540
      FVC=(0.86602,-0.5)                                                    P1410550
      AAVC=AVC*BVC*CVC*DVC*EVC*FVC                                          P1410560
      ABVC=AVC*(-0.17364,0.98480)*CVC*(-0.93969,-0.34202)*EVC*(0.86602,    P1410570
     1-0.5)                                                                 P1410580
      WRITE(NUVI,1412) AAVC,ABVC                                            P1410590
C*****MULTIPLICATION OF 7 TERMS                                             P1410600
      AVC=(0.70710,0.70710)                                                 P1410610
      BVC=(0.0,1.0)                                                         P1410620
      CVC=(-0.70710,0.70710)                                                P1410630
      DVC=(1.0,0.0)                                                         P1410640
      EVC=(-0.70710,-0.70710)                                               P1410650
      FVC=(0.0,-1.0)                                                        P1410660
      GVC=(0.70710,-0.70710)                                                P1410670
      AAVC=AVC*BVC*CVC*DVC*EVC*FVC*GVC                                      P1410680
      ABVC=AVC*(0.0,1.0)*CVC*( 1.0,0.0)*EVC*(0.0,-1.0)*GVC                  P1410690
      WRITE(NUVI,1412) AAVC,ABVC                                            P1410700
C*****MULTIPLICATION OF 8 TERMS                                             P1410710
      AVC=(0.76604,0.64278)                                                 P1410720
      BVC=(0.17364,0.98480)                                                 P1410730
      CVC=(-0.5,0.86602)                                                    P1410740
      DVC=(-0.93969,0.34202)                                                P1410750
      EVC=(-0.93969,-0.34202)                                              P1410760
      FVC=(-0.5,-0.86602)                                                   P1410770
      GVC=(0.17364,-0.98480)                                                P1410780
      HVC=(0.76604,-0.64278)                                                P1410790
      AAVC=AVC*BVC*CVC*DVC*EVC*FVC*GVC*HVC                                  P1410800
      ABVC=AVC*(0.17364,0.98480)*CVC*DVC*(-0.93969,-0.34202)*FVC*GVC*HVCP1410810
      WRITE(NUVI,1412) AAVC,ABVC                                            P1410820
C*****MULTIPLICATION OF 9 TERMS                                             P1410830
      AVC=(0.80901,0.58778)                                                 P1410840
      BVC=(0.30901,0.95105)                                                 P1410850
      CVC=(-0.94832,0.31730)                                                P1410860
      DVC=(-0.80901,0.58778)                                                P1410870
      EVC = (1.0,0.0)                                                       P1410880
      FVC=(-0.80901,-0.58778)                                               P1410890
      GVC=(-0.94832,-0.31730)                                              P1410900
      HVC=(0.30901,-0.95105)                                                P1410910
      IVC=(0.80901,-0.58778)                                                P1410920
      AAVC=AVC*BVC*CVC*DVC*EVC*FVC*GVC*HVC*IVC                              P1410930
      ABVC=AVC*(0.30901,0.95105)*CVC*(-0.80901,0.58778)*( 1.0,0.0)*FVC*     P1410940
     1GVC*HVC*IVC                                                           P1410950
      WRITE(NUVI,1412) AAVC,ABVC                                            P1410960
C*****MULTIPLICATION OF 10 TERMS                                            P1410970
      AVC=(0.86602,0.5)                                                     P1410980
      BVC=(0.5,0.86602)                                                     P1410990
```

```
      CVC=(0.0,1.0)                                              P1411000
      DVC=(-0.5,0.86602)                                         P1411010
      EVC=(-0.86602,0.5)                                         P1411020
      FVC=(-1.0,0.0)                                             P1411030
      GVC=(-0.86602,-0.5)                                        P1411040
      HVC=(-0.5,-0.86602)                                        P1411050
      IVC=(0.0,-1.0)                                             P1411060
      JVC=(0.0,1.0)                                              P1411070
      AAVC=AVC*BVC*CVC*DVC*EVC*FVC*GVC*HVC*IVC*JVC               P1411080
      ABVC=AVC*(0.5,0.86602)*CVC*(-0.5,0.86602)*EVC*FVC*GVC*HVC*(0.0,-1.P1411090
     10)*JVC                                                     P1411100
      WRITE(NUVI,1412) AAVC,ABVC                                 P1411110
      WRITE(NUVI,1413)                                           P1411120
1413  FORMAT (1H0,35HTEST IS POSITIVE IF NUMBERS PRINTED/1X,     P1411130
     117HABOVE ARE 1.0,0.0)                                      P1411140
      WRITE(NUVI, 1414)                                          P1411150
1414  FORMAT (//39H  ERROR SHOULD NOT EXCEED + OR - .001  )      P1411160
C*****    END OF TEST SEGMENT 141                               P1411170
C*****  WHEN EXECUTING ONLY SEGMENT 141, THE STOP AND END CARDS  P1411180
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=          P1411190
C*****  IN COLUMNS  1  AND  2  REMOVED.                          P1411200
C=    STOP                                                       P1411210
C=    END                                                        P1411220
      STOP                                                       P141C1
      END                                                        P141C2
C*****************************************************************P1420010
C*****                                                           P1420020
C*****                        CPXDV-(142)                        P1420030
C*****                                                           P1420040
C*****************************************************************P1420050
C*****                   GENERAL PURPOSE                         P1420060
C*****      TO TEST DIVISION OF COMPLEX NUMBERS          ASA REFP1420070
C*****                                                    6.1   P1420080
C*****                                                           P1420090
C*****  S P E C I F I C A T I O N S   SEGMENT 142                P1420100
C*****                                                           P0012650
C*****  WHEN EXECUTING ONLY SEGMENT 142, THE SPECIFICATION STATEMENTS P0012655
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE  C=               P0012660
C*****  IN COLUMNS  1  AND  2  REMOVED.                          P0012665
C*****                                                           P0012670
C=    COMPLEX NUMVC,DENVC,QAVC,QBVC,QCVC,QDVC                    P0012675
      COMPLEX NUMVC,DENVC,QAVC,QBVC,QCVC,QDVC                    P142A1
C*****                                                           P0012680
C*****  O U T O U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE. P1420110
C*****                                                           P0072300
C*****  WHEN EXECUTING ONLY SEGMENT 142, THE FOLLOWING STATEMENT  P0072305
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  AND  2  REMOVED. P0072310
C*****                                                           P0072315
C=    NUVI = 6                                                   P0072320
      NUVI = 6                                                   P142B1
C*****                                                           P0072325
      WRITE (NUVI, 1421)                                         P1420120
1421  FORMAT(1H1,1X,25HCPXDV - (142) DIVISION OF/16X,            P1420130
     115HCOMPLEX NUMBERS//15H   ASA REF.- 6.1//2X,7HRESULTS//)   P1420140
C***** TEST NUMBER 1                                             P1420150
      NUMVC=(0.36602,1.36602)                                    P1420160
      DENVC=(0.86602,0.5)                                        P1420170
      QAVC=NUMVC/DENVC                                           P1420180
      QBVC=(0.36602,1.3660) /DENVC                               P1420190
      QCVC=NUMVC/(0.86602,0.5)                                   P1420200
      QDVC=(0.36602,1.36602)/(0.86602,0.5)                       P1420210
      WRITE(NUVI,1422)   QAVC,QBVC,QCVC,QDVC                     P1420220
C*****TEST NUMBER 2                                              P1420230
      NUMVC=(0.0,1.41420)                                        P1420240
      DENVC=(0.70710,0.70710)                                    P1420250
      QAVC=NUMVC/DENVC                                           P1420260
      QBVC=(0.0,1.41420)/DENVC                                   P1420270
      QCVC=NUMVC/(0.70710,0.70710)                               P1420280
```

```
      QDVC=(0.0,1.41420)/(0.70710,0.70710)                              P1420290
      WRITE(NUVI,1422) QAVC,QBVC,QCVC,QDVC                               P1420300
 1422 FORMAT(2X,2F8.4)                                                   P1420310
C*****TEST NUMBER 3                                                      P1420320
      NUMVC=(-0.36602,1.36602)                                           P1420330
      DENVC=(0.5,0.86602)                                                P1420340
      QAVC=NUMVC/DENVC                                                   P1420350
      QBVC=(-0.36602,1.36602)/DENVC                                      P1420360
      QCVC=NUMVC/(0.5,0.86602)                                           P1420370
      QDVC=(-0.36602,1.36602)/(0.5,0.86602)                             P1420380
      WRITE(NUVI,1422) QAVC,QBVC,QCVC,QDVC                               P1420390
C*****TEST NUMBER 4                                                      P1420400
      NUMVC=(0.73204,2.73204)                                            P1420410
      DENVC=(1.73204,1.0)                                                P1420420
      QAVC=NUMVC/DENVC                                                   P1420430
      QBVC=(0.73204,2.73204)/DENVC                                       P1420440
      QCVC=NUMVC/(1.73204,1.0)                                           P1420450
      QDVC=(0.73204,2.73204)/(1.73204,1.0)                              P1420460
      WRITE(NUVI,1422) QAVC,QBVC,QCVC,QDVC                               P1420470
C***** TEST NUMBER 5                                                     P1420480
      NUMVC=(0.0,2.82840)                                                P1420490
      DENVC=(1.41420,1.41420)                                            P1420500
      QAVC=NUMVC/DENVC                                                   P1420510
      QBVC=(0.0,2.82840)/DENVC                                           P1420520
      QCVC=NUMVC/(1.41420,1.41420)                                       P1420530
      QDVC=(0.0,2.82840)/(1.41420,1.41420)                             P1420540
      WRITE(NUVI,1422) QAVC,QBVC,QCVC,QDVC                               P1420550
      WRITE(NUVI,1423)                                                   P1420560
 1423 FORMAT (//2X,35HTEST IS POSITIVE IF NUMBERS PRINTED/2X,           P1420570
     117HABOVE ARE 1.0,1.0)                                             P1420580
      WRITE (NUVI, 1424)                                                 P1420590
 1424 FORMAT (//39H  ERROR SHOULD NOT EXCEED + OR - .0001 )             P1420600
C*****     END OF TEST SEGMENT 142                                       P1420610
C*****  WHEN EXECUTING ONLY SEGMENT 142, THE STOP AND END CARDS          P1420620
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=                  P1420630
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  P1420640
C=    STOP                                                               P1420650
C=    END                                                                P1420660
      STOP                                                               P142C1
      END                                                                P142C2
C************************************************************************P1430010
C*****                                                                   P1430020
C*****                    CPXEX(143)                                     P1430030
C*****                                                                   P1430040
C************************************************************************P1430050
C*****                  GENERAL PURPOSE                                  P1430060
C*****     TO TEST EXPONENTIATION OF COMPLEX NUMBERS          ASA REFP1430070
C*****     BY INTEGERS                                        6.1 P1430080
C*****     EXPONENT VALUES VARY FROM 3 TO 100                            P1430090
C*****                                                                   P1430100
C*****  S P E C I F I C A T I O N S   SEGMENT 143                        P1430110
C*****                                                                   P0012690
C*****  WHEN EXECUTING ONLY SEGMENT 143, THE SPECIFICATION STATEMENTS    P0012695
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE   C=                       P0012700
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  P0012705
C=    INTEGER AVI                                                        P0012710
C=    COMPLEX AVC,BVC,CVC,DVC,EVC                                        P0012715
      COMPLEX AVC,BVC,CVC,DVC,EVC                                        P143A1
      INTEGER AVI                                                        P143A2
C*****  O U T O U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     P1430120
C*****                                                                   P0072330
C*****  WHEN EXECUTING ONLY SEGMENT 143, THE FOLLOWING STATEMENT         P0072335
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  AND  2  REMOVED.       P0072340
C*****                                                                   P0072345
C=    NUVI = 6                                                           P0072350
      NUVI = 6                                                           P143B1
C*****                                                                   P0072355
      WRITE (NUVI, 1431)                                                 P1430130
```

```
1431   FORMAT(1H1,1 X,36HCPXEX - (143) COMPLEX EXPONENTIATION//      P1430140
      1 2X,11HASA.REF.6.1//2X,29HRESULTS BASED ON THE FUNCTION//       P1430150
      2 2X,25H1.0 = SIN**2(X)+COS**2(X)//)                            P1430160
C***** EXPONENT=3                                                     P1430170
       AVC   = (-0.5,0.8660254)                                       P1430180
       AVI=3                                                          P1430190
       BVC=AVC**3                                                     P1430200
       CVC   = (-0.5,0.8660254) ** 3                                  P1430210
       DVC   = (-0.5,0.8660254) ** AVI                               P1430220
       EVC=AVC**AVI                                                   P1430230
       WRITE(NUVI,1432) BVC,CVC,DVC,EVC                               P1430240
C***** EXPONENT=4                                                     P1430250
       AVC=(0.0,1.0)                                                  P1430260
       AVI=4                                                          P1430270
       BVC=AVC**4                                                     P1430280
       CVC=(0.0,1.0)**4                                               P1430290
       DVC=(0.0,1.0)**AVI                                             P1430300
       EVC=AVC**AVI                                                   P1430310
       WRITE(NUVI,1432)  BVC,CVC,DVC,EVC                              P1430320
 1432 FORMAT (2X,2F8.4)                                               P1430330
C***** EXPONENT=6                                                     P1430340
       AVC   = ( 0.5,0.8660254)                                       P1430350
       AVI=6                                                          P1430360
       BVC=AVC**6                                                     P1430370
       CVC   = ( 0.5,0.8660254) ** 6                                  P1430380
       DVC   = ( 0.5,0.8660254) ** AVI                               P1430390
       EVC= AVC**AVI                                                  P1430400
       WRITE(NUVI,1432)  BVC,CVC,DVC,EVC                              P1430410
C***** EXPONENT=8                                                     P1430420
       AVC   = (0.7071068,0.7071068)                                  P1430430
       AVI=8                                                          P1430440
       BVC=AVC**8                                                     P1430450
       CVC   = (0.7071068,0.7071068) ** 8                             P1430460
       DVC   = (0.7071068,0.7071068) ** AVI                          P1430470
       EVC=AVC**AVI                                                   P1430480
       WRITE(NUVI,1432)  BVC,CVC,DVC,EVC                              P1430490
C***** EXPONENT=10                                                    P1430500
       AVC   = (0.8090170,0.5877853)                                  P1430510
       AVI=10                                                         P1430520
       BVC=AVC**10                                                    P1430530
       CVC   = (0.8090170,0.5877853) ** 10                            P1430540
       DVC   = (0.8090170,0.5877853) ** AVI                          P1430550
       EVC=AVC**AVI                                                   P1430560
       WRITE(NUVI,1432)  BVC,CVC,DVC,EVC                              P1430570
C*****EXPONENT=20                                                     P1430580
       AVC   = (0.9510565,0.3090170)                                  P1430590
       AVI=20                                                         P1430600
       BVC=AVC**20                                                    P1430610
       CVC   = (0.9510565,0.3090170) ** 20                            P1430620
       DVC   = (0.9510565,0.3090170) ** AVI                          P1430630
       EVC=AVC**AVI                                                   P1430640
       WRITE(NUVI,1432)  BVC,CVC,DVC,EVC                              P1430650
C***** EXPONENT=40                                                    P1430660
       AVC   = (0.9876883,0.1564345)                                  P1430670
       AVI=40                                                         P1430680
       BVC=AVC**40                                                    P1430690
       CVC   = (0.9876883,0.1564345) ** 40                            P1430700
       DVC   = (0.9876883,0.1564345) ** AVI                          P1430710
       EVC=AVC**AVI                                                   P1430720
       WRITE(NUVI,1432)  BVC,CVC,DVC,EVC                              P1430730
C***** EXPONENT=60                                                    P1430740
       AVC   = (0.9945219,0.1045285)                                  P1430750
       AVI=60                                                         P1430760
       BVC=AVC**60                                                    P1430770
       CVC   = (0.9945219,0.1045285) ** 60                            P1430780
       DVC   = (0.9945219,0.1045285) ** AVI                          P1430790
       EVC=AVC**AVI                                                   P1430800
       WRITE(NUVI,1432)  BVC,CVC,DVC,EVC                              P1430810
```

```
C*****EXPONENT=80                                                          P1430820
      AVI = 80                                                             P1430830
      AVC   = (0.9969173,0.0784591)                                       P1430840
      BVC=AVC**80                                                          P1430850
      CVC   = (0.9969173,0.0784591) ** 80                                 P1430860
      DVC   = (0.9969173,0.0784591) ** AVI                                P1430870
      EVC=AVC**AVI                                                         P1430880
      WRITE(NUVI,1432)  BVC,CVC,DVC,EVC                                    P1430890
C***** EXPONENT=100                                                        P1430900
      AVC   = (0.9980267,0.0627905)                                       P1430910
      AVI=100                                                              P1430920
      BVC=AVC**100                                                         P1430930
      CVC   = (0.9980267,0.0627905) ** 100                                P1430940
      DVC   = (0.9980267,0.0627905) ** AVI                                P1430950
      EVC=AVC**AVI                                                         P1430960
      WRITE(NUVI,1432)  BVC,CVC,DVC,EVC                                    P1430970
      WRITE (NUVI,1433)                                                    P1430980
 1433 FORMAT (//  37H  TEST IS POSITIVE IF NUMBERS PRINTED/2X,             P1430990
     1  26HABOVE ARE CLOSE TO 1.0,0.0)                                     P1431000
      WRITE (NUVI, 1434)                                                   P1431010
1434  FORMAT(// 39H  ERROR SHOULD NOT EXCEED + OR - .0001 )                P1431020
C*****    END OF TEST SEGMENT 143                                          P1431030
C*****  WHEN EXECUTING ONLY SEGMENT 143, THE STOP AND END CARDS            P1431040
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=                   P1431050
C*****  IN COLUMNS 1   AND  2  REMOVED.                                    P1431060
C=    STOP                                                                 P1431070
C=    END                                                                  P1431080
      STOP                                                                 P143C1
      END                                                                 P143C2
C*******************************************************************P1440010
C*****                                                                     P1440020
C*****                         CPXOP - (144)                              P1440030
C*****                                                                     P1440040
C*******************************************************************P1440050
C*****             GENERAL  PURPOSE                         ASA REF P1440060
C*****  TO TEST ARITHMETIC OPERATIONS ON COMPLEX NUMBERS.        6.1      P1440070
C*****  OPERATIONS INCLUDE ALL BASIC OPERATORS (+,-,*,**) ACTING          P1440080
C*****  ON COMPLEX NUMBERS                                                 P1440090
C*****                                                                     P1440100
C*****   S P E C I F I C A T I O N S    SEGMENT 144                        P1440110
C*****                                                                     P0012730
C*****  WHEN EXECUTING ONLY SEGMENT 144, THE SPECIFICATION STATEMENTS      P0012735
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE   C=                        P0012740
C*****  IN COLUMNS 1   AND  2  REMOVED.                                    P0012745
C*****                                                                     P0012750
C=    INTEGER AVI                                                          P0012755
C=    COMPLEX  AVC, BVC, CVC, DVC, EVC, FVC, GVC,HVC,PVC,RVC,SVC,TVC,UVCP0012760
      INTEGER AVI                                                          P144A1
      COMPLEX  AVC, BVC, CVC, DVC, EVC, FVC, GVC,HVC,PVC,RVC,SVC,TVC,UVCP144A2
C*****                                                                     P0012765
C*****  O U T O U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.        P1440120
C*****                                                                     P0072360
C*****  WHEN EXECUTING ONLY SEGMENT 144, THE FOLLOWING STATEMENT           P0072365
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  AND  2  REMOVED.        P0072370
C*****                                                                     P0072375
C=    NUVI = 6                                                             P0072380
      NUVI = 6                                                             P144B1
C*****                                                                     P0072385
      WRITE (NUVI, 1441)                                                   P1440130
 1441  FORMAT(1H1,1X,32HCPXOP - (144) COMPLEX OPERATIONS//2X,              P1440140
     111HASA REF 6.1//2X,7HRESULTS//)                                      P1440150
      AVC = (0.9396926,0.3420201)                                         P1440160
      BVC = (1.2817127,0.5976725)                                         P1440170
      CVC = (0.0, 1.4142136)                                              P1440180
      DVC = (0.7071068, 0.7071068)                                       P1440190
      EVC = (1.0986841, 0.4550899)                                       P1440200
      AVI = 2                                                             P1440210
      RVC=(AVC*BVC+(0.9396926,0.3420201)*BVC+AVC*(1.2817127,0.5976725)-  P1440220
```

```
          1(0.9396926,0.3420201)*(1.2817127,0.5976725)+CVC/DVC+(0.0,1.4142136 P1440230
          2)/DVC+CVC/(0.7071068,0.7071068)-(0.0,1.4142136)/(0.7071068,       P1440240
          3 0.7071068)+EVC**2-EVC**AVI+(1.0986841,0.4550899)**2+(1.0986841,   P1440250
          4 0.4550899)**AVI**2/(0.0, 72.0)                                    P1440260
            FVC=(0.0,4.0)                                                     P1440270
            GVC=(0.43301,0.3)                                                 P1440280
            HVC=(0.43301,0.2)                                                 P1440290
            PVC=(1.73204,1.0)                                                 P1440300
            SVC=FVC/((GVC+HVC)*(PVC**2))                                      P1440310
            TVC=(0.0,4.0)/(((0.43301,0.3)+(0.43301,0.2))*((1.73204,1.0)**2))  P1440320
            UVC=FVC/((GVC+(0.43301,0.2))*(PVC**2))                            P1440330
            WRITE (NUVI,1442) RVC,SVC,TVC,UVC                                 P1440340
     1442   FORMAT ( 4(2X,2F8.4/) /37H  TEST IS POSITIVE IF NUMBERS PRINTED / P1440350
          12X, 17HABOVE ARE 1.0,0.0 )                                        P1440360
            WRITE (NUVI, 1443)                                                P1440370
     1443   FORMAT(// 39H  ERROR SHOULD NOT EXCEED + OR - .0001 )             P1440380
     C*****      END OF TEST SEGMENT 144                                      P1440390
     C*****   WHEN EXECUTING ONLY SEGMENT 144, THE STOP AND END CARDS         P1440400
     C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 P1440410
     C*****   IN COLUMNS  1   AND  2   REMOVED.                               P1440420
     C=      STOP                                                             P1440430
     C=      END                                                             P1440440
            STOP                                                             P144C1
            END                                                              P144C2
     C*************************************************************************P1450010
     C*****                                                                   P1450020
     C*****                          CREAD-(145)                             P1450030
     C*****                                                                   P1450040
     C*************************************************************************P1450050
     C*****   GENERAL PURPOSE                                      ASA REF P1450060
     C*****   TO TEST ADDITION AND SUBTRACTION OF COMPLEX               6.1   P1450070
     C*****   AND REAL NUMBERS                                               P1450080
     C*****                                                                   P1450090
     C*****   S P E C I F I C A T I O N S   SEGMENT 145                       P1450100
     C*****                                                                   P0012770
     C*****   WHEN EXECUTING ONLY SEGMENT 145, THE SPECIFICATION STATEMENTS   P0012775
     C*****   WHICH APPEAR AS COMMENTS MUST HAVE THE  C=                      P0012780
     C*****   IN COLUMNS  1   AND  2   REMOVED.                               P0012785
     C*****                                                                   P0012790
     C=      COMPLEX AVC,BAVC,CAVC,DAVC,ASVC,BSVC,CSVC,AAVC                   P0012795
     C=    2 ,        DSVC,AAAVC,ABAVC,ACAVC,ADAVC,AASVC,ABSVC,ACSVC,ADSVC    P0012800
            COMPLEX AVC,BAVC,CAVC,DAVC,ASVC,BSVC,CSVC,AAVC                    P145A1
          2 ,        DSVC,AAAVC,ABAVC,ACAVC,ADAVC,AASVC,ABSVC,ACSVC,ADSVC     P145A2
     C*****                                                                   P0012805
     C*****   O U T O U T   T A P E   ASSIGNMENT STATEMENT.   NO INPUT TAPE.  P1450110
     C*****                                                                   P0072390
     C*****   WHEN EXECUTING ONLY SEGMENT 145, THE FOLLOWING STATEMENT        P0072395
     C*****   NUVI = 6   MUST HAVE THE C=   IN COLUMNS  1   AND  2   REMOVED. P0072400
     C*****                                                                   P0072405
     C=      NUVI = 6                                                         P0072410
            NUVI = 6                                                          P145B1
     C*****                                                                   P0072415
            WRITE (NUVI, 1450)                                                P1450120
     1450   FORMAT(1H1,1X,38HCREAD - (145) ADDITION AND SUBTRACTION/          P1450130
          1 10X,27HOF COMPLEX AND REAL NUMBERS//2X,                          P1450140
          1 12HASA REF. 6.1//2X,7HRESULTS//)                                 P1450150
            AVC=(5.4,7.5)                                                     P1450160
            AVS=4.2                                                           P1450170
     C***** ADDITION AND SUBTRACTION OF 2 NUMBERS                            P1450180
            AAVC=AVC-AVS                                                      P1450190
            BAVC=(5.4,7.5)-AVS                                                P1450200
            CAVC=AVC-4.2                                                      P1450210
            DAVC=(5.4,7.5)-4.2                                                P1450220
            ASVC=AVC+AVS                                                      P1450230
            BSVC=(5.4,7.5)+AVS                                                P1450240
            CSVC=AVC+4.2                                                      P1450250
            DSVC=(5.4,7.5)+4.2                                                P1450260
     C***** ADDITION AND SUBTRACTION OF 3 NUMBERS                            P1450270
```

```
      AAAVC=AVC-AVS-AAVC                                                P1450280
      ABAVC=(5.4,7.5)-AVS-BAVC                                          P1450290
      ACAVC=AVC-4.2-(1.2,7.5)                                           P1450300
      ADAVC=(5.4,7.5)-4.2-(1.2,7.5)                                     P1450310
      AASVC=AVC+AVS-ASVC                                                P1450320
      ABSVC=(5.4,7.5)+AVS-BSVC                                          P1450330
      ACSVC=AVC+4.2-(9.6,7.5)                                           P1450340
      ADSVC=(5.4,7.5)+4.2-(9.6,7.5)                                     P1450350
      WRITE(NUVI,1451)ABAVC,ACAVC,ADAVC,AASVC,ABSVC,ACSVC,ADSVC,AAAVC   P1450360
 1451 FORMAT( 2X, 2F8.4)                                                P1450370
C***** ADDITION AND SUBTRACTION OF 7 NUMBERS                            P1450380
      ADSVC=AVC-(5.4,7.5)+AVS-4.2+ASVC-3.2-(6.4,7.5)                    P1450390
      WRITE(NUVI,1452) ADSVC                                            P1450400
 1452 FORMAT(2X,2F8.4//37H   TEST IS POSITIVE IF NUMBERS PRINTED/2X,    P1450410
     1 17HABOVE ARE 0.0,0.0)                                            P1450420
C*****     END OF TEST SEGMENT 145                                      P1450430
C***** WHEN EXECUTING ONLY SEGMENT 145, THE STOP AND END CARDS          P1450440
C***** WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=                 P1450450
C***** IN COLUMNS  1  AND  2  REMOVED.                                  P1450460
C=    STOP                                                              P1450470
C=    END                                                               P1450480
      STOP                                                              P145C1
      END                                                              P145C2
C*********************************************************************P1460010
C*****                                                                  P1460020
C*****                       CREMU - (146)                             P1460030
C*****                                                                  P1460040
C*********************************************************************P1460050
C*****                   GENERAL PURPOSE              ASA REF P1460060
C*****      TO TEST MULTIPLICATION OF COMPLEX NUMBERS BY        6.1     P1460070
C*****      REAL NUMBERS                                                P1460080
C*****                                                                  P1460090
C*****    S P E C I F I C A T I O N S    SEGMENT 146                    P1460100
C*****                                                                  P0012810
C***** WHEN EXECUTING ONLY SEGMENT 146, THE SPECIFICATION STATEMENTS    P0012815
C***** WHICH APPEAR AS COMMENTS MUST HAVE THE   C=                      P0012820
C***** IN COLUMNS  1  AND  2  REMOVED.                                  P0012825
C*****                                                                  P0012830
C=    COMPLEX AVC,BVC,      MAVC,MBVC,MCVC,MDVC                         P0012835
      COMPLEX AVC,BVC,      MAVC,MBVC,MCVC,MDVC                         P146A1
C*****                                                                  P0012840
C***** O U T O U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      P1460110
C*****                                                                  P0072420
C***** WHEN EXECUTING ONLY SEGMENT 146, THE FOLLOWING STATEMENT         P0072425
C***** NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  AND  2  REMOVED.      P0072430
C*****                                                                  P0072435
C=    NUVI = 6                                                          P0072440
      NUVI = 6                                                          P146B1
C*****                                                                  P0072445
      WRITE (NUVI, 1461)                                                P1460120
 1461 FORMAT(1H1,1X,39HCREMU - (146) MULTIPLICATION OF COMPLEX/16X,     P1460130
     1 7HBY REAL   //2X,                                                P1460140
     2 11HASA.REF.6.1//2X,7HRESULTS//)                                  P1460150
C*****MULTIPLICATION OF A COMPLEX NUMBER BY A REAL NUMBER               P1460160
      AVC=(1.6,3.2)                                                     P1460170
      AVS=0.625                                                         P1460180
      MAVC=AVC*AVS                                                      P1460190
      MBVC=(1.6,3.2)*AVS                                                P1460200
      MCVC=AVC*0.625                                                    P1460210
      MDVC=(1.6,3.2)*0.625                                              P1460220
      WRITE (NUVI,1463) MAVC,MBVC,MCVC,MDVC                             P1460230
 1463 FORMAT(4(2X,2F8.4/)//37H   TEST IS POSITIVE IF NUMBERS PRINTED/,2X,P1460240
     417HABOVE ARE 1.0,2.0 )                                            P1460250
C*****MULTIPLICATION OF 4 TERMS                                         P1460260
      AVS=4.0                                                           P1460270
      BVS=0.25                                                          P1460280
      AVC=(0.93969,0.34202)                                            P1460290
      BVC=(1.28168,0.59764)                                            P1460300
```

```
          MAVC=AVS*AVC*BVS*BVC                                            P1460310
          MBVC=4.0*BVS*AVC*BVC                                            P1460320
          MCVC=4.0*BVS*(0.93969,0.34202)*BVC                             P1460330
          MDVC=4.0*0.25*(0.93969,0.34202)*(1.28168,0.59764)             P1460340
          WRITE (NUVI,1462) MAVC,MBVC,MCVC,MDVC                          P1460350
 1462 FORMAT(//4(2X,2F8.4/)//37H  TEST IS POSITIVE IF NUMBERS PRINTED/   P1460360
      12X,17HABOVE ARE 1.0,1.0)                                          P1460370
          WRITE (NUVI, 1464)                                             P1460380
 1464 FORMAT(// 39H  ERROR SHOULD NOT EXCEED + OR - .0001 )              P1460390
C*****     END OF TEST SEGMENT 146                                       P1460400
C*****  WHEN EXECUTING ONLY SEGMENT 146, THE STOP AND END CARDS          P1460410
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=                 P1460420
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  P1460430
C=    STOP           -                                                   P1460440
C=    END                                                                P1460450
      STOP                                                               P146C1
      END                                                                P146C2
C**********************************************************************P1470010
C*****                                                                   P1470020
C*****                     CREDV - (147)                                 P1470030
C*****                                                                   P1470040
C**********************************************************************P1470050
C*****              GENERAL PURPOSE                          ASA REF P1470060
C*****  TO TEST DIVISION OF REAL (COMPLEX) NUMBERS BY            6.1     P1470070
C*****  COMPLEX (REAL) NUMBERS                                           P1470080
C*****                                                                   P1470090
C*****  S P E C I F I C A T I O N S   SEGMENT 147                        P1470100
C*****                                                                   P0012850
C*****  WHEN EXECUTING ONLY SEGMENT 147, THE SPECIFICATION STATEMENTS    P0012855
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE   C=                      P0012860
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  P0012865
C*****                                                                   P0012870
C=    COMPLEX AVC,DAVC,DBVC,DCVC,DDVC                                    P0012875
      COMPLEX AVC,DAVC,DBVC,DCVC,DDVC                                    P147A1
C*****                                                                   P0012880
C*****  O U T O U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      P1470110
C*****                                                                   P0072450
C*****  WHEN EXECUTING ONLY SEGMENT 147, THE FOLLOWING STATEMENT         P0072455
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  AND  2  REMOVED.      P0072460
C*****                                                                   P0072465
C=    NUVI = 6                                                           P0072470
      NUVI = 6                                                           P147B1
C*****                                                                   P0072475
      WRITE (NUVI, 1471)                                                 P1470120
 1471 FORMAT (1H1,1X,33HCREDV - (147) DIVISION OF COMPLEX/16X,16HAND REAP1470130
     1L NUMBERS//2X,11HASA REF 6.1//2X,7HRESULTS//)                      P1470140
C*****DIVISION OF REAL BY COMPLEX                                        P1470150
      AVS=2.0                                                            P1470160
      AVC=(1.0, -1.0)                                                    P1470170
      DAVC=AVS/AVC                                                       P1470180
      DBVC=2.0/AVC                                                       P1470190
      DCVC=AVS/(1.0, -1.0)                                               P1470200
      DDVC=2.0/(1.0, -1.0)                                               P1470210
      WRITE (NUVI,1473) DAVC,DBVC,DCVC,DDVC                              P1470220
 1473 FORMAT( 2X, 2F8.4)                                                 P1470230
C*****DIVISION OF COMPLEX BY REAL                                        P1470240
      AVS=2.5463                                                         P1470250
      AVC=(2.5463,2.5463)                                                P1470260
      DAVC=AVC/AVS                                                       P1470270
      DBVC=(2.5463,2.5463)/AVS                                           P1470280
      DCVC=AVC/2.5463                                                    P1470290
      DDVC=(2.5463,2.5463)/2.5463                                        P1470300
      WRITE (NUVI,1472) DAVC,DBVC,DCVC,DDVC                              P1470310
 1472 FORMAT (4(2X,2F8.4/)//37H  TEST IS POSITIVE IF NUMBERS PRINTED/    P1470320
     1 2X,17HABOVE ARE 1.0,1.0)                                          P1470330
      WRITE (NUVI, 1474)                                                 P1470340
 1474 FORMAT(// 39H  ERROR SHOULD NOT EXCEED + OR - .0001 )              P1470350
C*****     END OF TEST SEGMENT 147                                       P1470360
```

```
C***** WHEN EXECUTING ONLY SEGMENT 147, THE STOP AND END CARDS        P1470370
C***** WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 P1470380
C***** IN COLUMNS  1  AND  2  REMOVED.                                 P1470390
C=     STOP                                                            P1470400
C=     END                                                            P1470410
       STOP                                                            P147C1
       END                                                            P147C2
C***********************************************************************P1480010
C*****                                                                 P1480020
C*****                          CREOP - (148)                         P1480030
C*****                                                                 P1480040
C***********************************************************************P1480050
C*****              GENERAL PURPOSE                        ASA REF P1480060
C*****    TO TEST COMBINED OPERATIONS ON COMPLEX AND REAL NUMBERS   6.1 P1480070
C*****DIVISION OF TWO POLYNOMIALS                                      P1480080
C*****                                                                 P1480090
C*****  S P E C I F I C A T I O N S   SEGMENT 148                     P1480100
C*****                                                                 P0012890
C***** WHEN EXECUTING ONLY SEGMENT 148, THE SPECIFICATION STATEMENTS   P0012895
C***** WHICH APPEAR AS COMMENTS MUST HAVE THE  C=                      P0012900
C***** IN COLUMNS  1  AND  2  REMOVED.                                 P0012905
C*****                                                                 P0012910
C=     INTEGER AVI                                                     P0012915
C=     COMPLEX, AVC, BVC, CVC, DVC, RVC                               P0012920
       INTEGER AVI                                                     P148A1
       COMPLEX AVC,BVC,CVC,DVC,RVC                                     P148A2
C*****                                                                 P0012925
C*****  O U T O U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.    P1480110
C*****                                                                 P0072480
C***** WHEN EXECUTING ONLY SEGMENT 148, THE FOLLOWING STATEMENT       P0072485
C***** NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  AND  2  REMOVED.     P0072490
C*****                                                                 P0072495
C=     NUVI = 6                                                        P0072500
       NUVI = 6                                                        P148B1
C*****                                                                 P0072505
       WRITE (NUVI, 1481)                                              P1480120
 1481 FORMAT(1H1,1X,36HCREOP - (148) OPERATIONS ON REAL AND/16X,15HCOMPLP1480130
     1EX NUMBERS//  2X,12HASA REF. 6.1//2X, 7HRESULTS//)              P1480140
       AVC=(1.0,1.0)                                                   P1480150
       AVS=1.0                                                         P1480160
       BVS = 2.0                                                       P1480170
       BVC=(1.0,-1.0)                                                  P1480180
       RVC = (BVS + AVC *(1.+AVC * (-1.+(1.0,1.0)*(-1. +AVC))))/       P1480190
     1 (4.0+BVC*(2.0+BVC*(-AVS+BVC*(0.5+BVC))))                       P1480200
       WRITE (NUVI,1483) RVC                                           P1480210
 1483  FORMAT(            2X,2F8.4//37H  TEST IS POSITIVE IF NUMBERS PRIP1480220
     3NTED/2X,18HABOVE ARE 2.0,-1.0//)                                P1480230
C*****COMPLEX ARITHMETIC EXPRESSION                                   P1480240
       AVC=(1.60,3.2)                                                  P1480250
       AVS=0.625                                                       P1480260
       BVS=2.0                                                         P1480270
       BVC=(1.0,-1.0)                                                  P1480280
       CVS=2.5                                                         P1480290
       CVC=(2.5,2.5)                                                   P1480300
       DVC = (1.09866,0.45508)                                         P1480310
       AVI = 2                                                         P1480320
       RVC=(AVC*AVS+(1.6,3.2)*AVS-AVC*0.625-(1.6,3.2)*0.625+BVS/BVC    P1480330
     1-BVS/(1.0,-1.0)+2.0/BVC+2.0/(1.0,-1.0)+CVC/CVS-(2.5,2.5)/CVS+    P1480340
     2CVC/2.5+(2.5,2.5)/2.5+DVC**AVI-(1.09866,0.45508)**2+DVC**2+      P1480350
     3(1.09866,0.45508)**AVI)**2/(0.0,72.0)                           P1480360
       WRITE (NUVI,1482) RVC                                           P1480370
 1482 FORMAT(2X,2F8.4//   37H  TEST IS POSITIVE IF NUMBERS PRINTED/2X,  P1480380
     1 17HABOVE ARE 1.0,0.0)                                          P1480390
       WRITE (NUVI, 1484)                                              P1480400
 1484 FORMAT(// 39H  ERROR SHOULD NOT EXCEED + OR - .0001 )            P1480410
C*****    END OF TEST SEGMENT 148                                      P1480420
C***** WHEN EXECUTING ONLY SEGMENT 148, THE STOP AND END CARDS         P1480430
C***** WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=                P1480440
```

```
C*****   IN COLUMNS  1  AND  2  REMOVED.                                      P1480450
C=     STOP                                                                   P1480460
C=     END                                                                    P1480470
       STOP                                                                   P148C1
       END                                                                    P148C2
C*************************************************************************P1490010
C*****                                                                        P1490020
C*****                          MISC3 - (149)                                 P1490030
C*****                                                                        P1490040
C*************************************************************************P1490050
C*****                    GENERAL PURPOSE                        ASA REF P1490060
C*****    TO TEST EFFECT OF BLANKS WITHIN STATEMENT,              3.1.4.1 P1490070
C*****    CONTINUATION OF STATEMENT TO MAX.NO.OF LINES,         3.2.4,3.3P1490080
C*****    AND USE OF SPECIAL CHARACTERS TO INDICATE CONTINUATION  3.2.4 P1490090
C*****    LINE -                                                              P1490100
C*****    FOR BASIC INTEGERS AND REAL NUMBERS                                 P1490110
C*****                                                                        P1490120
C*****  S P E C I F I C A T I O N S   SEGMENT 149                             P1490130
C*****                                                                        P0012930
C*****   WHEN EXECUTING ONLY SEGMENT 149, THE SPECIFICATION STATEMENTS        P0012935
C*****   WHICH APPEAR AS COMMENTS MUST HAVE THE   C=                          P0012940
C*****   IN COLUMNS  1  AND  2  REMOVED.                                      P0012945
C*****                                                                        P0012950
C=     DIMENSION A1S(5),A2S(2,2)                                              P0012955
C=     INTEGER I1I(5),I2I(2,2)                                                P0012960
       DIMENSION A1S(5),A2S(2,2)                                             P149A1
       INTEGER I1I(5),I2I(2,2)                                              P149A2
C*****                                                                        P0012965
C*****  O U T O U T  T A P E  ASSIGNMENT STATEMENT.   NO INPUT TAPE.          P1490140
C*****                                                                        P0072510
C*****   WHEN EXECUTING ONLY SEGMENT 149, THE FOLLOWING STATEMENT             P0072515
C*****   NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  AND  2  REMOVED.          P0072520
C*****                                                                        P0072525
C=     NUVI = 6                                                               P0072530
       NUVI = 6                                                             P149B1
C*****                                                                        P0072535
       WRITE (NUVI,1490)                                                      P1490150
1490   FORMAT(1H1,1X,37HMISC3 - (149) EFFECT OF BLANKS WITHIN/16X,            P1490160
      122HSTMNT AND CONTINUATION/16X,20HOF STMNT TO 20 LINES//               P1490170
      239H  ASA REFS. - 3.1.4.1  3.2.4.3.3  3.2.4//2X,7HRESULTS  )           P1490180
      J A C V I          =          1                                         P1490190
      I                                                                      P1490200
      =1                                                                     P1490210
      +I                                                                     P1490220
      -(                                                                     P1490230
      *2                                                                     P1490240
      /)                      =2                                             P1490250
      I    2I(   2 ,  1)     =   3                                            P1490260
      A    CV    S    =   -   1  .0  E    0                                   P1490270
      A   1  S  (   2)     =     -2   00 . E  - 2                            P1490280
      A   2  S  ( 2 , 1 )    =   - .0 3   E + 2                              P1490290
      K    B                                                                  P1490300
      *       CVI                                                            P1490310
      (           =                                                          P1490320
      )            J    A                                                     P1490330
      $               C         V                                            P1490340
      .                     I                                                P1490350
      ,                        +         I                                   P1490360
      /                                  1    I                              P1490370
      =                                     (   2                           P1490380
      1                                        )                            P1490390
      2                                                                     +P1490400
      3I                                                                     P1490410
      4          2                                                          P1490420
      5              I                                                      P1490430
      6              (                                                      P1490440
      7                        2                                            P1490450
      8                                                                     P1490460
```

```
                    9                                               1                        P1490470
                    A                                 )                                       P1490480
                    B                                                         -        6      P1490490
                     C                        M                                               P1490500
                    =             A                                                           P1490510
                    ,                        V           S                                    P1490520
                    (                                          =                              P1490530
                    $                                           A                             P1490540
                    *                                                   C                     P1490550
                    .                                                         V              P1490560
                    )                                                                         SP1490570
                    /+                                                                        P1490580
                    1      A                  1                                               P1490590
                    2                            S                                            P1490600
                    3                                                                        (P1490610
                    42)                                                                      +P1490620
                    5             A                                                           P1490630
                    6                    2                                                    P1490640
                    7                            S           (                                P1490650
                    8                    2                                          1         P1490660
                    9)                                                                        P1490670
                    A                        +                                                P1490680
                    B                            6            .              0                P1490690
                    W      RI  T  E      (NU VI  , 1 49 1 ) KB CVI  , CMA  VS                  P1490700
      1 491 F O RM A T (//I10//F11.1// 2 X, 35HTEST IS POSITIVE IF NUMBERS PRIP1490710
                    1NTED/  2    X,     1    1HABOVE ARE 0)                                    P1490720
      C*****      END OF TEST SEGMENT 149                                                     P1490730
      C*****   WHEN EXECUTING ONLY SEGMENT 149, THE STOP AND END CARDS                        P1490740
      C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=                               P1490750
      C*****   IN COLUMNS  1  AND  2  REMOVED.                                                P1490760
      C=     STOP                                                                             P1490770
      C=     END                                                                             P1490780
             STOP                                                                             P149C1
             END                                                                             P149C2
      C**********************************************************************P1500010
      C*****                                                                                  P1500020
      C*****                       MISC4 - (150)                                              P1500030
      C*****                                                                                  P1500040
      C**********************************************************************P1500050
      C*****               GENERAL PURPOSE                            ASA REF P1500060
      C*****    TO TEST EFFECT OF BLANKS WITHIN STATEMENT,            3.1.4.1 P1500070
      C*****    CONTINUATION OF STATEMENT TO 20 LINES,             3.2.4.3.3P1500080
      C*****    AND USE OF SPECIAL CHARACTERS TO INDICATE CONTINUATION  3.2.4 P1500090
      C*****   CONTINUATION LINE CAN CONTAIN FORTRAN CHARACTERS               P1500100
      C*****   (OTHER THAN C IN COLUMN 1) IN COLUMNS 1 THRU 5 (CLARIFICATION 3)P1500110
      C*****                                                                                  P1500120
      C*****   S P E C I F I C A T I O N S    SEGMENT 150                                     P1500130
      C*****                                                                                  P0012970
      C*****   WHEN EXECUTING ONLY SEGMENT 150, THE SPECIFICATION STATEMENTS   P0012975
      C*****   WHICH APPEAR AS COMMENTS MUST HAVE THE   C=                     P0012980
      C*****   IN COLUMNS  1  AND  2  REMOVED.                                 P0012985
      C*****                                                                   P0012990
      C=     INTEGER AVI                                                       P0012995
      C=     COMPLEX AVC,BVC,CVC,DVC,RVC                                       P0013000
             INTEGER AVI                                                       P150A1
             COMPLEX AVC,BVC,CVC,DVC,RVC                                       P150A2
      C*****                                                                   P0013005
      C*****   O U T O U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     P1500140
      C*****                                                                   P0072540
      C*****   WHEN EXECUTING ONLY SEGMENT 150, THE FOLLOWING STATEMENT        P0072545
      C*****   NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  AND  2  REMOVED.     P0072550
      C*****                                                                   P0072555
      C=     NUVI = 6                                                          P0072560
             NUVI = 6                                                          P150B1
      C*****                                                                   P0072565
             WRITE (NUVI, 1500)                                                P1500150
      1 500 F  O  RM A  T( 1  H1 ,   1   X        13   HMISC4 - (150)          P1500160
             X,1X,  2 3  HEFFECT OF BLANKS WITHIN      /   16X,    22HSTMNT AND CONP1500170
```

```
         YTINUATION/ 16X,  20HOF STMNT TO 20 LINES//                          P1500180
         I39H  ASA REFS. - 3.1.4.1  3.2.4.3.3  3.2.4//2X,7HRESULTS//)         P1500190
         AVC = (1   .0  ,  1    .0)                                           P1500200
         AVS = 1.      0                                                      P1500210
         B V S      =                 2 .                      0              P1500220
         BVC=   (1 .0  ,- 1 .0)                                               P1500230
         RVC = (B VS +A  V    C*(  1 . +A VC *(   - 1.+    (1    .0,   1       P1500240
       T.  0   )   *(      -    1  .0+   A V    C)  ))  )   /(                 P1500250
       U4  .0  +      BV    C   *    (2   .  0   +     BVC       *             P1500260
       V(   -   A  V    S  + B V C  *(   0 . 5   +  B                         P1500270
       WV   C )  )   )   )                                                    P1500280
         RVC        =            RV    C      +(-2.0,     +1    .0)            P1500290
         W   RI   T E    (N  UV  I ,  15  02  )    R   VC                     P1500300
1502   FORMAT( 2X, 2F8.4)                                                     P1500310
C*****COMPLEX ARITHMETIC EXPRESSION                                           P1500320
C*****   STATEMENT LABEL NOT REFERENCED                                  3.4  P1500330
1503  A                                                                       P1500340
VC=1.+V                                                                       P1500350
      -C                                                                      P1500360
      *     =                                                                 P1500370
      /     (                                                                 P1500380
      (1                                                                      P1500390
      ).                                                                      P1500400
      .6                                                                      P1500410
      .0                                                                      P1500420
      I,                                                                      P1500430
      J3                                                                      P1500440
      K.                                                                      P1500450
      L2                                                                      P1500460
      M                           )                                          P1500470
C*****   CONTINUE STATEMENT WITH NO LABEL                                3.4  P1500480
      CONTINUE                                                               P1500490
      AVS = 0.625                                                            P1500500
      BVS = 2.0                                                              P1500510
      BVC = (1.0,-1.0)                                                       P1500520
      CVS = 2.5                                                              P1500530
      CVC = (2.5,2.5)                                                        P1500540
      DVC = (1.0986841, 0.4550899)                                          P1500550
      AVI = 2                                                                P1500560
      RVC                       =                                           P1500570
      B(AVC*AVS                                                             P1500580
      C+(1.6,3.2)                                                           P1500590
      D*AVS-AVC                                                             P1500600
      E*0.625                                                               P1500610
      F-(1.6,3.2)                                                           P1500620
      G*0.625                                                               P1500630
      H+BVS/BVC                                                             P1500640
      I-BVS/(1.0,-1.0)                                                      P1500650
      J+2.0/BVC+2.0/                                                        P1500660
      K(1.0,-1.0)+CVC/CVS                                                   P1500670
      L-(2.5,2.5)/CVS+CVC/2.5                                               P1500680
      M+(2.5,2.5)/2.5+DVC**AVI                                              P1500690
      N-(1.0986841,0.4550899)**2                                           P1500700
      O+DVC**2                                                              P1500710
      P+                                                                    P1500720
      Q(1.0986841,0.4550899)                                               P1500730
      R**AVI)                                                               P1500740
      S**2/(0.0,72.0)                                                       P1500750
      T     -(1.0,0.0)                                                      P1500760
      W   I   T E  ( N U V I ,   1 5 01) R V C                              P1500770
15 01 FORM  AT(/            /2   X , 2   F   8   .      4                    P1500780
1501 Z/ / 3     7H  TEST IS POSITIVE IF NUMBERS PRINTED/    2X               P1500790
      =,   1  7      HABOVE ARE 0.0,0.0       )                             P1500800
C*****    END OF TEST SEGMENT 150                                            P1500810
C*****  WHEN EXECUTING ONLY SEGMENT 150, THE STOP AND END CARDS              P1500820
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=                     P1500830
C*****  IN COLUMNS  1  AND  2  REMOVED.                                      P1500840
C=    STOP                                                                   P1500850
```

```
C=      END                                                                    P1500860
        STOP                                                                   P150C1
        END                                                                    P150C2
C*************************************************************************P1600010
C*****                                                                         P1600020
C*****                        BRFCP - (160)                                    P1600030
C*****                                                                         P1600040
C*************************************************************************P1600050
C*****   GENERAL PURPOSE                                           ASA REFP1600060
C*****      1.TO TEST REAL FUNCTIONS                                8.3.1P1600070
C*****      2.DUMMY ARGUMENTS ARE REAL OR INTEGER VARIABLES,OR                 P1600080
C*****        ARRAY NAMES                                                      P1600090
C*****      3.FUNCTIONS CONTAIN UP TO 20 ARGUMENTS                             P1600100
C*****      4.IN REFERENCE, ACTUAL ARGUMENTS ARE VARIABLE NAME,                P1600110
C*****        ARRAY NAME, ARRAY ELEMENT NAME, OR AN ARITHMETIC                 P1600120
C*****        EXPRESSION                                            8.3.2P1600130
C*****   RESTRICTIONS OBSERVED                                                 P1600140
C*****      1.ITEMS(2),(3),(4),(5),(6) OF PARAGRAPH 8.3.1                      P1600150
C*****      2.LAST SENTENCE OF PARAGRAPH 3.2                                   P1600160
C*****      THIS SEGMENT IS TO BE RUN WITH SEGMENTS                            P1600170
C*****        400, 420, 430, 440, 450, 460                         WHICH      P1600180
C*****        CONTAINS ALL FUNCTIONS BEING TESTED HERE.                        P1600190
C*****                                                                         P1600200
C*****   S P E C I F I C A T I O N S  SEGMENT 160                              P1600210
C*****                                                                         P0013010
C*****   WHEN EXECUTING ONLY SEGMENT 160, THE SPECIFICATION STATEMENTS         P0013015
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                        P0013020
C*****   IN COLUMNS  1  AND  2  REMOVED.                                       P0013025
C*****                                                                         P0013030
C=      DIMENSION A1S(5),A2S(2,2)                                              P0013035
        DIMENSION A1S(5),A2S(2,2)                                             P160A1
C*****                                                                         P0013040
C*****   O U T P U T   T A P E  ASSIGNMENT STATEMENT.   NO INPUT TAPE.         P1600220
C*****   WHEN EXECUTING ONLY SEGMENT 160, THE FOLLOWING STATEMENT              P0072570
C*****   NUVI = 6   MUST HAVE THE C=  IN COLUMNS 1 AND 2 REMOVED.              P0072575
C*****                                                                         P0072580
C=      NUVI = 6                                                               P0072585
        NUVI = 6                                                              P160B1
        WRITE(NUVI,1604)                                                       P1600230
1604    FORMAT(1H1,1X,37HBRFCP - (160) REAL EXTERNAL FUNCTIONS/                P1600240
     1  /2X,16HASA REF. - 8.3.1//28H  RESULTS SHOULD BE POSITIVE)             P1600250
        IAVI=2                                                                 P1600260
        A1S(1)=1.0                                                            P1600270
        A1S(2)=1.0                                                            P1600280
        A2S(2,2)=1.0                                                          P1600290
        A2S(2,1)=1.0                                                          P1600300
        AVS=1.0                                                               P1600310
        BVS=2.0                                                               P1600320
        CVS=1.0                                                               P1600330
        DVS=1.0                                                               P1600340
        EVS=1.0                                                               P1600350
        IVI=AFS(2.0)-8.0                                                       P1600360
        MAVI=1                                                                 P1600370
        IF(IVI)1600,1601,1600                                                 P1600380
1605    IVI=BFS(2.0,BVS)-4.0                                                   P1600390
        MAVI=2                                                                 P1600400
        IF(IVI)1600,1601,1600                                                 P1600410
1606    IVI   CFS(2) -16.0                                                     P1600420
        MAV                                                                    P1600430
        IF  V. 1600,1601,1600                                                  P1600440
1607       .=DFS(2,IAVI)-1.0                                                   P1600450
        ,AVI=4                                                                 P1600460
        IF(IVI)1600,1601,1600                                                 P1600470
160     IVI=EFS(A1S)-2.0                                                       P1600480
        MAVI=5                                                                 P1600490
        IF(IVI)1600,1601,1600                                                 P1600500
1609    IVI=FFS(IAVI,AVS,+2,-1.0,A1S,IAVI,CVS,A1S,1.0,IAVI,A1S,A1S,BVS,DVSP1600510
     1  ,A1S(1),A2S,A2S,A2S,EVS+1.0,IAVI-1) + 1.0                             P1600520
```

```
      MAVI=6                                                          P1600530
      IF(IVI) 1600,1601,1600                                          P1600540
 1600 WRITE (NUVI,1602)MAVI                                           P1600550
      GO TO 7001                                                      P1600560
 1601 WRITE (NUVI,1603)MAVI                                           P1600570
1602  FORMAT (//2X,5HTEST ,I1,12H IS NEGATIVE)                       P1600580
1603  FORMAT (//2X,5HTEST ,I1,12H IS POSITIVE)                       P1600590
 7001 GO TO (1605,1606,1607,1608,1609,7000  ),MAVI                   P1600600
 7000 CONTINUE                                                        P1600610
C*****      END OF TEST SEGMENT 160                                   P1600620
C*****   WHEN EXECUTING ONLY SEGMENT 160, THE STOP  AND  END CARDS   P1600630
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=   IN         P1600640
C*****   COLUMNS  1  AND  2  REMOVED.                                 P1600650
C=    STOP                                                            P1600660
C=    END                                                             P1600670
      STOP                                                            P160C1
      END                                                             P160C2
C****************************************************************P4000010
C*****                                                                P4000020
C*****                        AFS - (400)                             P4000030
C*****                                                                P4000040
C****************************************************************P4000050
C*****REAL FUNCTION OF REAL ARGUMENT (TEST 1)                         P4000060
      FUNCTION  AFS(AWVS)                                             P4000070
      AFS=4.0*AWVS                                                    P4000080
      RETURN                                                          P4000090
      END                                                             P4000100
C****************************************************************P4200010
C*****                                                                P4200020
C*****                        BFS - (420)                             P4200030
C*****                                                                P4200040
C****************************************************************P4200050
C*****REAL FUNCTION OF REAL ARGUMENTS (TEST 2)                        P4200060
      FUNCTION BFS(AWVS,BWVS)                                         P4200070
      BFS=AWVS+BWVS                                                   P4200080
      RETURN                                                          P4200090
      END                                                             P4200100
C****************************************************************P4300010
C*****                                                                P4300020
C*****                        CFS - (430)                             P4300030
C*****                                                                P4300040
C****************************************************************P4300050
C*****REAL FUNCTION OF INTEGER ARGUMENT  (TEST 3)                     P4300060
      FUNCTION  CFS(IWVI)                                             P4300070
      CFS=4.0**IWVI                                                   P4300080
      RETURN                                                          P4300090
      END                                                             P4300100
C****************************************************************P4400010
C*****                                                                P4400020
C*****                        DFS - (440)                             P4400030
C*****                                                                P4400040
C****************************************************************P4400050
C*****REAL FUNCTION OF INTEGER ARGUMENTS (TEST 4)                     P4400060
      FUNCTION DFS(IWVI,JWVI)                                         P4400070
      KVI  = IWVI - JWVI                                              P4400080
      DFS=4.6**KVI                                                    P4400090
      RETURN                                                          P4400100
      END                                                             P4400110
C****************************************************************P4500010
C*****                                                                P4500020
C*****                        EFS - (450)                             P4500030
C*****                                                                P4500040
C****************************************************************P4500050
C*****REAL FUNCTION OF ARRAY NAME(TEST 5)                             P4500060
      FUNCTION EFS(AW1S)                                             P4500070
      DIMENSION AW1S(2)                                              P4500080
      EFS=AW1S(1)+AW1S(2)                                            P4500090
      RETURN                                                          P4500100
```

```
      END                                                               P4500110
C***************************************************************************P4600010
C*****                                                                  P4600020
C*****                         FFS - (460)                              P4600030
C*****                                                                  P4600040
C***************************************************************************P4600050
C*****REAL FUNCTION OF DIFFERENT TYPES OF ARGUMENTS(TEST 6)             P4600060
      FUNCTION FFS(IWVI,AWVS,JWVI,BWVS,AW1S,KWVI,CWVS,BW1S,DWVS,LWVI,   P4600070
     1CW1S,DW1S,EWVS,FWVS,GWVS,BW2S,CW2S,DW2S,HWVS,MWVI)                P4600080
      DIMENSION  AW1S(2),BW1S(2),CW1S(2),DW1S(2),BW2S(2,2),CW2S(2,2),   P4600090
     1DW2S(2,2)                                                         P4600100
      FFS=AWVS**IWVI-BWVS**JWVI+AW1S(1)-CWVS**KWVI+BW1S(2)-DWVS+CW1S(1) P4600110
     1**LWVI+DW1S(1)-EWVS+FWVS-GWVS+BW2S(2,1)-CW2S(2,2)+DW2S(2,2)-HWVS**P4600120
     2MWVI                                                              P4600130
      RETURN                                                            P4600140
      END                                                               P4600150
C***************************************************************************P1610010
C*****                                                                  P1610020
C*****                        BIFCP - (161)                             P1610030
C*****                                                                  P1610040
C***************************************************************************P1610050
C*****   GENERAL PURPOSE                                        ASA REFP1610060
C*****      1-TO TEST INTEGER FUNCTIONS                           8.3.1P1610070
C*****      2-DUMMY ARGUMENTS ARE REAL OR INTEGER VARIABLES OR         P1610080
C*****        ARRAY NAMES                                         8.3.1P1610090
C*****      3-FUNCTIONS CONTAIN UP TO 20 ARGUMENTS                     P1610100
C*****      4-IN REFERENCE,ACTUAL ARGUMENTS ARE VARIABLE NAME,         P1610110
C*****        ARRAY NAME,ARRAY ELEMENT NAME,OR AN ARITHMETIC           P1610120
C*****        EXPRESSION                                          8.3.2P1610130
C*****RESTRICTIONS OBSERVED                                            P1610140
C*****      1-ITEMS (2),(3),(4),(5),(6) OF PARAGRAPH  8.3.1            P1610150
C*****      2-LAST SENTENCE OF PARAGRAPH 3.2                           P1610160
C*****        THIS SEGMENT IS TO BE RUN WITH SEGMENTS                  P1610170
C*****        401, 421, 431, 441, 451, 461  WHICH                     P1610180
C*****        CONTAINS ALL FUNCTIONS BEING TESTED HERE.                P1610190
C*****                                                                 P1610200
C*****   S P E C I F I C A T I O N S   SEGMENT 161                     P1610210
C*****                                                                 P0013050
C*****   WHEN EXECUTING ONLY SEGMENT 161, THE SPECIFICATION STATEMENTS P0013055
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                P0013060
C*****   IN COLUMNS 1  AND  2  REMOVED.                                P0013065
C*****                                                                 P0013070
C=    DIMENSION A1S(5)                                                 P0013075
C=    INTEGER I1I(5)                                                   P0013080
      DIMENSION A1S(5)                                                 P161A1
      INTEGER I1I(5)                                                   P161A2
C*****                                                                 P0013085
C*****   O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.  P1610220
C*****                                                                 P0072590
C*****   WHEN EXECUTING ONLY SEGMENT 161, THE STATEMENT  NUVI = 6      P0072595
C*****   MUST HAVE THE C= IN COLUMNS  1  AND 2  REMOVED.               P0072600
C*****                                                                 P0072605
C=    NUVI = 6                                                         P0072610
      NUVI = 6                                                         P161B1
C*****                                                                 P0072615
      WRITE(NUVI,1614)                                                 P1610230
 1614 FORMAT(1H1,1X,40HBIFCP - (161) INTEGER EXTERNAL FUNCTIONS/       P1610240
     1 16X,26HWITH INTEGER AND REAL ARGS//2X,16HASA REF. - 8.3.1//     P1610250
     228H  RESULTS SHOULD BE POSITIVE)                                 P1610260
      IAVI=2                                                           P1610270
      A1S(1)=1.0                                                       P1610280
      A1S(2)=1.0                                                       P1610290
      I1I(1)=1                                                         P1610300
      I1I(2)=1                                                         P1610310
      AVS=1.0                                                          P1610320
      BVS=2.0                                                          P1610330
      CVS=1.0                                                          P1610340
      DVS=1.0                                                          P1610350
```

```
        EVS=1.0                                                       P1610360
        IVI=IAFI(2.0) - 8                                             P1610370
        MAVI=1                                                        P1610380
        IF (IVI) 1610,1611,1610                                       P1610390
 1615   IVI=IBFI(2.0,BVS)-4                                           P1610400
        MAVI=2                                                        P1610410
        IF (IVI) 1610,1611,1610                                       P1610420
 1616   IVI = ICFI(2) - 16                                            P1610430
        MAVI=3                                                        P1610440
        IF (IVI) 1610,1611,1610                                       P1610450
 1617   IVI=IDFI(2,IAVI)-1                                            P1610460
        MAVI=4                                                        P1610470
        IF (IVI) 1610,1611,1610                                       P1610480
1618    IVI=IEFI(I1I)-2                                               P1610490
        MAVI=5                                                        P1610500
        IF (IVI) 1610,1611,1610                                       P1610510
 1619   IVI=IFFI(IAVI,AVS,2,-1.0,A1S,IAVI,CVS,A1S,1.0,IAVI,A1S,A1S,BVS, P1610520
       1DVS,A1S(1),A1S,A1S,A1S,EVS+1.0,IAVI-1) + 1                    P1610530
        MAVI=6                                                        P1610540
        IF(IVI) 1610,1611,1610                                        P1610550
 1610   WRITE(NUVI,1612)MAVI                                          P1610560
        GO TO 7002                                                    P1610570
 1611   WRITE(NUVI,1613)MAVI                                          P1610580
1612    FORMAT (//2X,5HTEST ,I1,12H IS NEGATIVE)                      P1610590
1613    FORMAT (//2X,5HTEST ,I1,12H IS POSITIVE)                      P1610600
 7002   GO TO (1615,1616,1617,1618,1619,7003),MAVI                    P1610610
 7003   CONTINUE                                                      P1610620
C*****       END OF TEST SEGMENT 161                                  P1610630
C*****   WHEN EXECUTING ONLY SEGMENT 161, THE   STOP   AND   END   CARDS P1610640
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=             P1610650
C*****   IN COLUMNS  1   AND  2   REMOVED.                            P1610660
C=      STOP                                                          P1610670
C=      END                                                           P1610680
        STOP                                                          P161C1
        END                                                           P161C2
C*****************************************************************************P4010010
C*****                                                               P4010020
C*****                          IAFI - (401)                         P4010030
C*****                                                               P4010040
C*****************************************************************************P4010050
C*****INTEGER FUNCTION OF REAL ARGUMENT (TEST 1)                     P4010060
        FUNCTION IAFI(AWVS)                                          P4010070
        IAFI=4.0*AWVS                                                P4010080
        RETURN                                                       P4010090
        END                                                          P4010100
C*****************************************************************************P4210010
C*****                                                               P4210020
C*****                          IBFI - (421)                         P4210030
C*****                                                               P4210040
C*****************************************************************************P4210050
C*****INTEGER FUNCTION OF TWO REAL ARGUMENTS (TEST 2)                P4210060
        FUNCTION IBFI(AWVS,BWVS)                                     P4210070
        IBFI=AWVS+BWVS                                               P4210080
        RETURN                                                       P4210090
        END                                                          P4210100
C*****************************************************************************P4310010
C*****                                                               P4310020
C*****                          ICFI - (431)                         P4310030
C*****                                                               P4310040
C*****************************************************************************P4310050
C*****INTEGER FUNCTION OF INTEGER ARGUMENT(TEST 3)                   P4310060
        FUNCTION ICFI(IWVI)                                          P4310070
        ICFI=4.0**IWVI                                               P4310080
        RETURN                                                       P4310090
        END                                                          P4310100
C*****************************************************************************P4410010
C*****                                                               P4410020
C*****                          IDFI - (441)                         P4410030
```

```
C*****                                                                        P4410040
C********************************************************************************P4410050
C*****INTEGER FUNCTION OF INTEGER ARGUMENTS (TEST 4)                          P4410060
      INTEGER FUNCTION IDFI (IWVI, JWVI)                                      P4410070
      REAL KUVS                                                               P4410080
      IDFI = IWVI - JWVI                                                      P4410090
      IDFI = KUVS ** IDFI                                                     P4410100
      RETURN                                                                  P4410110
      DATA KUVS /4.6/                                                         P4410120
      E N D                                                                   P4410130
C********************************************************************************P4510010
C*****                                                                        P4510020
C*****                          IEFI - (451)                                  P4510030
C*****                                                                        P4510040
C********************************************************************************P4510050
C*****INTEGER FUNCTION OF ARRAY NAME (TEST 5)                                 P4510060
      FUNCTION IEFI(IAW1I)                                                    P4510070
      DIMENSION IAW1I(2)                                                      P4510080
      IEFI=IAW1I(1)+IAW1I(2)                                                  P4510090
      RETURN                                                                  P4510100
      END                                                                     P4510110
C********************************************************************************P4610010
C*****                                                                        P4610020
C*****                          IFFI - (461)                                  P4610030
C*****                                                                        P4610040
C********************************************************************************P4610050
C*****INTEGER FUNCTION OF DIFFERENT TYPES OF ARGUMENTS(TEST 6)                P4610060
      FUNCTION IFFI(IWVI,AWVS,JWVI,BWVS,AW1S,KWVI,CWVS,BW1S,DWVS,LWVI,        P4610070
     1CW1S,DW1S,EWVS,FWVS,GWVS,EW1S,GW1S,HW1S,HWVS,MWVI)                      P4610080
      DIMENSION AW1S(2),BW1S(2),CW1S(2),DW1S(2),EW1S(5), GW1S(5),            P4610090
     1 HW1S(5)                                                               P4610100
      IFFI=AWVS**IWVI-BWVS**JWVI+AW1S(1)-CWVS**KWVI+BW1S(2)-DWVS+CW1S(1)P4610110
     1**LWVI+DW1S(1)-EWVS+FWVS-GWVS+EW1S(1)   -GW1S(2)   +HW1S(2)   -HWVS**P4610120
     2MWVI                                                                    P4610130
      RETURN                                                                  P4610140
      END                                                                     P4610150
C********************************************************************************P1620010
C*****                                                                        P1620020
C*****                          FRFCP - (162)                                 P1620030
C*****                                                                        P1620040
C********************************************************************************P1620050
C*****                    GENERAL PURPOSE                        ASA REF P1620060
C*****   1.TO TEST REAL FUNCTIONS IN FULL FORTRAN                             P1620070
C*****   2.THIS SEGMENT COMPLETES SEGMENT (160) IN ORDER TO TEST             P1620080
C*****     FOR ALL FEATURES REQUIRED IN FULL FORTRAN               8.3.1P1620090
C*****   3.DUMMY ARGUMENTS CAN BE INTEGER(TESTED IN 160),REAL(TESTED IN P1620100
C*****     160),ARRAY NAME(TESTED IN 160),DOUBLE PRECISION,COMPLEX,          P1620110
C*****     LOGICAL OR EXTERNAL PROCEDURE                           8.3.1P1620120
C*****   4.DUMMY ARGUMENTS MAY BE REDEFINED IN SUBPROGRAM(ITEM 4)   8.3.1P1620130
C*****   5.IN REFERENCE, ACTUAL ARGUMENTS MAY BE AS IN (160) AND             P1620140
C*****     BESIDES EXTERNAL PROCEDURE. IN THIS CASE, EXTERNAL       8.3.2P1620150
C*****     PROCEDURE IS REFERENCED BY AN EXTERNAL STATEMENT                  P1620160
C*****   6.USE CAN BE MADE OF ADJUSTABLE DIMENSION                           P1620170
C*****RESTRICTIONS OBSERVED                                                  P1620180
C*****   1.ITEMS (1), (2), (3), (5) OF 8.3.1                                 P1620190
C*****   2.PARAGRAPH 8.3.2, LINE 18 TO END OF PARAGRAPH                      P1620200
C*****       THIS SEGMENT   USES   5 REAL FUNCTIONS                          P1620210
C*****       THIS SEGMENT IS TO BE RUN WITH SEGMENTS                         P1620220
C*****       402, 422, 432, 442, 452    WHICH                                P1620230
C*****     WHICH CONTAINS ALL FUNCTIONS BEING TESTED HERE                    P1620240
C*****                                                                       P1620250
C*****   S P E C I F I C A T I O N S   SEGMENT 162                           P1620260
C*****                                                                       P0013090
C*****   WHEN EXECUTING ONLY SEGMENT 162, THE SPECIFICATION STATEMENTS  P0013095
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                 P0013100
C*****   IN COLUMNS 1  AND  2  REMOVED.                                 P0013105
C*****                                                                       P0013110
C=    DIMENSION A1S(5),A2S(2,2),A3S(3,3,3)                                   P0013115
```

```
C=      INTEGER I1I(5),I2I(2,2),I3I(2,2,2)                              P0013120
C=      REAL JRFS,IRFS                                                  P0013125
C=      LOGICAL A1B(2),A2B(2,2),A3B(2,2,2),AVB,BVB                      P0013130
C=      DOUBLE PRECISION AVD,A1D(4),A2D(2,2),A3D(2,2,2)                 P0013135
C=      COMPLEX AVC,BVC,A1C(12),A2C(2,2),A3C(2,2,1)                     P0013140
C=      COMMON AXVS,CXVS                                                P0013145
C=      EXTERNAL GFS                                                    P0013150
        DIMENSION A1S(5),A2S(2,2),A3S(3,3,3)                            P162A1
        INTEGER I1I(5),I2I(2,2),I3I(2,2,2)                             P162A2
        REAL JRFS,IRFS                                                  P162A3
        LOGICAL A1B(2),A2B(2,2),A3B(2,2,2),AVB,BVB                      P162A4
        DOUBLE PRECISION AVD,A1D(4),A2D(2,2),A3D(2,2,2)               P162A5
        COMPLEX AVC,BVC,A1C(12),A2C(2,2),A3C(2,2,1)                     P162A6
        COMMON AXVS,CXVS                                                P162A7
        EXTERNAL GFS                                                    P162A8
C*****                                                                  P0013155
C*****  O U T P U T   T A P E   ASSIGNMENT STATEMENT.  NO INPUT TAPE.   P1620270
C*****                                                                  P0072620
C*****  WHEN EXECUTING ONLY SEGMENT 162, THE STATEMENT  NUVI = 6        P0072625
C*****  MUST HAVE THE C= IN COLUMNS  1  AND 2  REMOVED.                 P0072630
C*****                                                                  P0072635
C=      NUVI = 6                                                        P0072640
        NUVI = 6                                                        P162B1
C*****                                                                  P0072645
        WRITE (NUVI,1624)                                               P1620280
1624    FORMAT(1H1,1X,33HFRFCP - (162) REAL FUNCTIONS WITH/10X,31HLOGICAL,P1620290
     1  D.P., AND COMPLEX ARGS//16H  ASA REF. 8.3.1//                   P1620300
     2 28H  RESULTS SHOULD BE POSITIVE)                                 P1620310
C*****TEST 1                                                            P1620320
        AVD = 1.0D0                                                     P1620330
        MAVI = 1                                                        P1620340
        IVI = 1.0-GFS(AVD)                                              P1620350
        IF (IVI) 1620,1621,1620                                         P1620360
C*****TEST 2                                                            P1620370
1625    MAVI =2                                                         P1620380
        AVC = (1.0,-1.0)                                                P1620390
        BVC = (1.0,1.0)                                                 P1620400
        IVI = HFS(AVC,BVC)                                              P1620410
        IF (IVI) 1620,1621,1620                                         P1620420
C*****TEST 3                                                            P1620430
1626    MAVI=3                                                          P1620440
        AVB = .TRUE.                                                    P1620450
        IVI = IRFS(AVB)*2.0                                             P1620460
        AVB = .FALSE.                                                   P1620470
        JVI = IRFS(AVB)*4.0                                             P1620480
        LVI = IVI + JVI - 4                                             P1620490
        IF (LVI) 1620,1621,1620                                         P1620500
C*****TEST 4                                                            P1620510
1627    MAVI=4                                                          P1620520
        IVI = JRFS(AVD,GFS)                                             P1620530
        IF (IVI-1) 1620,1621,1620                                       P1620540
C*****TEST 5,6,7                                                        P1620550
1628    AXVS = 1.0                                                      P1620560
        AVS = 1.0                                                       P1620570
        A1S(1) = 1.0                                                    P1620580
        A2S(1,1) = 1.0                                                  P1620590
        A3S(1,1,1) = 1.0                                                P1620600
        AVB = .FALSE.                                                   P1620610
        A1B(1) = .FALSE.                                                P1620620
        A2B(1,1) = .FALSE.                                              P1620630
        A3B(1,1,1) = .FALSE.                                            P1620640
        IAVI = 1                                                        P1620650
        I1I(1) = 1                                                      P1620660
        I2I(1,1) =1                                                     P1620670
        I3I(1,1,1) =1                                                   P1620680
        A1C(1) = (1.0,1.0)                                              P1620690
        A2C(1,1) = (1.0,1.0)                                            P1620700
        A3C(1,1,1) = (-2.0,-2.0)                                        P1620710
```

```
          AVD = 1.0D0                                                      P1620720
          A1D(1) = 1.0D0                                                   P1620730
          A2D(1,1) = 1.0D0                                                 P1620740
          A3D(1,1,1) = 1.0D0                                               P1620750
          IVI= RFS(AVS,IAVI,AVB,AVC,AVD,A1S,A2S,A3S,J1I,I2I,I3I,A1B,A2B,A3B,P1620760
         1 A1C,A2C,A3C,A1D,A2D,A3D,GFS)                                    P1620770
          MAVI = 5                                                         P1620780
          IF (IVI) 1620,1621,1620                                         P1620790
     1629 MAVI = 6                                                         P1620800
          BVB = AVB.AND.A1B(1).AND.A2B(1,1).AND.A3B(1,1,1)               P1620810
          IF (BVB) GO TO 1621                                             P1620820
          GO TO 1620                                                      P1620830
     7010 IVI=REAL(AVC)                                                    P1620840
          JVI = AIMAG(AVC)                                                P1620850
          MAVI = 7                                                        P1620860
          BVB = IVI.EQ.0.AND.JVI.EQ.0                                     P1620870
          IF (BVB) GO TO 1621                                             P1620880
     1620 WRITE (NUVI,1622) MAVI                                          P1620890
          GO TO 7011                                                      P1620900
     1621 WRITE (NUVI,1623) MAVI                                          P1620910
     1622 FORMAT(//2X,5HTEST ,I1,13H IS NEGATIVE.)                        P1620920
     1623 FORMAT (//2X,5HTEST ,I1,13H IS POSITIVE.)                       P1620930
     7011 GO TO (1625,1626,1627,1628,1629,7010,7012),MAVI                 P1620940
     7012 CONTINUE                                                        P1620950
C*****        END OF TEST SEGMENT 162                                     P1620960
C*****    WHEN EXECUTING ONLY SEGMENT 162, THE   STOP   AND   END   CARDS P1620970
C*****    WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=               P1620980
C*****     IN COLUMNS 1   AND   2   REMOVED.                              P1620990
C=        STOP                                                           P1621000
C=        END                                                           P1621010
          STOP                                      ·                     P162C1
          END                                                           P162C2
C****************************************************************************P4020010
C*****                                                                   P4020020
C*****                          GFS - (402)                              P4020030
C*****                                                                   P4020040
C****************************************************************************P4020050
C***** REAL FUNCTION OF DOUBLE PRECISION ARGUMENT (TEST 1)               P4020060
          FUNCTION  GFS(AWVD)                                            P4020070
          DOUBLE PRECISION  AWVD                                         P4020080
          GFS = AWVD                                                     P4020090
          RETURN                                                        P4020100
          END                                                           P4020110
C****************************************************************************P4220010
C*****                                                                   P4220020
C*****                          HFS - (422)                              P4220030
C*****                                                                   P4220040
C****************************************************************************P4220050
C*****REAL FUNCTION OF COMPLEX ARGUMENT (TEST 2)                         P4220060
          FUNCTION HFS(AWVC,BWVC)                                        P4220070
          COMPLEX  AWVC,BWVC,CVC                                         P4220080
          CVC  = AWVC * BWVC                                             P4220090
          HFS = AIMAG(CVC)                                               P4220100
          RETURN                                                        P4220110
          END                                                           P4220120
C****************************************************************************P4320010
C*****                                                                   P4320020
C*****                          IRFS -  (432)                            P4320030
C*****                                                                   P4320040
C****************************************************************************P4320050
C*****REAL FUNCTION OF LOGICAL ARGUMENT (TEST 3)                         P4320060
          REAL FUNCTION IRFS(AWVB)                                       P4320070
          LOGICAL  AWVB                                                  P4320080
          IF (AWVB) GO TO 4321                                           P4320090
     4320 IF (.NOT. AWVB) GO TO 4322                                     P4320100
          RETURN                                                        P4320110
     4321 IRFS = 2.0                                                     P4320120
          GO TO 4320                                                    P4320130
```

```
4322  IRFS = 0.0                                                    P4320140
      RETURN                                                        P4320150
      ENO                                                           P4320160
C*****************************************************************P4420010
C*****                                                              P4420020
C*****                      JRFS - (442)                           P4420030
C*****                                                              P4420040
C*****************************************************************P4420050
C*****REAL FUNCTION OF EXTERNAL PROCEOURE (TEST 4)                 P4420060
      REAL FUNCTION JRFS( BWVO,BWFS)                               P4420070
      OOUBLE PRECISION BWVD                                        P4420080
      JRFS = BWFS(BWVO)                                            P4420090
      RETURN                                                       P4420100
      ENO                                                          P4420110
C*****************************************************************P4520010
C*****                                                              P4520020
C*****                      RFS - (452)                            P4520030
C*****                                                              P4520040
C*****************************************************************P4520050
C*****REAL FUNCTION OF DIFFERENT TYPES OF ARGUMENTS. USE IS MAOE OF P4520060
C*****ADJUSTABLE OIMENSION (TEST 5, 6, 7)                          P4520070
      FUNCTION RFS(AWVS,IWVI,AWVB,AWVC,AWVO,AW1S,AW2S,AW3S,IW1I,IW2I, P4520080
     1IW3I,AW1B,AW2B,AW3B,AW1C,AW2C,AW3C,AW10,AW20,AW30,AWFS)      P4520090
      LOGICAL AWVB,AW1B,AW2B,AW3B                                  P4520100
      COMPLEX AWVC,AW1C,AW2C,AW3C                                  P4520110
      OOUBLE PRECISION AWVO, AW10,AW2D,AW3D                        P4520120
      DIMENSION AW1S(IWVI),AW2S(IWVI,IWVI),AW3S(IWVI,IWVI,IWVI) ,  P4520130
     1          IW1I(IWVI),IW2I(IWVI,IWVI),IW3I(IWVI,IWVI,IWVI) ,  P4520140
     2          AW1B(IWVI),AW2B(IWVI,IWVI),AW3B(IWVI,IWVI,IWVI) ,  P4520150
     3          AW1C(IWVI),AW2C(IWVI,IWVI),AW3C(IWVI,IWVI,IWVI) ,  P4520160
     4          AW10(IWVI),AW2D(IWVI,IWVI),AW30(IWVI,IWVI,IWVI)    P4520170
      COMMON BXVS                                                  P4520180
      RFS =AWVS**IWVI+AW1S(IWVI)**IW1I(IWVI)-AW2S(IWVI,IWVI)**IW2I P4520190
     1 (IWVI,IWVI)+AW3S(IWVI,IWVI,IWVI)**IW3I(IWVI,IWVI,IWVI)-AWVO+ P4520200
     2 AW10(IWVI)-AW20(IWVI,IWVI)-AW30(IWVI,IWVI,IWVI)+AWFS(AWVO)-BXVS P4520210
      AWVB = IWVI.EQ.1                                             P4520220
      AW1B(IWVI) = IWVI .EQ. 1                                     P4520230
      AW2B(IWVI,IWVI) = IWVI .EQ. 1                               P4520240
      AW3B(IWVI,IWVI,IWVI) = IWVI.EQ.1                            P4520250
      AWVC = AW1C(IWVI) +AW2C(IWVI,IWVI)+AW3C(IWVI,IWVI,IWVI)     P4520260
      RETURN                                                       P4520270
C*****     END OF TEST SEGMENT 402                                 P4520280
      ENO                                                          P4520290
C*****************************************************************P1630010
C*****                                                              P1630020
C*****                     FIFCP - (163)                           P1630030
C*****                                                              P1630040
C*****************************************************************P1630050
C*****                GENERAL PURPOSE                   ASA REF P1630060
C*****  1.TO TEST INTEGER FUNCTIONS IN FULL FORTRAN               P1630070
C*****  2.THIS SEGMENT COMPLETES SEGMENT (161) IN OROER TO TEST   P1630080
C*****    FOR ALL FEATURES REQUIRED IN FULL FORTRAN.       8.3.1 P1630090
C*****  3.OUMMY ARGUMENTS CAN BE INTEGER(TESTEO IN 161),REAL(TESTED P1630100
C*****    IN 161),OOUBLE PRECISION,COMPLEX,LOGICAL,OR EXTERNAL PROCEOUREP1630110
C*****  4.OUMMY ARGUMENTS MAY BE REOIFINEO IN SUBPROGRAM(ITEM 4)  P1630120
C*****  5. IN REFERENCE,ACTUAL ARGUMENTS MAY BE AS IN (161) ANO BESIDES P1630130
C*****    EXTERNAL PROCEDURE.IN THIS CASE,EXTERNAL PROCEDURE IS   P1630140
C*****    REFERENCEO BY AN EXTERNAL STATEMENT.                    P1630150
C*****  6. USE CAN BE MAOE OF AOJUSTABLE OIMENSION.               P1630160
C*****RESTRICTIONS OBSERVEO                                       P1630170
C*****    1.ITEMS (1),(2),(3),(5), OF 8.3.1                       P1630180
C*****  2 PARAGRAPH 8.3.2,LINE 18 TO ENO OF PARAGRAPH             P1630190
C*****    THIS SEGMENT    USES    5 INTEGER FUNCTIONS             P1630200
C*****    THIS SEGMENT IS TO BE RUN WITH SEGMENTS                 P1630210
C*****    403, 423, 433, 443, 453                       WHICH    P1630220
C*****    WHICH CONTAINS ALL FUNCTIONS BEING TESTED HERE          P1630230
C*****                                                            P1630240
C*****  S P E C I F I C A T I O N S  SEGMENT 163                  P1630250
```

```
C*****                                                              P0013160
C*****   WHEN EXECUTING DNLY SEGMENT 163, THE SPECIFICATION STATEMENTS   P0013165
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=              P0013170
C*****   IN COLUMNS 1  AND  2  REMDVED.                             P0013175
C*****                                                              P0013180
C=      EXTERNAL IFI                                                P0013185
C=      DIMENSIDN A1S(5),A2S(2,2),A3S(3,3,3)                        P0013190
C=      INTEGER I1I(5),I2I(2,2),I3I(2,2,2)                          P0013195
C=      LOGICAL AVB,BVB,A1B(2),A2B(2,2),A3B(2,2,2)                  P0013200
C=      DDUBLE PRECISIDN AVD,A1D(4),A2D(2,2),A3D(2,2,2)             P0013205
C=      COMPLEX AVC,BVC,A1C(12),A2C(2,2),A3C(2,2,1)                 P0013210
C=      CDMMDN AXVS,CXVS                                            P0013215
        EXTERNAL IFI                                                P163A1
        DIMENSIDN A1S(5),A2S(2,2),A3S(3,3,3)                        P163A2
        INTEGER I1I(5),I2I(2,2),I3I(2,2,2)                          P163A3
        LDGICAL AVB,BVB,A1B(2),A2B(2,2),A3B(2,2,2)                  P163A4
        DOUBLE PRECISIDN AVD,A1D(4),A2D(2,2),A3D(2,2,2)             P163A5
        CDMPLEX AVC,BVC,A1C(12),A2C(2,2),A3C(2,2,1)                 P163A6
        COMMDN AXVS,CXVS                                            P163A7
C*****                                                              P0013220
C*****   O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.    P1630260
C*****                                                              P0072650
C*****   WHEN EXECUTING DNLY SEGMENT 163, THE STATEMENT  NUVI = 6   P0072655
C*****   MUST HAVE THE C= IN CDLUMNS  1  AND 2  REMDVED.            P0072660
C*****                                                              P0072665
C=      NUVI = 6                                                    P0072670
        NUVI = 6                                                    P163B1
C*****                                                              P0072675
        WRITE(NUVI,1634)                                            P1630270
 1634 FORMAT (1H1,1X,33HFIFCP - (163) INTEGER FUNCTION IN/ 16X,     P1630280
     1 12HFULL FORTRAN//2X,                                         P1630290
     214HASA REF. 8.3.1//28H  RESULTS SHDULD BE POSITIVE)           P1630300
C***** TEST 1                                                       P1630310
        AVD=1.0D0                                                   P1630320
        MAVI=1                                                      P1630330
        IVI=1-IFI(AVD)                                              P1630340
        IF (IVI) 1630,1631,1630                                     P1630350
C***** TEST 2                                                       P1630360
 1635 MAVI=2                                                        P1630370
        AVC=(1.0, 1.0)                                              P1630380
        BVC=(1.0,-1.0)                                              P1630390
        IVI=JFI(AVC,BVC)                                            P1630400
        IF (IVI) 1630,1631,1630                                     P1630410
C*****TEST 3                                                        P1630420
 1636 MAVI=3                                                        P1630430
        AVB=.TRUE.                                                  P1630440
        IVI=KFI(AVB)*2                                              P1630450
        AVB=.FALSE.                                                 P1630460
        JVI=IVI+KFI(AVB)-4                                          P1630470
        IF (JVI) 1630,1631,1630                                     P1630480
C***** TEST 4                                                       P1630490
 1637 MAVI=4                                                        P1630500
        IVI=LFI(AVD,IFI)-1                                          P1630510
        IF (IVI) 1630,1631,1630                                     P1630520
C***** TESTS 5,6,7                                                  P1630530
 1638 AXVS=1.0                                                      P1630540
        AVS = 1.                                                    P1630550
        A1S(1)=1.0                                                  P1630560
        A2S(1,1)=1.0                                                P1630570
        A3S(1,1,1)=1.0                                              P1630580
        IAVI=1                                                      P1630590
        I1I(1) = 1                                                  P1630600
        I2I(1,1)=1                                                  P1630610
        I3I(1,1,1)=1                                                P1630620
        A1C(1)=(1.0,1.0)                                            P1630630
        A2C(1,1)=(1.0,1.0)                                          P1630640
        A3C(1,1,1)=(-2.0,-2.0)                                      P1630650
        AVD=1.0D0                                                   P1630660
```

```
      A1D(1)=1.0D0                                                       P1630670
      A2D(1,1)=1.0D0                                                     P1630680
      A3D(1,1,1)=1.0D0                                                   P1630690
      IVI=MFI(AVS,IAVI,AVB,AVC,AVD,A1S,A2S,A3S,I1I,I2I,I3I,A1B,A2B,A3B,  P1630700
     1A1C,A2C,A3C,A1D,A2D,A3D,IFI)                                       P1630710
      MAVI=5                                                             P1630720
      IF (IVI) 1630,1631,1630                                            P1630730
 1639 MAVI=6                                                             P1630740
      BVB=AVB.AND.A1B(1).AND.A2B(1,1).AND.A3B(1,1,1)                     P1630750
      IF (BVB) GO TO 1631                                                P1630760
      IF (.NOT.BVB) GO TO 1630                                           P1630770
 7007 IVI=REAL(AVC)                                                      P1630780
      JVI=AIMAG(AVC)                                                     P1630790
      MAVI=7                                                             P1630800
      IF (IVI+JVI) 1630,1631,1630                                        P1630810
 1630 WRITE(NUVI,1632) MAVI                                              P1630820
      GO TO 7008                                                         P1630830
 1631 WRITE(NUVI,1633) MAVI                                              P1630840
 1632 FORMAT (//2X,5HTEST ,I2,12H IS NEGATIVE)                          P1630850
 1633 FORMAT(//2X,5HTEST , I2,12H IS POSITIVE)                          P1630860
 7008        GO TO (1635,1636,1637,1638,1639,7007,7009),MAVI           P1630870
 7009 CONTINUE                                                           P1630880
C*****      END OF TEST SEGMENT 163                                      P1630890
C*****   WHEN EXECUTING ONLY SEGMENT 163, THE   STOP   AND   END   CARDS P1630900
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=               P1630910
C*****   IN COLUMNS  1  AND  2  REMOVED.                                 P1630920
C=    STOP                                                               P1630930
C=    END                                                                P1630940
      STOP                                                               P163C1
      END                                                                P163C2
C******************************************************************P4030010
C*****                                                                   P4030020
C*****                         IFI - (403)                              P4030030
C*****                                                                   P4030040
C******************************************************************P4030050
C***** INTEGER FUNCTION OF DOUBLE PRECISION ARGUMENT(TEST 1)             P4030060
      FUNCTION IFI(AWVD)                                                 P4030070
      DOUBLE PRECISION AWVD                                              P4030080
      IFI=AWVD                                                           P4030090
      RETURN                                                             P4030100
      END                                                                P4030110
C******************************************************************P4230010
C*****                                                                   P4230020
C*****                         JFI - (423)                              P4230030
C*****                                                                   P4230040
C******************************************************************P4230050
C*****INTEGER FUNCTION OF COMPLEX ARGUMENT(TEST 2)                       P4230060
      FUNCTION JFI(AWVC,BWVC)                                            P4230070
      COMPLEX AWVC,BWVC,CVC                                              P4230080
      CVC =AWVC*BWVC                                                     P4230090
      JFI=AIMAG(CVC)                                                     P4230100
      RETURN                                                             P4230110
      END                                                                P4230120
C******************************************************************P4330010
C*****                                                                   P4330020
C*****                         KFI - (433)                              P4330030
C*****                                                                   P4330040
C******************************************************************P4330050
C*****INTEGER FUNCTION OF LOGICAL ARGUMENT(TEST 3)                       P4330060
      FUNCTION KFI(AWVB)                                                 P4330070
      LOGICAL AWVB                                                       P4330080
      IF (AWVB) GO TO 4331                                               P4330090
4330  IF (.NOT.AWVB) GO TO 4332                                          P4330100
      RETURN                                                             P4330110
4331  KFI = 2                                                           P4330120
      GO TO 4330                                                         P4330130
4332  KFI = 0                                                           P4330140
      RETURN                                                             P4330150
```

```
      END                                                             P4330160
C**************************************************************************P4430010
C*****                                                             P4430020
C*****                        LFI - (443)                         P4430030
C*****                                                             P4430040
C**************************************************************************P4430050
C*****INTEGER FUNCTION OF EXTERNAL PROCEDURE(TEST 4)              P4430060
      FUNCTION LFI(BWVD,IWFI)                                     P4430070
      DOUBLE PRECISION BWVD                                       P4430080
      LFI=IWFI(BWVD)                                              P4430090
      RETURN                                                      P4430100
      END                                                         P4430110
C**************************************************************************P4530010
C*****                                                             P4530020
C*****                        MFI - (453)                         P4530030
C*****                                                             P4530040
C**************************************************************************P4530050
C*****INTEGER FUNCTION OF DIFFERENT TYPES OF ARGUMENTS.USE IS MADE OF  P4530060
C*****  ADJUSTABLE DIMENSION(TEST 5,6,7)                          P4530070
      FUNCTION MFI(AWVS,IWVI,AWVB,AWVC,AWVD,AW1S,AW2S,AW3S,IW1I,IW2I, P4530080
     1IW3I,AW1B,AW2B,AW3B,AW1C,AW2C,AW3C,AW1D,AW2D,AW3D,IWFI)     P4530090
      DOUBLE PRECISION AWVD,AW1D,AW2D,AW3D                        P4530100
      LOGICAL AWVB,AW1B,AW2B,AW3B                                 P4530110
      COMPLEX AWVC,AW1C,AW2C,AW3C                                 P4530120
      DIMENSION AW1S(IWVI),AW2S(IWVI,IWVI),AW3S(IWVI,IWVI,IWVI) , P4530130
     1         IW1I(IWVI),IW2I(IWVI,IWVI),IW3I(IWVI,IWVI,IWVI) ,  P4530140
     2         AW1B(IWVI),AW2B(IWVI,IWVI),AW3B(IWVI,IWVI,IWVI),   P4530150
     3         AW1C(IWVI),AW2C(IWVI,IWVI),AW3C(IWVI,IWVI,IWVI) ,  P4530160
     4         AW1D(IWVI),AW2D(IWVI,IWVI),AW3D(IWVI,IWVI,IWVI)    P4530170
      COMMON BXVS                                                 P4530180
      MFI =AWVS**IWVI+AW1S(IWVI)**IW1I(IWVI)-AW2S(IWVI,IWVI)**IW2I P4530190
     1 (IWVI,IWVI)+AW3S(IWVI,IWVI,IWVI)**IW3I(IWVI,IWVI,IWVI)-AWVD+ P4530200
     2 AW1D(IWVI)-AW2D(IWVI,IWVI)-AW3D(IWVI,IWVI,IWVI)+BXVS**IWFI(AWVD) P4530210
     3 -1.0                                                       P4530220
      AWVB=IWVI.EQ.1                                              P4530230
      AW1B(IWVI) = IWVI .EQ. 1                                    P4530240
      AW2B(IWVI,IWVI) = IWVI.EQ.1                                 P4530250
      AW3B(IWVI,IWVI,IWVI) = IWVI.EQ.1                            P4530260
      AWVC = AW1C(IWVI) +AW2C(IWVI,IWVI)+AW3C(IWVI,IWVI,IWVI)     P4530270
      RETURN                                                      P4530280
      END                                                         P4530290
C**************************************************************************P1640010
C*****                                                             P1640020
C*****                        CFCCP-(164)                         P1640030
C*****                                                             P1640040
C**************************************************************************P1640050
C*****                  GENERAL PURPOSE                   ASA REFP1640060
C*****     1.TO TEST COMPLEX FUNCTIONS IN FULL FORTRAN       8.3.1 P1640070
C*****     2.DUMMY ARGUMENTS ARE REAL,INTEGER,COMPLEX,LOGICAL,    P1640080
C*****     DOUBLE PRECISION,EXTERNAL PROCEDURE,ARRAY NAME.        P1640090
C*****     3.FUNCTIONS CONTAIN UP TO 20 ARGUMENTS                 P1640100
C*****     4.IN REFERENCE ACTUAL ARGUMENTS ARE VARIABLE NAME      P1640110
C*****     ARRAY NAME,ARRAY ELEMENT NAME,ARITHMETIC EXPRESSION    P1640120
C*****     EXTERNAL PROCEDURE                                     P1640130
C*****     6.USE CAN BE MADE OF ADJUSTABLE DIMENTION              P1640140
C*****     7.ARGUMENTS CAN BE PASSED THROUGH COMMON               P1640150
C*****RESTRICTIONS OBSERVED                                       P1640160
C*****     1.ITEMS(2),(3),(4),(5),(6) OF PARAGRAPH                P1640170
C*****     2.LAST SENTENCE OF PARAGRAPH 3.2                       P1640180
C*****     THIS SEGMENT   USES   8 COMPLEX FUNCTIONS              P1640190
C*****      THIS SEGMENT IS TO BE RUN WITH SEGMENTS               P1640200
C*****      404, 414, 424, 434, 444, 454, 464                     P1640210
C*****     WHICH CONTAIN  ALL FUNCTIONS BEING TESTED HERE         P1640220
C*****                                                             P1640230
C*****   S P E C I F I C A T I O N S   SEGMENT 164                P1640240
C*****                                                             P0013230
C*****   WHEN EXECUTING ONLY SEGMENT 164, THE SPECIFICATION STATEMENTS P0013235
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=           P0013240
```

```
C*****   IN COLUMNS 1  AND  2  REMOVED.                                  P0013245
C*****                                                                   P0013250
C=      DIMENSION A1S(5),A2S(2,2),A3S(3,3,3)                             P0013255
C=      INTEGER I1I(5),I2I(2,2),I3I(2,2,2)                               P0013260
C=      LOGICAL AVB,A1B(2),A3B(2,2,2),A2B(2,2),BVB                       P0013265
C=      DOUBLE PRECISION AVD,A1D(4),A2D(2,2),A3D(2,2,2)                   P0013270
C=      COMPLEX AFC,BFC,CFC,DFC,EFC,FFC,HFC,AVC,BVC                      P0013275
C=     1,A1C(12),A2C(2,2),A3C(2,2,1)                                     P0013280
C=      COMMON AXVS,CXVS                                                 P0013285
C=      EXTERNAL BFC                                                     P0013290
        DIMENSION A1S(5),A2S(2,2),A3S(3,3,3)                            P164A1
        INTEGER I1I(5),I2I(2,2),I3I(2,2,2)                              P164A2
        LOGICAL AVB,A1B(2),A3B(2,2,2),A2B(2,2),BVB                      P164A3
        DOUBLE PRECISION AVD,A1D(4),A2D(2,2),A3D(2,2,2)                 P164A4
        COMPLEX AFC,BFC,CFC,DFC,EFC,FFC,HFC,AVC,BVC                     P164A5
       1,A1C(12),A2C(2,2),A3C(2,2,1)                                    P164A6
        COMMON AXVS,CXVS                                                P164A7
        EXTERNAL BFC                                                    P164A8
C*****                                                                   P0013295
C*****   O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.   P1640250
C*****                                                                   P0072680
C*****   WHEN EXECUTING ONLY SEGMENT 164, THE STATEMENT   NUVI = 6      P0072685
C*****   MUST HAVE THE C= IN COLUMNS  1  AND 2  REMOVED.                P0072690
C*****                                                                   P0072695
C=      NUVI = 6                                                         P0072700
        NUVI = 6                                                         P164B1
C*****                                                                   P0072705
        WRITE(NUVI,1641)                                                 P1640260
 1641 FORMAT(1H1,1X,31HCFCCP - (164) COMPLEX FUNCTIONS//2X,             P1640270
     1 21HASA REFS. 8.3.1,8.3.2//2X, 7HRESULTS)                         P1640280
C***** TEST 1                                                            P1640290
        BVC=AFC(1.0)                                                     P1640300
        MAVI=1                                                           P1640310
        WRITE(NUVI,1642) BVC,MAVI                                        P1640320
 1642   FORMAT(1H0,2F5.1,9H -- TEST ,I2,20H POSITIVE IF 0.0,0.0)        P1640330
C***** TEST 2                                                            P1640340
        MAVI=2                                                           P1640350
        BVC= BFC(1)-(1.0,1.0)                                           P1640360
        WRITE(NUVI,1642)BVC,MAVI                                         P1640370
C***** TEST 3                                                            P1640380
        MAVI=3                                                           P1640390
        A1S(1)=1.0                                                       P1640400
        A1S(2)=1.0                                                       P1640410
        BVC=CFC(A1S)                                                     P1640420
        WRITE(NUVI,1642)BVC,MAVI                                         P1640430
C***** TEST 4                                                            P1640440
        MAVI=4                                                           P1640450
        BVC = DFC (1.D0)                                                 P1640460
        WRITE(NUVI,1642)BVC,MAVI                                         P1640470
C*****TEST 5                                                             P1640480
        MAVI=5                                                           P1640490
        AVC=(1.0,1.0)                                                    P1640500
        BVC=EFC(AVC)                                                     P1640510
        WRITE(NUVI,1642)BVC,MAVI                                         P1640520
C*****TEST 6                                                             P1640530
        MAVI=6                                                           P1640540
        AVB=.TRUE.                                                       P1640550
        BVC=FFC(AVB)-(1.0,1.0)                                           P1640560
        WRITE(NUVI,1642)BVC,MAVI                                         P1640570
C***** TEST 7                                                            P1640580
        MAVI=7                                                           P1640590
        AVB=.FALSE.                                                      P1640600
        BVC=FFC(AVB)                                                     P1640610
        WRITE(NUVI,1642)BVC,MAVI                                         P1640620
C***** TEST 8,9,10                                                       P1640630
        IVI=1                                                            P1640640
        AVD=1.0D0                                                        P1640650
        A1D(1)=1.0D0                                                     P1640660
```

```
      A2D(1,1)=1.0D0                                                P1640670
      A3D(1,1,1)=1.0D0                                              P1640680
      AVS=1.0                                                       P1640690
      A1S(1)=1.0                                                    P1640700
      A2S(1,1)=1.0                                                  P1640710
      A3S(1,1,1)=1.0                                                P1640720
      A1C(1)=(1.0,1.0)                                              P1640730
      A2C(1,1)=(1.0,1.0)                                            P1640740
      A3C(1,1,1)=(1.0,1.0)                                          P1640750
      I1I(1)=1                                                      P1640760
      I2I(1,1)=1                                                    P1640770
      I3I(1,1,1)=1                                                  P1640780
      AVC = (0.0,0.0)                                               P1640790
      BVC= HFC(AVS,IVI,AVB,AVC,AVD,A1S,A2S,A3S,I1I,I2I,I3I,A1B,A2B,A3B, P1640800
     1A1C,A2C,A3C,A1D,A2D,A3D,BFC)                                  P1640810
      MAVI = 8                                                      P1640820
      WRITE (NUVI,1642) BVC,MAVI                                    P1640830
      MAVI=9                                                        P1640840
      IF(AXVS) 1643,1644,1643                                       P1640850
 1648 MAVI = 10                                                     P1640860
      BVB=AVB.AND.A1B(1).AND.A2B(1,1).AND. A3B(1,1,1)               P1640870
      IF (BVB) GO TO 1644                                           P1640880
 1643 WRITE(NUVI,1645)MAVI                                          P1640890
      GO TO 1647                                                    P1640900
 1644 WRITE(NUVI,1646)MAVI                                          P1640910
 1645 FORMAT(/15X,5HTEST ,I2,12H IS NEGATIVE)                       P1640920
 1646 FORMAT(/15X,5HTEST ,I2,12H IS POSITIVE)                       P1640930
 1647 IF (MAVI  - 9) 1649,1648,1649                                 P1640940
 1649 CONTINUE                                                      P1640950
C*****    END OF TEST SEGMENT 164                                   P1640960
C*****  WHEN EXECUTING ONLY SEGMENT 164, THE   STOP  AND   END   CARDS  P1640970
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=            P1640980
C*****  IN COLUMNS  1  AND  2   REMOVED.                            P1640990
C=    STOP                                                          P1641000
C=    END                                                           P1641010
      STOP                                                          P164C1
      END                                                           P164C2
C*************************************************************************P4040010
C*****                                                              P4040020
C*****                        AFC - (404)                           P4040030
C*****                                                              P4040040
C*************************************************************************P4040050
C*****COMPLEX FUNCTION OF REAL ARGUMENT (TEST 1)                    P4040060
      COMPLEX FUNCTION AFC(AWVS)                                    P4040070
      AFC = (-1.0,0.0)+AWVS                                         P4040080
      RETURN                                                        P4040090
      END                                                           P4040100
C*************************************************************************P4140010
C*****                                                              P4140020
C*****                        BFC - (414)                           P4140030
C*****                                                              P4140040
C*************************************************************************P4140050
C*****COMPLEX FUNCTION OF INTEGER ARGUMENT (TEST 2)                 P4140060
      COMPLEX FUNCTION BFC(IWVI)                                    P4140070
      BFC=(1.0,1.0)**IWVI                                           P4140080
      RETURN                                                        P4140090
      END                                                           P4140100
C*************************************************************************P4240010
C*****                                                              P4240020
C*****                        CFC - (424)                           P4240030
C*****                                                              P4240040
C*************************************************************************P4240050
C*****COMPLEX FUNCTION OF ARRAY NAME (TEST 3)                       P4240060
      COMPLEX FUNCTION CFC(AW1S)                                    P4240070
      DIMENSION AW1S(2)                                             P4240080
      CFC = (2.0,0.0)-AW1S(1)-AW1S(2)                               P4240090
      RETURN                                                        P4240100
      END                                                           P4240110
```

```
C*******************************************************************************P4340010
C*****                                                                          P4340020
C*****                            DFC - (434)                                   P4340030
C*****                                                                          P4340040
C*******************************************************************************P4340050
C*****COMPLEX FUNCTION OF DOUBLE PRECISION ARGUMENT (TEST 4)                    P4340060
      COMPLEX FUNCTION DFC(AWVD)                                                P4340070
      DOUBLE PRECISION AWVD                                                     P4340080
      AVS  = AWVD                                                               P4340090
      DFC = (1.0,1.0) * AVS - (1.0,1.0)                                         P4340100
      RETURN                                                                    P4340110
      END                                                                       P4340120
C*******************************************************************************P4440010
C*****                                                                          P4440020
C*****                            EFC - (444)                                   P4440030
C*****                                                                          P4440040
C*******************************************************************************P4440050
C*****COMPLEX FUNCTION OF COMPLEX ARGUMENT (TEST 5)                             P4440060
      COMPLEX FUNCTION EFC(AWVC)                                                P4440070
      COMPLEX AWVC                                                              P4440080
      EFC=AWVC- (1.0,1.0)                                                       P4440090
      RETURN                                                                    P4440100
      END                                                                       P4440110
C*******************************************************************************P4540010
C*****                                                                          P4540020
C*****                            FFC - (454)                                   P4540030
C*****                                                                          P4540040
C*****COMPLEX FUNCTION OF LOGICAL ARGUMENT(TESTS 6,7)                           P4540050
      COMPLEX FUNCTION FFC(AWVB)                                                P4540060
      LOGICAL AWVB                                                              P4540070
      IF (AWVB) GO TO 4541                                                      P4540080
4540  IF (.NOT.AWVB) GO TO 4542                                                 P4540090
      RETURN                                                                    P4540100
4541  FFC = (1.0,1.0)                                                           P4540110
      GO TO 4540                                                                P4540120
4542  FFC = (0.0,0.0)                                                           P4540130
      RETURN                                                                    P4540140
      END                                                                       P4540150
C*******************************************************************************P4640010
C*****                                                                          P4640020
C*****                            HFC - (464)                                   P4640030
C*****                                                                          P4640040
C*******************************************************************************P4640050
C*****COMPLEX FUNCTION OF DIFFERENT TYPES OF ARGUMENTS (TESTS 8,9,10            P4640060
      COMPLEX FUNCTION  HFC(AWVS,IWVI,AWVB,AWVC,AWVD,AW1S,AW2S,AW3S,            P4640070
     1 IW1I,IW2I,IW3I,AW1B,AW2B,AW3B,AW1C,AW2C,AW3C,AW1D,AW2D,AW3D,AWFC)P4640080
      DIMENSION AW1S(IWVI),AW2S(IWVI,IWVI),AW3S(IWVI,IWVI,IWVI),               P4640090
     1          IW1I(IWVI),IW2I(IWVI,IWVI),IW3I(IWVI,IWVI,IWVI),              P4640100
     2          AW1B(IWVI),AW2B(IWVI,IWVI),AW3B(IWVI,IWVI,IWVI),              P4640110
     3          AW1C(IWVI),AW2C(IWVI,IWVI),AW3C(IWVI,IWVI,IWVI),              P4640120
     4          AW1D(IWVI),AW2D(IWVI,IWVI),AW3D(IWVI,IWVI,IWVI)               P4640130
      COMMON BXVS                                                               P4640140
      LOGICAL AWVB,AW1B,AW2B,AW3B                                               P4640150
      COMPLEX AWVC,AW1C,AW2C,AW3C, AWFC                                         P4640160
      DOUBLE PRECISION AWVD,AW1D,AW2D,AW3D                                      P4640170
      HFC = AWVC                                                                P4640180
      BXVS=AWVS**IWVI+AW1S(IWVI)**IW1I(IWVI)-AW2S(IWVI,IWVI)**IW2I             P4640190
     1 (IWVI,IWVI)+AW3S(IWVI,IWVI,IWVI)**IW3I(IWVI,IWVI,IWVI)-AWVD+            P4640200
     2 AW1D(IWVI)-AW2D(IWVI,IWVI)-AW3D(IWVI,IWVI,IWVI)                         P4640210
      AWVB = IWVI.EQ.1                                                          P4640220
      AW1B(IWVI) = IWVI.EQ.1                                                    P4640230
      AW2B(IWVI,IWVI) = IWVI .EQ. 1                                            P4640240
      AW3B(IWVI,IWVI,IWVI) = IWVI.EQ.1                                         P4640250
      RETURN                                                                    P4640260
C*****     END OF TEST SEGMENT 464                                              P4640270
      END                                                                       P4640280
C*******************************************************************************P1650010
C*****                                                                          P1650020
```

```
C*****                              DPFCP-(165)                          P1650030
C*****                                                                   P1650040
C*******************************************************************************P1650050
C*****                          GENERAL PURPOSE                          P1650060
C*****       1.TO TEST DOUBLE PRECISION FUNCTIONS IN FULL FORTRAN    8.3.1P1650070
C*****       2.DUMMY ARGUMENTS ARE REAL,INTEGER,COMPLEX,LOGICAL,         P1650080
C*****       DOUBLE PRECISION,EXTERNAL PROCEDURE,ARRAY NAME              P1650090
C*****       3.FUNCTIONS CONTAIN UP TO 20 ARGUMENTS                      P1650100
C*****       4.IN REFERENCE,ACTUAL ARGUMENTS ARE VARIABLE1NAME,          P1650110
C*****        ARRAY NAME,ARRAY ELEMENT NAME,OR ARITHMETIC EXPRESSION. 8.3.2P1650120
C*****RESTRICTIONS OBSERVED                                              P1650130
C*****       1.ITEMS(2),(3),(4),(5),(6) OF PARAGRAPH 8.3.1              P1650140
C*****       2 LAST SENTENCE  OF PARAGRAPH 3.2                           P1650150
C*****        THIS SEGMENT IS TO BE RUN WITH SEGMENTS                    P1650160
C*****        405, 415, 425, 435, 445, 455, 465, 475                    P1650170
C*****        WHICH CONTAINS ALL FUNCTIONS BEING TESTED HERE.            P1650180
C*****                                                                   P1650190
C*****     S P E C I F I C A T I O N S   SEGMENT 165                     P1650200
C*****                                                                   P0013300
C*****    WHEN EXECUTING ONLY SEGMENT 165, THE SPECIFICATION STATEMENTS  P0013305
C*****    WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                 P0013310
C*****    IN COLUMNS  1  AND  2  REMOVED.                                P0013315
C*****                                                                   P0013320
C=    DIMENSION A1S(5),A2S(2,2),A3S(3,3,3)                               P0013325
C=    INTEGER I1I(5),I2I(2,2),I3I(2,2,2)                                 P0013330
C=    LOGICAL A1B(2),A2B(2,2),A3B(2,2,2),AVB,BVB                         P0013335
C=    DOUBLE PRECISION AFD, BFD, CFD, DFD, EFD, FFD, GFD, HFD,AVD        P0013340
C=   1, A1D(4),A2D(2,2),A3D(2,2,2)                                       P0013345
C=    COMPLEX AVC,A1C(12),A2C(2,2),A3C(2,2,1)                            P0013350
C=    COMMON AXVS,CXVS                                                   P0013355
C=     EXTERNAL  CFD,AFD                                                 P0013360
      DIMENSION A1S(5),A2S(2,2),A3S(3,3,3)                               P165A1
      INTEGER I1I(5),I2I(2,2),I3I(2,2,2)                                 P165A2
      LOGICAL A1B(2),A2B(2,2),A3B(2,2,2),AVB,BVB                         P165A3
      DOUBLE PRECISION AFD, BFD, CFD, DFD, EFD, FFD, GFD, HFD,AVD        P165A4
     1, A1D(4),A2D(2,2),A3D(2,2,2)                                       P165A5
      COMPLEX AVC,A1C(12),A2C(2,2),A3C(2,2,1)                            P165A6
      COMMON AXVS,CXVS                                                   P165A7
      EXTERNAL  CFD,AFD                                                  P165A8
C*****                                                                   P0013365
C*****    O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.   P1650210
C*****    WHEN EXECUTING ONLY SEGMENT 165, THE FOLLOWING STATEMENT       P0072710
C*****    NUVI = 6  MUST HAVE THE C=  IN COLUMNS 1 AND 2 REMOVED.        P0072715
C*****                                                                   P0072720
C=    NUVI = 6                                                           P0072725
      NUVI = 6                                                           P165B1
      WRITE (NUVI,1650)                                                  P1650220
 1650 FORMAT(1H1,1X,30HDPFCP - (165) DOUBLE PRECISION/ 16X, 9HFUNCTIONS P1650230
     1 //2X,21HASA REFS. 8.3.1,8.3.2//2X, 7HRESULTS)                    P1650240
C***** TEST 1                                                            P1650250
      MAVI = 1                                                           P1650260
      IVI = AFD(1.0) - 1.0D0                                            P1650270
      IF (IVI)  1652,1653,1652                                          P1650280
C***** TEST 2                                                            P1650290
 1657 MAVI =2                                                            P1650300
      IVI=BFD(1)-1.0D0                                                  P1650310
      IF(IVI)1652,1653,1652                                             P1650320
C***** TEST 3                                                            P1650330
 1658 MAVI =3                                                            P1650340
      AVD=1.0D0                                                          P1650350
      IVI=CFD(AVD)-1.0D0                                                P1650360
      IF(IVI) 1652,1653,1652                                           P1650370
C***** TEST 4 .ONE ARGUMENT IS ARRAY ELEMENT NAME                        P1650380
 1659 MAVI =4                                                            P1650390
      AVC = (1.0,1.0)                                                    P1650400
      A1C(1)=(1.0,-1.0)                                                  P1650410
      IVI=DFD(AVC,A1C(1))                                               P1650420
      IF (IVI) 1652,1653,1652                                           P1650430
```

```
C***** TEST 5,6                                                          P1650440
 7014 MAVI =5                                                            P1650450
      AVB=.TRUE.                                                         P1650460
      IVI=EFO(AVB)-1.0D0                                                 P1650470
      IF(IVI)1652,1653,1652                                             P1650480
 7015 MAVI = 6                                                           P1650490
      AVB=.FALSE.                                                        P1650500
      IVI=EFD(AVB)                                                       P1650510
      IF(IVI)1652,1653,1652                                             P1650520
C***** TEST 7                                                            P1650530
 7016 MAVI = 7                                                           P1650540
      IVI = FFD (1.E0,AFD) - 1.0D0                                       P1650550
      IF (IVI) 1652,1653,1652                                           P1650560
C***** TEST 8                                                            P1650570
 7017 MAVI = 8                                                           P1650580
      A1D(1)=1.0D0                                                       P1650590
      A1D(2)=-1.0D0                                                      P1650600
      IVI=GFO(A10)                                                       P1650610
      IF (IVI) 1652,1653,1652                                           P1650620
C***** TESTS 9,10,11,12                                                  P1650630
 7018 IAVI = 1                                                           P1650640
      AVD=1.0D0                                                          P1650650
      A1D(1)=1.0D0                                                       P1650660
      A2O(1,1)=1.0D0                                                     P1650670
      A30(1,1,1)= 1.0D0                                                  P1650680
      AVS=1.0                                                            P1650690
      A1S(1)=1.0                                                         P1650700
      A2S(1,1)=1.0                                                       P1650710
      A3S(1,1,1)=1.0                                                     P1650720
      A1C(1)=(1.0,1.0)                                                   P1650730
      A2C(1,1)=(1.0,1.0)                                                 P1650740
      A3C(1,1,1)=(1.0,1.0)                                               P1650750
      I1I(1)=1                                                           P1650760
      I2I(1,1)=1                                                         P1650770
      I3I(1,1,1)=1                                                       P1650780
      MAVI = 9                                                           P1650790
      IVI=HFO(AVS,IAVI,AVB,AVC,AVO,A1S,A2S,A3S,I1I,I2I,I3I ,A1B,A2B,A3B,P1650800
     1A1C,A2C,A3C,A10,A20,A3D,CFD)                                       P1650810
      IF (IVI)    1652,1653,1652                                         P1650820
 7019 MAVI = 10                                                          P1650830
      IVI=AXVS                                                           P1650840
      IF (IVI) 1652,1653,1652                                           P1650850
 7020 MAVI = 11                                                          P1650860
      WRITE (NUVI,1656) AVC,MAVI                                         P1650870
 1656 FORMAT(///2F5.1//2X,5HTEST ,I2,31H IS POSITIVE IF NUMBERS PRINTEO/ P1650880
     1 2X,17HABOVE ARE 0.0,0.0)                                         P1650890
 7021 MAVI = 12                                                          P1650900
      BVB = AVB.ANO.A1B(1).ANO.A2B(1,1).AND.A3B(1,1,1)                  P1650910
      IF(BVB) GO TO 1653                                                P1650920
 1652 WRITE(NUVI,1654)MAVI                                              P1650930
      GO TO 1651                                                         P1650940
 1653 WRITE(NUVI,1655)MAVI                                              P1650950
 1654 FORMAT(/2X,5HTEST ,I2,12H IS NEGATIVE)                            P1650960
 1655 FORMAT(/2X,5HTEST ,I2,12H IS POSITIVE)                            P1650970
 1651 GO TO (1657,1658,1659,7014,7015,7016,7017,7018,7019,7020,7021,    P1650980
     1 7022) ,MAVI                                                      P1650990
 7022 CONTINUE                                                          P1651000
C*****    END OF TEST SEGMENT 165                                       P1651010
C***** WHEN EXECUTING ONLY SEGMENT 165, THE  STOP  AND  END CAROS       P1651020
C***** WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                  P1651030
C***** IN COLUMNS 1  AND  2  REMOVED.                                   P1651040
C=    STOP                                                              P1651050
C=    END                                                               P1651060
      STOP                                                              P165C1
      ENO                                                               P165C2
C*****************************************************************************P4050010
C*****                                                                  P4050020
C*****                        AFO - (405)                               P4050030
```

```
C*****                                                                      P4050040
C*******************************************************************************P4050050
C*****DOUBLE PRECISION FUNCTION OF REAL ARGUMENT (TEST 1)                    P4050060
      DOUBLE PRECISION FUNCTION AFD(AWVS)                                    P4050070
      AFD=AWVS                                                               P4050080
      RETURN                                                                 P4050090
      END                                                                    P4050100
C*******************************************************************************P4150010
C*****                                                                      P4150020
C*****                          BFD -(415)                                 P4150030
C*****                                                                      P4150040
C*******************************************************************************P4150050
C*****DDUBLE PRECISION FUNCTION OF INTEGER ARGUMENT(TEST2)                  P4150060
      DDUBLE PRECISION FUNCTION BFD(IWVI)                                    P4150070
      BFD=1.0D0**IWVI                                                        P4150080
      RETURN                                                                 P4150090
      END                                                                    P4150100
C*******************************************************************************P4250010
C*****                                                                      P4250020
C*****                          CFD - (425)                                P4250030
C*****                                                                      P4250040
C*******************************************************************************P4250050
C*****DOUBLE PRECISIDN FUNCTIDN DF DDUBLE PRECISION ARGUMENT(TEST 3)        P4250060
      DDUBLE PRECISIDN FUNCTIDN CFD(AWVD)                                    P4250070
      DDUBLE PRECISIDN AWVD                                                  P4250080
      CFD=AWVD                                                               P4250090
      RETURN                                                                 P4250100
      END                                                                    P4250110
C*******************************************************************************P4350010
C*****                                                                      P4350020
C*****                          DFD -(435)                                 P4350030
C*****                                                                      P4350040
C*******************************************************************************P4350050
C*****DOUBLE PRECISION FUNCTIDN DF CDMPLEX ARGUMENT(TEST 4)                 P4350060
      DOUBLE PRECISIDN FUNCTION DFD(AWVC,BWVC)                               P4350070
      CDMPLEX AWVC,BWVC,CVC                                                  P4350080
      CVC =BWVC*AWVC                                                         P4350090
      DFD=AIMAG(CVC)                                                         P4350100
      RETURN                                                                 P4350110
      END                                                                    P4350120
C*******************************************************************************P4450010
C*****                                                                      P4450020
C*****                          EFD - (445)                                P4450030
C*****                                                                      P4450040
C*******************************************************************************P4450050
C*****DDUBLE PRECISIDN FUNCTIDN OF LDGICAL ARGUMENT(TEST 5,6)               P4450060
      DDUBLE PRECISIDN FUNCTIDN EFD(AWVB)                                    P4450070
      LDGICAL AWVB                                                           P4450080
      IF(AWVB) GD TO 4451                                                    P4450090
4450  IF(.NDT.AWVB) GO TO 4452                                               P4450100
      RETURN                                                                 P4450110
4451  EFD = 1.0D0                                                            P4450120
      GO TO 4450                                                             P4450130
4452  EFD = 0.0D0                                                            P4450140
      RETURN                                                                 P4450150
      END                                                                    P4450160
C*******************************************************************************P4550010
C*****                                                                      P4550020
C*****                          FFD - (455)                                P4550030
C*****                                                                      P4550040
C*******************************************************************************P4550050
C*****DDUBLE PRECISION FUNCTIDN OF EXTERNAL PROCEDURE (TEST 7)              P4550060
      DDUBLE PRECISIDN FUNCTIDN FFD(BWVS,BWFD)                               P4550070
      DDUBLE PRECISION        BWFD                                           P4550080
      FFD = BWFD (BWVS)                                                      P4550090
      RETURN                                                                 P4550100
      END                                                                    P4550110
C*******************************************************************************P4650010
```

```
C*****                                                              P4650020
C*****                          GFD - (465)                         P4650030
C*****                                                              P4650040
C*******************************************************************P4650050
C*****DOUBLE PRECISION FUNCTION OF  ARRAY NAME (TEST 8)             P4650060
      DOUBLE PRECISION FUNCTION GFD(AW1D)                           P4650070
      DIMENSION AW1D(2)                                             P4650080
      DOUBLE PRECISION AW1D                                         P4650090
      GFD= AW1D(1)+AW1D(2)                                          P4650100
      RETURN                                                        P4650110
      END                                                           P4650120
C*******************************************************************P4750010
C*****                                                              P4750020
C*****                          HFD - (475)                         P4750030
C*****                                                              P4750040
C*******************************************************************P4750050
C*****DOUBLE PRECISION FUNCTION OF DIFFERENT TYPES OF ARGUMENTS.USE CAN P4750060
C*****BE MADE OF ADJUSTABLE DIMENSION.SOME ARGUMENTS CAN BE PASSED  P4750070
C*****THROUGH A COMMON STATEMENT.                                   P4750080
      DOUBLE PRECISION FUNCTION HFD(AWVS,IWVI,AWVB,AWVC,AWVD,AW1S,AW2S, P4750090
     1 AW3S,IW1I,IW2I,IW3I,AW1B,AW2B,AW3B,AW1C,AW2C,AW3C,AW1D,AW2D, P4750100
     2 AW3D,CWFD)                                                   P4750110
      DIMENSION   AW1S(IWVI),AW2S(IWVI,IWVI),AW3S(IWVI,IWVI,IWVI),  P4750120
     1            IW1I(IWVI),IW2I(IWVI,IWVI),IW3I(IWVI,IWVI,IWVI),  P4750130
     2            AW1C(IWVI),AW2C(IWVI,IWVI),AW3C(IWVI,IWVI,IWVI),  P4750140
     3            AW1D(IWVI),AW2D(IWVI,IWVI),AW3D(IWVI,IWVI,IWVI),  P4750150
     4            AW1B(IWVI),AW2B(IWVI,IWVI),AW3B(IWVI,IWVI,IWVI)   P4750160
      DOUBLE PRECISION  AWVD,AW1D,AW2D,AW3D, CWFD                   P4750170
      COMPLEX AWVC,AW1C,AW2C,AW3C                                   P4750180
      REAL AW1S, AW2S, AW3S                                         P4750190
      LOGICAL  AWVB,AW1B,AW2B,AW3B                                  P4750200
      COMMON BXVS                                                   P4750210
      HFD = AWVD - AW1D(IWVI)+AW2D(IWVI,IWVI)-AW3D(IWVI,IWVI,IWVI)  P4750220
     1 + CWFD(AWVD) - 1.0D0                                         P4750230
      AWVC=AW1C(IWVI)+AW2C(IWVI,IWVI)-AW3C(IWVI,IWVI,IWVI)-(1.0,1.0) P4750240
      BXVS=AWVS**IWVI-AW1S(IWVI)**IW1I(IWVI)+AW2S(IWVI,IWVI)**IW2I  P4750250
     1  (IWVI,IWVI)-AW3S(IWVI,IWVI,IWVI)**IW3I(IWVI,IWVI,IWVI)      P4750260
      AWVB=IWVI.EQ.1                                                P4750270
      AW1B(IWVI)=IWVI.EQ.1                                          P4750280
      AW2B(IWVI,IWVI)=IWVI.EQ.1                                     P4750290
      AW3B(IWVI,IWVI,IWVI)=IWVI.EQ.1                                P4750300
      RETURN                                                        P4750310
      END                                                           P4750320
C*******************************************************************P1660010
C*****                                                              P1660020
C*****                        BFCCP-(166)                           P1660030
C*****                                                              P1660040
C*******************************************************************P1660050
C*****                     GENERAL PURPOSE                          P1660060
C*****    1.TO TEST LOGICAL FUNCTIONS IN FULL FORTRAN               P1660070
C*****    2.DUMMY ARGUMENTS ARE REAL,INTEGER,COMPLEX,LOGICAL,       P1660080
C*****    DOUBLE PRECISION,EXTERNAL PROCEDURE,ARRAY NAME.           P1660090
C*****    3.FUNCTIONS CONTAIN UP TO 20 ARGUMENTS                    P1660100
C*****    4.IN REFERENCE ACTUAL ARGUMENTS ARE VARIABLE NAME         P1660110
C*****    ARRAY NAME,ARRAY ELEMENT NAME,ARITHMETIC EXPRESSION       P1660120
C*****    EXTERNAL PROCEDURE                                        P1660130
C*****    6.USE CAN BE MADE OF ADJUSTABLE DIMENTION                 P1660140
C*****    7.ARGUMENTS CAN BE PASSED THROUGH COMMON                  P1660150
C*****RESTRICTIONS OBSERVED                                         P1660160
C*****    1.ITEMS(2),(3),(4),(5),(6) OF PARAGRAPH                   P1660170
C*****    2.LAST SENTENCE OF PARAGRAPH 3.2                          P1660180
C*****       THIS SEGMENT IS TO BE RUN WITH SEGMENTS                P1660190
C*****       406, 416, 426, 436, 446, 456, 466, 476        WHICH    P1660200
C*****    CONTAINS ALL FUNCTIONS BEING TESTED HERE.                 P1660210
C*****LOGICAL FUNCTION OF REAL ARGUMENT(TEST 1)                     P1660220
C*****                                                              P1660230
C*****  S P E C I F I C A T I O N S   SEGMENT 166                   P1660240
C*****                                                              P0013370
```

```
C*****    WHEN EXECUTING ONLY SEGMENT 166, THE SPECIFICATION STATEMENTS     P0013375
C*****    WHICH APPEAR AS COMMENTS MUST HAVE THE C=                          P0013380
C*****    IN COLUMNS  1  AND  2  REMOVED.                                    P0013385
C*****                                                                       P0013390
C=      DIMENSION A1S(5),A2S(2,2),A3S(3,3,3)                                 P0013395
C=      INTEGER I1I(5),I2I(2,2),I3I(2,2,2)                                   P0013400
C=      LOGICAL AVB,AFB,BFB,CFB,DFB,EFB,FFB,GFB,HFB                          P0013405
C=     1, A1B(2),A2B(2,2),A3B(2,2,2)                                         P0013410
C=      DOUBLE PRECISION AVD,A1D(4),A2D(2,2),A3D(2,2,2)                      P0013415
C=      COMPLEX AVC,A1C(12),A2C(2,2),A3C(2,2,1)                             P0013420
C=      COMMON AXVS,CXVS                                                     P0013425
C=       EXTERNAL AFB                                                        P0013430
        DIMENSION A1S(5),A2S(2,2),A3S(3,3,3)                                P166A1
        INTEGER I1I(5),I2I(2,2),I3I(2,2,2)                                  P166A2
        LOGICAL AVB,AFB,BFB,CFB,DFB,EFB,FFB,GFB,HFB                        P166A3
       1, A1B(2),A2B(2,2),A3B(2,2,2)                                        P166A4
        DOUBLE PRECISION AVD,A1D(4),A2D(2,2),A3D(2,2,2)                    P166A5
        COMPLEX AVC,A1C(12),A2C(2,2),A3C(2,2,1)                           P166A6
        COMMON AXVS,CXVS                                                   P166A7
         EXTERNAL AFB                                                      P166A8
C*****                                                                       P0013435
C*****    O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.       P1660250
C*****                                                                       P0072730
C*****    WHEN EXECUTING ONLY SEGMENT 166, THE FOLLOWING STATEMENT           P0072735
C*****    NUVI  =  6   MUST HAVE THE C= IN COLUMNS 1  AND  2  REMOVED.       P0072740
C=      NUVI = 6                                                             P0072745
        NUVI = 6                                                            P166B1
        MAVI=1                                                              P1660260
        WRITE(NUVI,1662)                                                    P1660270
 1662 FORMAT(1H1,1X,31HBFCCP - (166) LOGICAL FUNCTIONS//2X,                P1660280
       1 13HASA REF 8.3.1//2X,7HRESULTS)                                    P1660290
        AVB=AFB(1.0)                                                        P1660300
        IF (AVB) GO TO 1664                                                 P1660310
        WRITE(NUVI,1661) MAVI                                               P1660320
        GO TO 1665                                                          P1660330
 1660   FORMAT (/7H  TEST ,I2,12H IS POSITIVE)                             P1660340
 1661   FORMAT (/7H  TEST ,I2,12H IS NEGATIVE)                             P1660350
 1664   WRITE(NUVI,1660) MAVI                                              P1660360
        GO TO (1665,1666,1667,1668,1669,7030,7031,7032,7033,7034), MAVI   P1660370
C***** LOGICAL FUNCTION OF INTEGER ARGUMENT (TEST 2)                        P1660380
 1665   MAVI=2                                                             P1660390
        AVB=BFB(1)                                                          P1660400
        IF (AVB) GO TO 1664                                                 P1660410
        WRITE(NUVI,1661) MAVI                                               P1660420
C*****LOGICAL FUNCTION OF DOUBLE PRECISION ARGUMENT(TEST 3)                 P1660430
 1666   MAVI=3                                                             P1660440
        AVD=1.0D0                                                           P1660450
        AVB=CFB(AVD)                                                        P1660460
        IF (AVB) GO TO 1664                                                 P1660470
        WRITE(NUVI,1661) MAVI                                               P1660480
C***** LOGICAL FUNCTION OF LOGICAL ARGUMENT(TEST 4)                         P1660490
 1667   MAVI=4                                                             P1660500
        AVB=DFB(.TRUE.)                                                     P1660510
        IF (AVB) GO TO 1664                                                 P1660520
        WRITE(NUVI,1661) MAVI                                               P1660530
C*****LOGICAL FUNCTION OF COMPLEX ARGUMENT(TEST 5)                          P1660540
 1668   MAVI=5                                                             P1660550
        AVB=EFB((1.0,1.0))                                                  P1660560
        IF (AVB) GO TO 1664                                                 P1660570
        WRITE(NUVI,1661) MAVI                                               P1660580
C***** LOGICAL FUNCTION OF ARRAY NAME (TEST 6)                              P1660590
 1669   MAVI=6                                                             P1660600
         A1S(1)=1.0                                                         P1660610
         A1S(2)=0.0                                                         P1660620
         AVB=FFB(A1S)                                                       P1660630
        IF (AVB) GO TO 1664                                                 P1660640
        WRITE(NUVI,1661) MAVI                                               P1660650
C***** LOGICAL FUNCTION OF EXTERNAL PROCEDURE(TEST 7)                       P1660660
```

```
7030    MAVI=7                                                          P1660670
        AVB= GFB(AFB,1.0)                                               P1660680
        IF (AVB) GO TO 1664                                             P1660690
        WRITE(NUVI,1661) MAVI                                           P1660700
C*****LOGICAL FUNCTION OF DIFFERENT TYPES OF ARGUMENTS                  P1660710
7031    MAVI=8                                                          P1660720
        AVD = 1.0D0                                                     P1660730
        AVC = (1.0,1.0)                                                 P1660740
        IAVI = 1                                                        P1660750
        AVB=.TRUE.                                                      P1660760
        A1B(1)=.TRUE.                                                   P1660770
        A2B(1,1)=.TRUE.                                                 P1660780
        A3B(1,1,1)=.TRUE.                                               P1660790
        A1C(1)=(1.0,1.0)                                                P1660800
        A2C(1,1)=(1.0,1.0)                                              P1660810
        A3C(1,1,1)=(-2.0,-2.0)                                          P1660820
        A1D(1)=1.0D0                                                    P1660830
        A2D(1,1)=1.0D0                                                  P1660840
        A3D(1,1,1)=-2.0D0                                               P1660850
        I1I(1)=1                                                        P1660860
        I2I(1,1)=1                                                      P1660870
        I3I(1,1,1)=1                                                    P1660880
        A1S(1)=1.0                                                      P1660890
        A2S(1,1)=1.0                                                    P1660900
        A3S(1,1,1)=1.0                                                  P1660910
        AXVS=1.0                                                        P1660920
        AVB= HFB(AVS,IAVI,AVB,AVD,AVC,A1S,A2S,A3S,I1I,I2I,I3I,A1B,A2B,  P1660930
       1A3B,A1C,A2C,A3C,A1D,A2D,A3D,AFB)                               P1660940
        IF (AVB) GO TO 1664                                             P1660950
        WRITE(NUVI,1661) MAVI                                           P1660960
7032    MAVI = 9                                                        P1660970
        IAVI=AVD                                                        P1660980
        IF(IAVI.EQ.0) GO TO 1664                                        P1660990
        WRITE(NUVI,1661) MAVI                                           P1661000
7033    IAVI=1                                                          P1661010
        MAVI=10                                                         P1661020
        IAVI=AVS                                                        P1661030
        IF(IAVI.EQ.0) GO TO 1664                                        P1661040
        WRITE(NUVI,1661) MAVI                                           P1661050
7034    MAVI=11                                                         P1661060
        WRITE(NUVI,1663) AVC,MAVI                                       P1661070
1663    FORMAT (//2F8.4//7H  TEST ,I2,31H IS POSITIVE IF NUMBERS PRINTED/ P1661080
       119H  ABOVE ARE 0.0,0.0//2X,12HEND OF (166))                    P1661090
C*****      END OF TEST SEGMENT 166                                     P1661100
C*****  WHEN EXECUTING ONLY SEGMENT 166, THE STOP AND END CARDS         P1661110
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C= IN               P1661120
C***** COLUMNS  1  AND  2  REMOVED.                                     P1661130
C=      STOP                                                            P1661140
C=      END                                                            P1661150
        STOP                                                            P166C1
        END                                                            P166C2
C************************************************************************P4060010
C*****                                                                  P4060020
C*****                        AFB - (406)                               P4060030
C*****                                                                  P4060040
C************************************************************************P4060050
C*****LOGICAL FUNCTION OF REAL ARGUMENT (TEST 1)                        P4060060
        LOGICAL FUNCTION AFB(AWVS)                                      P4060070
        AFB= AWVS.GT.0.0                                                P4060080
        RETURN                                                          P4060090
        END                                                            P4060100
C************************************************************************P4160010
C*****                                                                  P4160020
C*****                        BFB - (416)                               P4160030
C*****                                                                  P4160040
C************************************************************************P4160050
C*****LOGICAL FUNCTION OF INTEGER ARGUMENT (TEST 2)                     P4160060
        LOGICAL FUNCTION BFB(IWVI)                                      P4160070
```

```
      BFB= IWVI.GT.0                                              P4160080
      RETURN                                                      P4160090
      END                                                         P4160100
C***********************************************************************P4260010
C*****                                                            P4260020
C*****                    CFB - (426)                             P4260030
C*****                                                            P4260040
C***********************************************************************P4260050
C*****LOGICAL FUNCTION OF DOUBLE PRECISION ARGUMENT(TEST 3)       P4260060
      LOGICAL FUNCTION CFB(AWVD)                                  P4260070
      DOUBLE PRECISION AWVD                                       P4260080
      CFB= AWVD.GT.0.0D0                                          P4260090
      RETURN                                                      P4260100
      END                                                         P4260110
C***********************************************************************P4360010
C*****                                                            P4360020
C*****                    DFB - (436)                             P4360030
C*****                                                            P4360040
C***********************************************************************P4360050
C*****LOGICAL FUNCTION OF LOGICAL ARGUMENT (TEST 4)               P4360060
      LOGICAL FUNCTION DFB(AWVB)                                  P4360070
      LOGICAL AWVB                                                P4360080
      DFB=AWVB                                                    P4360090
      RETURN                                                      P4360100
      END                                                         P4360110
C***********************************************************************P4460010
C*****                                                            P4460020
C*****                    EFB - (446)                             P4460030
C*****                                                            P4460040
C***********************************************************************P4460050
C*****LOGICAL FUNCTION OF COMPLEX ARGUMENT (TEST 5)               P4460060
      LOGICAL FUNCTION EFB(AWVC)                                  P4460070
      COMPLEX AWVC                                                P4460080
      AVS =AIMAG(AWVC)                                            P4460090
      EFB = AVS .GT.0.0                                           P4460100
      RETURN                                                      P4460110
      END                                                         P4460120
C***********************************************************************P4560010
C*****                                                            P4560020
C*****                    FFB - (456)                             P4560030
C*****                                                            P4560040
C***********************************************************************P4560050
C*****LOGICAL FUNCTION OF ARRAY NAME (TEST 6)                     P4560060
      LOGICAL FUNCTION FFB(AW1S)                                  P4560070
      DIMENSION AW1S(2)                                           P4560080
      BVS =AW1S(1)+AW1S(2)                                        P4560090
      FFB= BVS .GT.0.0                                            P4560100
      RETURN                                                      P4560110
      END                                                         P4560120
C***********************************************************************P4660010
C*****                                                            P4660020
C*****                    GFB - (466)                             P4660030
C*****                                                            P4660040
C***********************************************************************P4660050
C*****LOGICAL FUNCTION OF EXTERNAL PROCEDURE (TEST 7)             P4660060
      LOGICAL FUNCTION  GFB(AWFB,AWVS)                            P4660070
      LOGICAL AWFB                                                P4660080
      GFB= AWFB(AWVS)                                             P4660090
      RETURN                                                      P4660100
      END                                                         P4660110
C***********************************************************************P4760010
C*****                                                            P4760020
C*****                    HFB - (476)                             P4760030
C*****                                                            P4760040
C***********************************************************************P4760050
C*****LOGICAL FUNCTION OF DIFFERENT TYPES OF ARGUMENTS(TEST 8,9,10,11) P4760060
      LOGICAL FUNCTION HFB(AWVS,IWVI,AWVB,AWVD,AWVC,AW1S,AW2S,AW3S, P4760070
     1IW1I,IW2I,IW3I,AW1B,AW2B,AW3B,AW1C,AW2C,AW3C,AW1D,AW2D,AW3D,AWFB) P4760080
```

```
          COMMON BXVS                                               P4760090
          COMPLEX AWVC,AW1C,AW2C,AW3C                               P4760100
          DOUBLE PRECISION AWVD,AW1D,AW3D, AW2D                     P4760110
          LOGICAL AWVB,AW1B,AW2B,AW3B,AWFB                          P4760120
          DIMENSION   AW1C(IWVI),AW2C(IWVI,2),AW3C(IWVI,2,2),       P4760130
         1             AW1B(IWVI),AW2B(IWVI,2),AW3B(IWVI,2,2)       P4760140
         2             AW1S(IWVI),AW2S(IWVI,2),AW3S(IWVI,2,2)     , P4760150
         3             AW1D(IWVI),AW2D(IWVI,2),AW3D(IWVI,2,2)     , P4760160
         4             IW1I(IWVI),IW2I(IWVI,2),IW3I(IWVI,2,2)       P4760170
          HFB = AWVB.AND.AW1B(IWVI).AND.AW2B(IWVI,IWVI).AND.AW3B(IWVI, P4760180
         1 IWVI,IWVI).AND.AWFB(1.0)                                P4760190
          AWVC=AW1C(IWVI)+AW2C(IWVI,IWVI)+AW3C(IWVI,IWVI,IWVI)     P4760200
          AWVD=AW1D(IWVI)+AW2D(IWVI,IWVI)+AW3D(IWVI,IWVI,IWVI)     P4760210
          AWVS=BXVS+AW1S(IWVI)**IW1I(IWVI)-AW2S(IWVI,IWVI)**IW2I(IWVI,IWVI) P4760220
         1  -AW3S(IWVI,IWVI,IWVI)**IW3I(IWVI,IWVI,IWVI)            P4760230
          RETURN                                                   P4760240
          END                                                      P4760250
    C*************************************************************************P1670010
    C*****                                                          P1670020
    C*****                      SBRTN - (167)                       P1670030
    C*****                                                          P1670040
    C*************************************************************************P1670050
    C*****     GENERAL PURPOSE                              ASA REFSP1670060
    C*****        TO TEST SUBROUTINE SUBPROGRAMS               8.4.1  P1670070
    C*****     RESTRICTIONS OBSERVED                                P1670080
    C*****        SYMBOLIC NAME OF A SUBROUTINE MAY NOT APPEAR IN ANY 8.4.1.//19P1670090
    C*****        STATEMENT IN THIS SUBROUTINE EXCEPT IN THE        P1670100
    C*****        SUBROUTINE STATEMENT ITSELF                       P1670110
    C*****      * SYMBOLIC NAMES OF DUMMY ARGUMENTS MAY NOT APPEAR    8.4.1.1/23P1670120
    C*****        IN EQUIVALENCE OR COMMON STATEMENTS IN THE SUBPROGRAM P1670130
    C*****      * SUBROUTINES MAY NOT CONTAIN A FUNCTION STATEMENT,   8.4.1.//29P1670140
    C*****        ANOTHER SUBROUTINE STATEMENT, OR ANY STATEMENT THAT P1670150
    C*****        DIRECTLY OR INDIRECTLY REFERENCES THE SUBROUTINE   P1670160
    C*****        BEING DEFINED.                                    P1670170
    C*****      * AT LEAST ONE RETURN STATEMENT MUST BE IN A SUBROUTINE   P1670180
    C*****                                                 8.4.1.1/33P1670190
    C*****     GENERAL COMMENTS                                     P1670200
    C*****        THIS SEGMENT IS TO BE RUN WITH SEGMENT 407, 417, 427 P1670210
    C*****                                                          P1670220
    C*****     S P E C I F I C A T I O N S   SEGMENT 167            P1670230
    C*****                                                          P0013440
    C*****     WHEN EXECUTING ONLY SEGMENT 167, THE SPECIFICATION STATEMENTS P0013445
    C*****     WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=       P0013450
    C*****     IN COLUMNS  1  AND  2  REMOVED.                      P0013455
    C*****                                                          P0013460
    C=     DIMENSION IAB1I(4), IAB2I(3,3), AB1S(4), AB2S(3,3)      P0013465
    C=     COMMON AXVS, CXVS, IXVI, IAX1I(4), IAX2I(3,3), IAX3I(2,2,2), P0013470
    C=    1      BXVS, AX1S(4), AX2S(3,3)                          P0013475
    C=     EXTERNAL SORT                                           P0013480
          DIMENSION IAB1I(4), IAB2I(3,3), AB1S(4), AB2S(3,3)       P167A1
          COMMON AXVS, CXVS, IXVI, IAX1I(4), IAX2I(3,3), IAX3I(2,2,2), P167A2
         1      BXVS, AX1S(4), AX2S(3,3)                           P167A3
          EXTERNAL SORT                                           P167A4
    C*****                                                          P0013485
    C*****     O U T P U T   T A P E   ASSIGNMENT STATEMENT.  NO INPUT TAPE. P1670240
    C*****                                                          P0072750
    C*****     WHEN EXECUTING ONLY SEGMENT 167, THE FOLLOWING STATEMENT P0072755
    C*****     NUVI = 6   MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED. P0072760
    C=     NUVI = 6                                                P0072765
          NUVI = 6                                                P167B1
    C*****                                                          P0072770
    C*****        WRITE HEADING                                     P1670250
          WRITE (NUVI,1670)                                        P1670260
    1670  FORMAT(1H1,1X,35HSBRTN - (167) SUBROUTINE SUBPROGRAM/    P1670270
         1 /2X,16HASA REF. - 8.4.1//2X,7HRESULTS)                  P1670280
    C*****        SET ALL VARIABLES AND SOME ELEMENTS IN ARRAYS TO ZERO P1670290
          IAVI = 4                                                 P1670300
          AVS = 0.0                                                P1670310
```

```
      IAB1I(1) = 0                                                        P1670320
      IAB1I(3) = 0                                                        P1670330
      IAB2I(1,2) = 0                                                      P1670340
      IAB2I(3,3) = 0                                                      P1670350
C*****                                                                    P1670360
      AB1S(1) = 0.0                                                       P1670370
      AB1S(4) = 0.0                                                       P1670380
      AB2S(1,3) = 0.0                                                     P1670390
      AB2S(2,3) = 0.0                                                     P1670400
C*****                                                                    P1670410
      IXVI = 0                                                            P1670420
      BXVS = 0.0                                                          P1670430
      IAX1I(2) = 0                                                        P1670440
      IAX2I(1,2) = 0                                                      P1670450
C*****                                                                    P1670460
      AX1S(2) = 0.0                                                       P1670470
      AX2S(1,2) = 0.0                                                     P1670480
C*****                                                                    P1670490
C*****      SET ELEMENTS IN INTEGER AND REAL ARRAY TO 1 TO TEST          P1670500
C*****      EXPRESSIONS IN SUBROUTINE ARGUMENT                           P1670510
      IAB1I(2) = 1                                                        P1670520
      IAB1I(4) = 1                                                        P1670530
      IAB2I(2,1) = 1                                                      P1670540
      IAB2I(2,2) = 1                                                      P1670550
C*****                                                                    P1670560
      AB1S(2) = 1.0                                                       P1670570
      AB1S(3) = 1.0                                                       P1670580
      AB2S(1,2) = 1.0                                                     P1670590
      AB2S(2,2) = 1.0                                                     P1670600
C*****                                                                    P1670610
      CALL  AAQ(IAVI, AVS, IAB1I, IAB2I, AB1S, AB2S, SQRT,               P1670620
     1IAB1I(2)+IAB1I(4)*IAB2I(2,1)-IAB2I(2,2),                           P1670630
     2AB1S(2)+AB1S(3)*AB2S(1,2)-AB2S(2,2),1.0)                           P1670640
      CALL ACQ                                                            P1670650
C*****      WRITE RESULTS                                                 P1670660
      WRITE (NUVI,1671) IAVI, AVS, IAB1I(1), IAB1I(3), IAB2I(1,2),       P1670670
     A                  IAB2I(3,3), AB1S(1), AB1S(4),                    P1670680
     B                  AB2S(1,3), AB2S(2,3), IXVI, BXVS,                P1670690
     C                  IAX1I(2), IAX2I(1,2), AX1S(2),                   P1670700
     D                  AX2S(1,2)                                         P1670710
1671  FORMAT  (//I10/F11.1/4(I10/),4(F11.1/),I10/F11.1/2(I10/),2(F11.1/  P1670720
     A))                                                                 P1670730
      WRITE (NUVI,1672)                                                  P1670740
1672  FORMAT (//2X,38HTEST SUCCESSFUL IF ALL RESULTS EQUAL 1//)         P1670750
C*****      END OF TEST SEGMENT 167                                       P1670760
C*****  WHEN EXECUTING ONLY SEGMENT 167, THE STOP AND END CARDS          P1670770
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=                   P1670780
C*****  IN COLUMNS  1  AND  2  REMOVED.                                   P1670790
C=    STOP                                                                P1670800
C=    END                                                                 P1670810
      STOP                                                               P167C1
      END                                                                P167C2
C*****************************************************************************P4070010
C*****                                                                    P4070020
C*****                          AAQ - (407)                               P4070030
C*****                                                                    P4070040
C*****************************************************************************P4070050
C*****      THIS SUBROUTINE IS TO BE RUN WITH SEGMENT 167                P4070060
      SUBROUTINE AAQ (IWVI, AWVS, IAW1I, IAW2I, AW1S, AW2S, SQFI,        P4070070
     1MWVI, BWVS, CWVS)                                                  P4070080
      DIMENSION  IAW1I(4), IAW2I(3,3), AW1S(4),                         P4070090
     1           AW2S(3,3)                                              P4070100
      IWVI = INT(SQFI(FLOAT(IWVI) + .5)) - 1                            P4070110
      AWVS = AWVS + 1.0                                                 P4070120
      IAVI = 5                                                          P4070130
      IAW1I(1) = MWVI                                                   P4070140
      IAW1I(3) = IAW1I(3) + 1                                           P4070150
      IAW2I(3,3) = IAW2I(3,3) + 1                                       P4070160
```

```
        AW1S(1) = BWVS                                             P4070170
        AW2S(1,3) = CWVS                                           P4070180
C*****                                                             P4070190
C*****      CALL A SUBROUTINE FROM ANOTHER SUBROUTINE              P4070200
        CALL ABQ(IAW2I, AW1S, AW2S)                               P4070210
        RETURN                                                    P4070220
        END                                                       P4070230
C*********************************************************************P4170010
C*****                                                             P4170020
C*****                       ABQ - (417)                          P4170030
C*****                                                             P4170040
C*********************************************************************P4170050
        SUBROUTINE ABQ(ICW2I, CW1S, CW2S)                        P4170060
        DIMENSION ICW2I(3,3), CW1S(4), CW2S(3,3)                 P4170070
        ICW2I(1,2) = ICW2I(1,2) + 1                              P4170080
C*****                                                             P4170090
        CW1S(4) = CW1S(4) + 1.0                                  P4170100
        CW2S(2,3) = CW2S(2,3) + 1.0                              P4170110
        RETURN                                                    P4170120
        END                                                       P4170130
C*********************************************************************P4270010
C*****                                                             P4270020
C*****                       ACQ - (427)                          P4270030
C*****                                                             P4270040
C*********************************************************************P4270050
        SUBROUTINE ACQ                                            P4270060
        DIMENSION  IDX1I(4), IDX2I(3,3), IDX3I(2,2,2)            P4270070
       1           ,AAX1S(4), AAX2S(3,3)                         P4270080
        COMMON ABXVS, ACXVS, IAXVI, IDX1I, IDX2I, IDX3I,         P4270090
       1        AAXVS, AAX1S, AAX2S                              P4270100
        IAXVI = IAXVI+1                                           P4270110
        AAXVS = AAXVS +1.0                                        P4270120
        IDX1I(2) = IDX1I(2) + 1                                   P4270130
        IDX2I(1,2) = IDX2I(1,2) + 1                               P4270140
C*****                                                             P4270150
        AAX1S(2) = AAX1S(2) * 2. + 1.0                            P4270160
        AAX2S(1,2) = AAX2S(1,2) + 4.0 - 3.0                       P4270170
C*****                                                             P4270180
        RETURN                                                    P4270190
C*****     END OF TEST SEGMENT 427                                 P4270200
        END                                                       P4270210
C*********************************************************************P1680010
C*****                                                             P1680020
C*****                      FSBRT - (168)                         P1680030
C*****                                                             P1680040
C*********************************************************************P1680050
C*****     GENERAL PURPOSE                              ASA REFSP1680060
C*****        TO TEST SUBROUTINE SUBPROGRAM IN FORTRAN        8.4.1  P1680070
C*****     RESTRICTIONS OBSERVED                                   P1680080
C*****        SYMBOLIC NAME OF A SUBROUTINE MAY NOT APPEAR IN ANY 8.4.1.1/56P1680090
C*****        STATEMENT IN THIS SUBROUTINE EXCEPT IN THE           P1680100
C*****        SUBROUTINE STATEMENT ITSELF.                         P1680110
C*****      * SYMBOLIC NAME OF DUMMY ARGUMENTS MAY NOT APPEAR    8.4.1.1/39P1680120
C*****        IN EQUIVALENCE OR COMMON STATEMENTS IN THE SUBPROGRAM  P1680130
C*****      * SUBROUTINES MAY NOT CONTAIN A FUNCTION STATEMENT,   8.4.1.1/45P1680140
C*****        ANOTHER SUBROUTINE STATEMENT, OR ANY STATEMENT THAT    P1680150
C*****        DIRECTLY OR INDIRECTLY REFERENCES THE SUBROUTINE       P1680160
C*****        BEING DEFINED.                                       P1680170
C*****      * AT LEAST ONE RETURN STATEMENT MUST BE IN A SUBROUTINE  P1680180
C*****                                                    8.4.1.1/49P1680190
C*****     GENERAL COMMENTS                                        P1680200
C*****        THIS SEGMENT IS TO BE RUN WITH SEGMENT 408 , 418, 428  P1680210
C*****                                                             P1680220
C*****     S P E C I F I C A T I O N S   SEGMENT 168               P1680230
C*****                                                             P0013490
C*****     WHEN EXECUTING ONLY SEGMENT 168, THE SPECIFICATION STATEMENTS  P0013495
C*****     WHICH APPEAR AS COMMENTS MUST HAVE THE C=               P0013500
C*****     IN COLUMNS  1  AND  2  REMOVED.                         P0013505
```

```
C*****                                                                     P0013510
C=     DIMENSION IAB1I(4), IAB2I(3,3), IAB3I(2,2,2), AB1S(4), AB2S(3,3),   P0013515
C=    A          AB3S(2,2,2)                                               P0013520
C=     COMMON AXVS, CXVS, IXVI, IAX1I(4), IAX2I(3,3), IAX3I(2,2,2),        P0013525
C=    A          BXVS, AX1S(4), AX2S(3,3), AX3S(2,2,2), AXVD, AX1D(2),     P0013530
C=    B          AX2D(2,2), AX3D(2,2,2), AXVC, AX1C(2), AX2C(2,2),         P0013535
C=    C          AX3C(2,2,2), AXVB, AX1B(2), AX2B(2,2), AX3B(2,2,2)        P0013540
C=     DOUBLE PRECISION AXVD, AX1D, AX2D, AX3D                             P0013545
C=     DOUBLE PRECISION AVD,A1D(4),A2D(2,2),A3D(2,2,2)                     P0013550
C=     COMPLEX AXVC, AX1C, AX2C, AX3C                                      P0013555
C=     COMPLEX AVC,A1C(12),A2C(2,2),A3C(2,2,1)                            P0013560
C=     LOGICAL AXVB, AX1B, AX2B, AX3B                                      P0013565
C=     LOGICAL A1B(2),A2B(2,2),A3B(2,2,2),AVB                             P0013570
       DIMENSION IAB1I(4), IAB2I(3,3), IAB3I(2,2,2), AB1S(4), AB2S(3,3),   P168A1
      A          AB3S(2,2,2)                                               P168A2
       COMMON AXVS, CXVS, IXVI, IAX1I(4), IAX2I(3,3), IAX3I(2,2,2),        P168A3
      A          BXVS, AX1S(4), AX2S(3,3), AX3S(2,2,2), AXVD, AX1D(2),     P168A4
      B          AX2D(2,2), AX3D(2,2,2), AXVC, AX1C(2), AX2C(2,2),         P168A5
      C          AX3C(2,2,2), AXVB, AX1B(2), AX2B(2,2), AX3B(2,2,2)        P168A6
       DOUBLE PRECISION AXVD, AX1D, AX2D, AX3D                             P168A7
       DOUBLE PRECISION AVD,A1D(4),A2D(2,2),A3D(2,2,2)                     P168A8
       COMPLEX AXVC, AX1C, AX2C, AX3C                                      P168A9
       COMPLEX AVC,A1C(12),A2C(2,2),A3C(2,2,1)                            P168AA
       LOGICAL AXVB, AX1B, AX2B, AX3B                                      P168AB
       LOGICAL A1B(2),A2B(2,2),A3B(2,2,2),AVB                             P168AC
C*****                                                                     P0013575
C*****  O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.       P1680240
C*****                                                                     P0072780
C*****  WHEN EXECUTING ONLY SEGMENT 168, THE FOLLOWING STATEMENT           P0072785
C*****  NUVI  =  6  MUST HAVE THE C= IN COLUMNS 1  AND  2  REMOVED.        P0072790
C=     NUVI = 6                                                            P0072795
       NUVI = 6                                                            P168B1
C*****     SET INTEGER VARIABLES AND SOME ELEMENTS IN ARRAYS TO ZERO       P1680250
C*****     WRITE HEADING                                                   P1680260
       WRITE (NUVI,1680)                                                   P1680270
 1680  FORMAT (1H1,1X,36HFSBRT - (168) SUBROUTINE SUBPROGRAMS/             P1680280
      A/18H  ASA REF. - 8.4.1//2X,7HRESULTS)                             P1680290
       IAVI = 0                                                           P1680300
       IAB1I(1) = 0                                                       P1680310
       IAB2I(1,2) = 0                                                     P1680320
       IAB3I(1,1,2) = 0                                                   P1680330
       IXVI = 0                                                           P1680340
       IAX1I(1) = 0                                                       P1680350
       IAX2I(1,2) = 0                                                     P1680360
       IAX3I(1,1,2) = 0                                                   P1680370
C*****     SET REAL VARIABLES AND SOME ELEMENTS IN ARRAYS TO ONE           P1680380
       AVS = 1.                                                           P1680390
       AB1S(1) = 1.                                                       P1680400
       AB2S(1,2) = 1.                                                     P1680410
       AB3S(1,1,2) = 1.                                                   P1680420
       BXVS = 1.                                                          P1680430
       AX1S(2) = 1.                                                       P1680440
       AX2S(1,2) = 1.                                                     P1680450
       AX3S(1,1,2) = 1.                                                   P1680460
C*****     SET DP VARIABLES AND SOME ELEMENTS IN ARRAY TO TWO              P1680470
       AVD = 2.0D0                                                        P1680480
       A1D(1) = 2.0D0                                                     P1680490
       A2D(1,2) = 2.0D0                                                   P1680500
       A3D(1,1,2) = 2.0D0                                                 P1680510
       AXVD = 2.0D0                                                       P1680520
       AX1D(1) = 2.0D0                                                    P1680530
       AX2D(1,2) = 2.D0                                                   P1680540
       AX3D(1,1,2) = 2.0D0                                                P1680550
C*****     SET COMPLEX VARIABLES AND SOME ELEMENTS IN ARRAYS TO (3.0,3.0)P1680560
       AVC = (3.0,3.0)                                                    P1680570
       A1C(1) = (3.0,3.0)                                                 P1680580
       A2C(1,2) = (3.0,3.0)                                               P1680590
       A3C(1,2,1) = (3.0,3.0)                                             P1680600
```

```
      AXVC = (3.0,3.0)                                                   P1680610
      AX1C(1) = (3.0,3.0)                                                P1680620
      AX2C(1,2) = (3.0,3.0)                                              P1680630
      AX3C(1,1,2) = (3.0,3.0)                                            P1680640
C*****     SET LOGICAL VARIABLES AND SOME ELEMENTS IN ARRAYS TO .FALSE.  P1680650
      AVB = .FALSE.                                                      P1680660
      A1B(1) = .FALSE.                                                   P1680670
      A2B(1,2) = .FALSE.                                                 P1680680
      A3B(1,1,2) = .FALSE.                                               P1680690
      AXVB = .FALSE.                                                     P1680700
      AX1B(1) = .FALSE.                                                  P1680710
      AX2B(1,2) = .FALSE.                                                P1680720
      AX3B(1,1,2) = .FALSE.                                              P1680730
C*****     SET INTEGER AND REAL VARIABLES FOR EXPRESSION USAGE IN        P1680740
C*****     DUMMY ARGUMENT                                                P1680750
      IAB1I(4) = 0                                                       P1680760
      IAB1I(2) = 0                                                       P1680770
      AB1S(4) = 0.0                                                      P1680780
      AB1S(2) = 0.0                                                      P1680790
      JAVI = 1                                                           P1680800
      KAVI = 1                                                           P1680810
      LAVI = 1                                                           P1680820
      MAVI = 1                                                           P1680830
      NAVI = 1                                                           P1680840
      ABVS = 1.                                                         P1680850
      ACVS = 1.                                                         P1680860
      ADVS = 2.                                                         P1680870
      AEVS = 2.                                                         P1680880
      AFVS = 2.                                                         P1680890
      CALL ADQ(IAVI,IAB1I, IAB2I, IAB3I, AVS, AB1S, AB2S, AB3S, AVD,     P1680900
     A         A1D, A2D, A3D, AVC, A1C, A2C, A3C, AVB, A1B, A2B, A3B,    P1680910
     B         JAVI+KAVI*LAVI-MAVI/NAVI,1,ABVS+ACVS*ADVS-AEVS/AFVS,2.)   P1680920
      WRITE (NUVI,1681)                                                  P1680930
      CALL AFQ                                                           P1680940
1681  FORMAT ( /28H   TEST IS SUCCESSFUL IF EACH/                        P1680950
     A28H   GROUP CONTAINS SAME VALUES)                                  P1680960
      WRITE (NUVI,1682) IAVI, IAB1I(1), IAB1I(2), IAB1I(4), IAB2I(1,2),  P1680970
     A                  IAB3I(1,1,2), IXVI, IAX1I(1), IAX2I(1,2),        P1680980
     B                  IAX3I(1,1,2), AVS, AB1S(1), AB2S(1,2), AB3S(1,1, P1680990
     C2),AB1S(2),AB1S(4),     BXVS, AX1S(2), AX2S(1,2), AX3S(1,1,2), AVD, P1681000
     D                  A1D(1), A2D(1,2), A3D(1,1,2), AXVD, AX1D(1),     P1681010
     E                  AX2D(1,2), AX3D(1,1,2), AVC, A1C(1), A2C(1,2),   P1681020
     F                  A3C(1,2,1), AXVC, AX1C(1), AX2C(1,2),            P1681030
     G                  AX3C(1,1,2), AVB, A1B(1), A2B(1,2), A3B(1,1,2),  P1681040
     H                  AXVB, AX1B(1), AX2B(1,2), AX3B(1,1,2)            P1681050
1682  FORMAT (  10(I10/)/                                               P1681060
     1              10(F11.1/)/                                          P1681070
     2               8(1PD15.1/)/                                        P1681080
     3               8(0PF5.1,F5.1/)/                                    P1681090
     4               8(L10/) )                                           P1681100
C*****     END OF TEST SEGMENT 168                                       P1681110
C*****   WHEN EXECUTING ONLY SEGMENT 168, THE STOP AND END CARDS         P1681120
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C= IN               P1681130
C*****   COLUMNS  1  AND  2  REMOVED.                                    P1681140
C=    STOP                                                               P1681150
C=    END                                                                P1681160
      STOP                                                               P168C1
      END                                                                P168C2
C***********************************************************************P4080010
C*****                                                                   P4080020
C*****                            ADQ - (408)                            P4080030
C*****                                                                   P4080040
C***********************************************************************P4080050
C*****   SUBROUTINE ADQ CALLED BY SEG. FSBRT(168)                        P4080060
      SUBROUTINE ADQ(IWVI,IAW1I,IAW2I,IAW3I,AWVS,AW1S,AW2S,AW3S,         P4080070
     A               AWVD,AW1D,AW2D,AW3D,AWVC,AW1C,AW2C,AW3C,            P4080080
     B               AWVB,AW1B,AW2B,AW3B,KWVI,MWVI,BWVS,CWVS)            P4080090
      DIMENSION IAW1I(4), IAW2I(3,3), IAW3I(2,2,2), AW1S(4), AW2S(3,3),  P4080100
```

```
     A            AW3S(2,2,2), AW1D(2), AW2D(2,2), AW3D(2,2,2), AW1C(2),    P4080110
     B            AW2C(2,2), AW3C(2,2,1), AW1B(2), AW2B(2,2),                P4080120
     C            AW3B(2,2,2)                                                P4080130
      DOUBLE PRECISION  AWVD, AW1D, AW2D, AW3D                              P4080140
      COMPLEX           AWVC, AW1C, AW2C, AW3C                              P4080150
      LOGICAL           AWVB, AW1B, AW2B, AW3B                              P4080160
C*****    STORE INTEGER AND REAL EXPRESSIONS                               P4080170
      IAW1I(4) = KWVI                                                      P4080180
      IAW1I(2) = MWVI                                                      P4080190
      AW1S(4) = BWVS                                                       P4080200
      AW1S(2) = CWVS                                                       P4080210
      CALL AEQ (IWVI,IAW1I,IAW2I,IAW3I,AWVS,AW1S,AW2S,AW3S)                P4080220
C*****    INCREMENT DOUBLE PRECISION                                       P4080230
      AWVD = AWVD + AWVD                                                   P4080240
      AW1D(1) = AW1D(1) + AW1D(1)                                          P4080250
      AW2D(1,2) = AW2D(1,2) + AW2D(1,2)                                    P4080260
      AW3D(1,1,2) = AW3D(1,1,2) + AW3D(1,1,2)                              P4080270
C*****    INCREMENT COMPLEX                                                P4080280
      AWVC = AWVC + AWVC                                                   P4080290
      AW1C(1) = AW1C(1) + AW1C(1)                                          P4080300
      AW2C(1,2) = AW2C(1,2) + AW2C(1,2)                                    P4080310
      AW3C(1,2,1) = AW3C(1,2,1) + AW3C(1,2,1)                              P4080320
C*****    CHANGE LOGICAL                                                   P4080330
      AWVB = .NOT. AWVB                                                    P4080340
      AW1B(1) = .NOT. AW1B(1)                                              P4080350
      AW2B(1,2) = .NOT. AW2B(1,2)                                          P4080360
      AW3B(1,1,2) = .NOT. AW3B(1,1,2)                                      P4080370
      RETURN                                                              P4080380
      END                                                                 P4080390
C*********************************************************************P4180010
C*****                                                                    P4180020
C*****                          AEQ - (418)                              P4180030
C*****                                                                    P4180040
C*********************************************************************P4180050
C*****    SUBROUTINE AEQ CALLED BY SEG  ADQ(408) WHICH IS                 P4180060
C*****    CALLED BY SEG. FSBRT(168)                                       P4180070
      SUBROUTINE AEQ(KWVI, KAW1I, KAW2I, KAW3I, AAWVS, AAW1S, AAW2S,       P4180080
     A            AAW3S)                                                   P4180090
      DIMENSION KAW1I(4),KAW2I(3,3),KAW3I(2,2,2),AAW1S(4),AAW2S(3,3),      P4180100
     A            AAW3S(2,2,2)                                             P4180110
C*****    INCREMENT INTEGERS                                              P4180120
      KWVI = KWVI + 1                                                     P4180130
      KAW1I(1) = KAW1I(1) + 1                                             P4180140
      KAW2I(1,2) = KAW2I(1,2) + 1                                         P4180150
      KAW3I(1,1,2) = KAW3I(1,1,2)+1                                       P4180160
C*****    INCREMENT REAL                                                  P4180170
      AAWVS = AAWVS + 1.                                                  P4180180
      AAW1S(1) = AAW1S(1) + 1.                                            P4180190
      AAW2S(1,2) = AAW2S(1,2) + 1.                                        P4180200
      AAW3S(1,1,2) = AAW3S(1,1,2) + 1.                                    P4180210
      RETURN                                                              P4180220
      END                                                                 P4180230
C*********************************************************************P4280010
C*****                                                                    P4280020
C*****                          AFQ - (428)                              P4280030
C*****                                                                    P4280040
C*********************************************************************P4280050
C*****    SUBROUTINE AFQ CALLED BY SEG. FSBRT(168)                        P4280060
      SUBROUTINE AFQ                                                      P4280070
      COMMON ABXVS, ACXVS, IAXVI, IAX1I(4), IAX2I(3,3), IAX3I(2,2,2),      P4280080
     A       AXVS, AX1S(4), AX2S(3,3), AX3S(2,2,2), AXVD, AX1D(2),        P4280090
     2       AX2D(2,2), AX3D(2,2,2),AXVC, AX1C(2), AX2C(2,2), AX3C(2,2,2)P4280100
     3       ,AXVB, AX1B(2), AX2B(2,2), AX3B(2,2,2)                       P4280110
      DOUBLE PRECISION AXVD, AX1D, AX2D, AX3D                             P4280120
      COMPLEX AXVC, AX1C, AX2C, AX3C                                      P4280130
      LOGICAL AXVB, AX1B, AX2B, AX3B                                      P4280140
C*****    SET INTEGERS TO 1                                               P4280150
      IAXVI = 1                                                           P4280160
```

```
        IAX1I(1) = 1                                                       P4280170
        IAX2I(1,2) = 1                                                     P4280180
        IAX3I(1,1,2) = 1                                                   P4280190
C*****    SET REAL TO 2                                                    P4280200
        AXVS = 2.                                                          P4280210
        AX1S(2) = 2.                                                       P4280220
        AX2S(1,2) = 2.                                                     P4280230
        AX3S(1,1,2) = 2.                                                   P4280240
C*****    SET DP TO 4                                                      P4280250
        AXVD = 4.0D0                                                       P4280260
        AX1D(1) = 4.0D0                                                    P4280270
        AX2D(1,2) = 4.0D0                                                  P4280280
        AX3D(1,1,2) = 4.0D0                                                P4280290
C*****    SET COMPLEX TO 6                                                 P4280300
        AXVC = (6.0,6.0)                                                   P4280310
        AX1C(1) = (6.0,6.0)                                                P4280320
        AX2C(1,2) = (6.0,6.0)                                              P4280330
        AX3C(1,1,2) = (6.0,6.0)                                            P4280340
C*****    CHANGE LOGICAL                                                   P4280350
        AXVB = .TRUE.                                                      P4280360
        AX1B(1) = .TRUE.                                                   P4280370
        AX2B(1,2) = .TRUE.                                                 P4280380
        AX3B(1,1,2) = .TRUE.                                               P4280390
        RETURN                                                            P4280400
        END                                                               P4280410
C******************************************************************P1690010
C*****                                                                     P1690020
C*****                          BLKDT - (169)                             P1690030
C*****                                                                     P1690040
C******************************************************************P1690050
C*****    GENERAL PURPOSE                                    ASA REFSP1690060
C*****       TO TEST BLOCK DATA SUBPROGRAM                        8.5   P1690070
C*****    GENERAL COMMENTS                                                 P1690080
C*****       THIS SEGMENT IS TO BE RUN WITH SEGMENT 409.   THIS          P1690090
C*****       SEGMENT WRITES OUT THE DATA FORMED IN SEGMENT 409.          P1690100
C*****                                                                     P1690110
C*****    S P E C I F I C A T I O N S   SEGMENT 169                        P1690120
C*****                                                                     P0013580
C*****    WHEN EXECUTING ONLY SEGMENT 169, THE SPECIFICATION STATEMENTS   P0013585
C*****    WHICH APPEAR AS COMMENTS MUST HAVE THE C=                       P0013590
C*****    IN COLUMNS  1  AND  2  REMOVED.                                 P0013595
C*****                                                                     P0013600
C=      COMMON /BLK1/JXVI, JAX1I(2), JAX2I(3,3)                           P0013605
C=    A        /BLK2/DXVS, DX1S(2), DX2S(2,2)                            P0013610
C=    B        /BLK3/DXVD, DX1D(2), DX2D(2,2)                            P0013615
C=    C        /BLK4/DXVC, DX1C(2), DX2C(2,2)                            P0013620
C=    D        /BLK5/DXVB, DX1B(2), DX2B(2,2)                            P0013625
C=    E        /BLK6/JAX3I(2,2,2), DX3S(2,2,2), DX3D(2,2,2),             P0013630
C=    F             DZ3C(2,2,2), DX3B(2,2,2)                             P0013635
C=      DOUBLE PRECISION DXVD, DX1D, DX2D, DX3D                           P0013640
C=      COMPLEX          DXVC, DX1C, DX2C, DZ3C                           P0013645
C=      LOGICAL          DXVB, DX1B, DX2B, DX3B                           P0013650
        COMMON /BLK1/JXVI, JAX1I(2), JAX2I(3,3)                           P169A1
      A        /BLK2/DXVS, DX1S(2), DX2S(2,2)                            P169A2
      B        /BLK3/DXVD, DX1D(2), DX2D(2,2)                            P169A3
      C        /BLK4/DXVC, DX1C(2), DX2C(2,2)                            P169A4
      D        /BLK5/DXVB, DX1B(2), DX2B(2,2)                            P169A5
      E        /BLK6/JAX3I(2,2,2), DX3S(2,2,2), DX3D(2,2,2),             P169A6
      F             DZ3C(2,2,2), DX3B(2,2,2)                             P169A7
        DOUBLE PRECISION DXVD, DX1D, DX2D, DX3D                           P169A8
        COMPLEX          DXVC, DX1C, DX2C, DZ3C                           P169A9
        LOGICAL          DXVB, DX1B, DX2B, DX3B                           P169AA
C*****                                                                     P0013655
C*****   O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     P1690130
C*****                                                                     P0072800
C*****    WHEN EXECUTING ONLY SEGMENT 169, THE FOLLOWING STATEMENT        P0072805
C*****    NUVI = 6  MUST HAVE THE C= IN COLUMNS 1  AND  2  REMOVED.       P0072810
C=      NUVI = 6                                                          P0072815
```

```
            NUVI = 6                                                    P169B1
C*****      WRITE HEAOING FOR SEGMENT 169                               P1690140
      WRITE (NUVI,1690)                                                 P1690150
1690  FORMAT (1H1,1X,35HBLKDT - (169) BLOCK DATA SUBPROGRAM//           P1690160
     A16H  ASA REF. - 8.5//2X,7HRESULTS)                               P1690170
      WRITE (NUVI,1691)                                                 P1690180
1691  FORMAT ( /28H  TEST IS SUCCESSFUL IF EACH/                        P1690190
     A28H   GROUP CONTAINS SAME VALUES)                                 P1690200
      WRITE (NUVI,1692) JAX2I(1,1), JAX1I(2), JAX2I(2,1), JAX3I(2,2,1)  P1690210
     A    ,OX3S(1,2,1), DX1S(1), OX2S(1,1), OX3S(2,2,1), DX20(2,2)      P1690220
     B    ,OX1D(2), OX20(2,1), OX30(2,2,1), OX2C(2,2), OX1C(2)          P1690230
     C    ,DX2C(2,1), OZ3C(2,1,1), OX2B(2,2),  OX1B(2), OX2B(2,1)       P1690240
     D    ,OX3B(2,2,1), JAX2I(3,1),                                     P1690250
     E     OX3B(2,1,2), OX2S(2,2)                                       P1690260
1692  FORMAT (// 4(I10/)//                                             P1690270
     A             4(F12.1/)//                                         P1690280
     B             4(1PO16.1/)//                                       P1690290
     C             4(0PF6.1,F6.1/)//                                   P1690300
     D             4(L10/)//                                           P1690310
     F             3(2H  ,A2/))                                        P1690320
C*****      END OF TEST SEGMENT 169                                     P1690330
C*****    WHEN EXECUTING ONLY SEGMENT 169, THE STOP ANO ENO CAROS       P1690340
C*****    WHICH APPEAR AS COMMENT CAROS MUST HAVE THE C= IN             P1690350
C***** COLUMNS  1  AND  2  REMOVEO.                                     P1690360
C=    STOP                                                              P1690370
C=    ENO                                                               P1690380
      STOP                                                              P169C1
      ENO                                                               P169C2
C*******************************************************************P4090010
C*****                                                                  P4090020
C*****                          BLOKO - (409)                           P4090030
C*****                                                                  P4090040
C*******************************************************************P4090050
C*****   GENERAL PURPOSE                                                P4090060
C*****      THIS SEGMENT CONTAINS ONE BLOCK DATA SUBPROGRAM.            P4090070
C*****      IT IS TO BE RUN WITH SEGMENT 169                            P4090080
C*****   GENERAL COMMENTS                                               P4090090
C*****      THIS SEGMENT USES ALL THE PERMISSIBLE STATEMENTS IN A       P4090100
C*****      BLOCK OATA SUBPROGRAM. THE DATA STATEMENT CONSISTS OF ALL   P4090110
C*****      TYPES OF VARIABLES ANO ARRAYS.  A HOLLERITH CONSTANT        P4090120
C*****      IS ASSIGNED TO INTEGER, REAL AND LOGICAL                    P4090130
      BLOCK DATA                                                        P4090140
      COMMON /BLK1/JXVI, JAX1I(2), JAX2I(3,3)                          P4090150
     A       /BLK2/OXVS, OX1S(2), DX2S(2,2)                            P4090160
     B       /BLK3/OXVO, OX10(2), DX2D(2,2)                            P4090170
     C       /BLK4/OXVC, DX1C(2), DX2C(2,2)                            P4090180
     D       /BLK5/DXVB, OX1B(2), OX2B(2,2)                            P4090190
     E       /BLK6/JAX3I(2,2,2), OX3S(2,2,2), OX30(2,2,2),             P4090200
     F             OZ3C(2,2,2), OX3B(2,2,2)                            P4090210
      OIMENSION CY3C(2,2,2)                                             P4090220
      DOUBLE PRECISION OXVO, OX10, OX20, OX3D                           P4090230
      COMPLEX           DXVC, OX1C, DX2C, OZ3C, CY3C                    P4090240
      LOGICAL           OXVB, DX1B, DX2B, DX3B                          P4090250
      INTEGER JXVI                                                      P4090260
      REAL OXVS                                                         P4090270
      EQUIVALENCE (DZ3C(1,1,1), CY3C(1,1,1))                            P4090280
      OATA JAX2I(1,1), JAX1I(2), JAX2I(2,1), JAX3I(2,2,1),OX3S(1,2,1), P4090290
     A     DX1S(1), OX2S(1,1), OX3S(2,2,1), OX20(2,2), OX10(2),        P4090300
     B     DX20(2,1), OX30(2,2,1), DX2C(2,2), OX1C(2), OX2C(2,1),      P4090310
     C     DZ3C(2,1,1), OX2B(2,2), DX1B(2), OX2B(2,1), DX3B(2,2,1),    P4090320
     D     JAX2I(3,1),DX3B(2,1,2),DX2S(2,2)/4*2,4*3.0,4*4.0D0,4*(4.,5.),P4090330
     E        4*.TRUE.,                   2HAB, 2HAB, 2HAB/            P4090340
C*****    END OF TEST SEGMENT 409                                       P4090350
      ENO                                                               P4090360
C*******************************************************************P1790010
C*****                                                                  P1790020
C*****                          BLKOA - (179)                           P1790030
C*****                                                                  P1790040
```

```
C**********************************************************************P1790050
C****   GENERAL PURPOSE                                        ASA REF P1790060
C****       TO TEST BLOCK DATA SUBPROGRAMS                        8.5  P1790070
C****        THIS SEGMENT IS TO BE RUN WITH SEGMENTS 419, 429, 439.   THIS P1790080
C****        SEGMENT WRITES OUT THE DATA FORMED IN SEGMENT 419, 429, 439  P1790090
C****                                                                 P1790100
C****   S P E C I F I C A T I O N S   SEGMENT 179                     P1790110
C****                                                                 P0013660
C****   WHEN EXECUTING ONLY SEGMENT 179, THE SPECIFICATION STATEMENTS P0013665
C****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=               P0013670
C****     IN COLUMNS  1  AND  2  REMOVED.                             P0013675
C****                                                                 P0013680
C=      DOUBLE PRECISION DXVD, DX1D, DX2D, DX3D                       P0013685
C=      COMPLEX          DXVC, DX1C, DX2C, DZ3C                       P0013690
C=      COMMON /BLK1/JXVI, JAX1I(2), JAX2I(3,3)                       P0013695
C=    A        /BLK2/DXVS, DX1S(2), DX2S(2,2)                         P0013700
C=    B        /BLK3/DXVD, DX1D(2), DX2D(2,2)                         P0013705
C=    C        /BLK4/DXVC, DX1C(2), DX2C(2,2)                         P0013710
C=    D        /BLK5/DXVB, DX1B(2), DX2B(2,2)                         P0013715
C=    E        /BLK6/JAX3I(2,2,2), DX3S(2,2,2), DX3D(2,2,2),          P0013720
C=    F                DZ3C(2,2,2), DX3B(2,2,2)                       P0013725
C=      LOGICAL          DXVB, DX1B, DX2B, DX3B                       P0013730
        DOUBLE PRECISION DXVD, DX1D, DX2D, DX3D                       P179A1
        COMPLEX          DXVC, DX1C, DX2C, DZ3C                       P179A2
        COMMON /BLK1/JXVI, JAX1I(2), JAX2I(3,3)                       P179A3
      A        /BLK2/DXVS, DX1S(2), DX2S(2,2)                         P179A4
      B        /BLK3/DXVD, DX1D(2), DX2D(2,2)                         P179A5
      C        /BLK4/DXVC, DX1C(2), DX2C(2,2)                         P179A6
      D        /BLK5/DXVB, DX1B(2), DX2B(2,2)                         P179A7
      E        /BLK6/JAX3I(2,2,2), DX3S(2,2,2), DX3D(2,2,2),          P179A8
      F                DZ3C(2,2,2), DX3B(2,2,2)                       P179A9
        LOGICAL          DXVB, DX1B, DX2B, DX3B                       P179AA
C****                                                                 P0013735
C****   O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.  P1790120
C****   WHEN EXECUTING ONLY SEGMENT 179, THE FOLLOWING STATEMENT      P0072820
C****   NUVI = 6  MUST HAVE THE C=  IN COLUMNS 1 AND 2 REMOVED.       P0072825
C****                                                                 P0072830
C=      NUVI = 6                                                      P0072835
        NUVI = 6                                                      P179B1
C****      WRITE HEADING FOR SEGMENT 179                              P1790130
        WRITE (NUVI,1790)                                            P1790140
1790    FORMAT (1H1,1X,32HBLKDA - (179) SEVERAL BLOCK DATA/ 16X,     P1790150
      1 11HSUBPROGRAMS/ 2X, 14HASA REF. - 8.5// 9H  RESULTS)         P1790160
        WRITE (NUVI,1791)                                            P1790170
1791    FORMAT (//28H  TEST IS SUCCESSFUL IF EACH/                   P1790180
      A28H  GROUP CONTAINS SAME VALUES)                              P1790190
        WRITE (NUVI,1792) JXVI, JAX1I(1), JAX2I(1,2), JAX3I(1,1,2), DXVS, P1790200
      A              DX1S(2), DX2S(1,2), DX3S(1,1,2), DXVD, DX1D(1), P1790210
      B              DX2D(1,2), DX3D(1,1,2), DXVC, DX1C(1),DX2C(1,2),P1790220
      C              DZ3C(1,1,2), DXVB, DX1B(1), DX2B(1,2),          P1790230
      D              DX3B(1,1,2), JAX2I(1,3),                        P1790240
      E              DX3B(2,2,2), DX2S(2,1)                          P1790250
1792    FORMAT (// 4(I10/)//                                        P1790260
      A              4(F12.1/)//                                     P1790270
      B              4(1PD16.1/)//                                   P1790280
      C              4(0PF6.1,F6.1/)//                               P1790290
      D              4(L10/)//                                       P1790300
      E              3(2H  ,A2/))                                    P1790310
C****      END OF TEST SEGMENT 179                                   P1790320
C****   WHEN EXECUTING ONLY SEGMENT 179, THE  STOP  AND  END  CARDS  P1790330
C****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=             P1790340
C****     IN COLUMNS  1  AND  2  REMOVED.                            P1790350
C=      STOP                                                         P1790360
C=      END                                                          P1790370
        STOP                                                         P179C1
        END                                                          P179C2
C**********************************************************************P4190010
C****                                                                 P4190020
```

```
C*****                          BLAKD - (419)                         P4190030
C*****                                                                P4190040
C*****************************************************************************P4190050
C*****    GENERAL PURPOSE                                             P4190060
C*****       THIS SEGMENT CONTAINS THE FIRST OF THREE BLOCK DATA SUBPROGRAMSP4190070
C*****       TO BE RUN WITH SEGMENT 179                              P4190080
C*****       THESE SEGMENTS USE ALL THE PERMISSIBLE STATEMENTS IN A   P4190090
C*****       BLOCK DATA SUBPROGRAM. THE DATA STATEMENTS CONSIST OF ALL P4190100
C*****       TYPES OF VARIABLES AND ARRAYS. A HOLLERITH CONSTANT IS   P4190110
C*****    ASSIGNED TO INTEGER , REAL, AND LOGICAL                     P4190120
      BLOCK DATA                                                     P4190130
      DOUBLE PRECISION DXVD, DX1D, DX2D                              P4190140
      COMMON /BLK1/JXVI, JAX1I(2), JAX2I(3,3)                        P4190150
     A       /BLK2/ DXVS, DX1S(2), DX2S(2,2)                         P4190160
     B       /BLK3/ DXVD, DX1D(2), DX2D(2,2)                         P4190170
      INTEGER JXVI                                                   P4190180
      REAL DXVS                                                      P4190190
      DATA JXVI, JAX1I(1), JAX2I(1,2), DXVS, DX1S(2)                 P4190200
     A    ,DX2S(1,2), DXVD, DX1D(1), DX2D(1,2)/ 3 * 1                P4190210
     B    ,3 * 2.0,3*4.0D0/,   JAX2I(1,3),DX2S(2,1)/2HHP,2HHP/       P4190220
C*****    END OF TEST SEGMENT 419                                     P4190230
      END                                                            P4190240
C*****************************************************************************P4290010
C*****                                                                P4290020
C*****                          BLBKD - (429)                         P4290030
C*****                                                                P4290040
C*****************************************************************************P4290050
C*****       TO BE RUN WITH SEGMENT 179                              P4290060
C*****    THIS SEGMENT CONTAINS THE 2ND OF THREE BLOCK DATA SUBPROGRAMS P4290070
C*****       TO BE RUN WITH SEGMENT 179                              P4290080
      BLOCK DATA                                                     P4290090
      COMPLEX DXVC, DX1C, DX2C                                       P4290100
      COMMON /BLK4/ DXVC,DX1C(2), DX2C(2,2)                          P4290110
     C       /BLK5/DXVB, DX1B(2), DX2B(2,2)                          P4290120
      LOGICAL DXVB, DX1B, DX2B                                       P4290130
      DATA DXVC, DX1C(1), DX2C(1,2),DXVB, DX1B(1),DX2B(1,2)/         P4290140
     D    3 * (3.,4.), 3 *.FALSE./                                   P4290150
C*****    END OF TEST SEGMENT 429                                     P4290160
      END                                                            P4290170
C*****************************************************************************P4390010
C*****                                                                P4390020
C*****                          BLCKD - (439)                         P4390030
C*****                                                                P4390040
C*****************************************************************************P4390050
C*****    THIS SEGMENT CONTAINS THE THIRD OF THREE BLOCK DATA SUBPROGRAMSP4390060
C*****       TO BE RUN WITH SEGMENT 179                              P4390070
      BLOCK DATA                                                     P4390080
      COMMON /BLK6/JAX3I(2,2,2),DX3S(2,2,2),DX3D(2,2,2)              P4390090
     E       ,DZ3C(2,2,2), DX3B(2,2,2)                               P4390100
      DOUBLE PRECISION DX3D                                          P4390110
      DIMENSION CY3C(2,2,2)                                          P4390120
      COMPLEX DZ3C,CY3C                                              P4390130
      EQUIVALENCE (DZ3C(1,1,1), CY3C(1,1,1))                         P4390140
      LOGICAL DX3B                                                   P4390150
      DATA JAX3I(1,1,2),DX3S(1,1,2),DX3D(1,1,2),CY3C(1,1,2),DX3B(1,1,2)/P4390160
     F 1, 2.0, 4.0D0, (3.,4.),.FALSE./          ,DX3B(2,2,2)/        P4390170
     G 2HHP/                                                         P4390180
C*****    END OF TEST SEGMENT 439                                     P4390190
      END                                                            P4390200
C*****************************************************************************P1800010
C*****                                                                P1800020
C*****                          UNFRW - (180)                         P1800030
C*****                                                                P1800040
C*****************************************************************************P1800050
C*****    GENERAL PURPOSE                                 ASA REF P1800060
C*****       TEST OF UNFORMATTED READ AND WRITE STATEMENTS    7.1.3.2.4P1800070
C*****                                                        7.1.3.2.5P1800080
C*****    S P E C I F I C A T I O N S  SEGMENT 180                    P1800090
```

```
C*****                                                              P0013740
C*****   WHEN EXECUTING ONLY SEGMENT 180, THE SPECIFICATION STATEMENTS  P0013745
C*****   WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE   C=          P0013750
C*****   IN COLUMNS  1  AND  2  REMOVED.                            P0013755
C*****                                                              P0013760
C=    DIMENSION CMA1S(5), CMB1S(5), AC1S(25)                        P0013765
      DIMENSION CMA1S(5), CMB1S(5), AC1S(25)                        P180A1
C*****                                                              P0013770
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENTS.  NO INPUT TAPE.  P1800100
C*****                                                              P0072840
C*****   WHEN EXECUTING ONLY SEGMENT 180, THE FOLLOWING STATEMENTS  P0072845
C*****   NUVI=6 AND INVI=9  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.  P0072850
C*****                                                              P0072855
C=    NUVI = 6                                                      P0072860
C=    INVI = 9                                                      P0072865
      NUVI = 6                                                      P180B1
      INVI = 9                                                      P180B2
C*****                                                              P0072870
      WRITE (NUVI,0180)                                             P1800110
180   FORMAT(1H1,1X,30HUNFRW - (180) UNFORMATTED READ/ 14X,         P1800120
     122H  AND WRITE STATEMENTS//36H  ASA REFS - 7.1.3.2.4 AND 7.1.3.2.5P1800130
     2//10H  RESULTS )                                              P1800140
C*****      HEADER FOR SEGMENT 180 WRITTEN                          P1800150
      CMAVS = 1.5E01                                                P1800160
      CMBVS = -2.75E-0                                              P1800170
      MCAVI = 5                                                     P1800180
      MCBVI = -10                                                   P1800190
      DPAVS = 1.02E0                                                P1800200
      DPBVS = 9876.0E-2                                             P1800210
      CMA1S(1) = 1.0E0                                              P1800220
      CMA1S(2) = 2.0E0                                              P1800230
      CMA1S(3) = 3.0E0                                              P1800240
      CMA1S(4) = 4.0E0                                              P1800250
      CMA1S(5) = 5.0E0                                              P1800260
C*****     WRITE AND READ VARIABLES OF THE SAME TYPE                P1800270
      REWIND INVI                                                   P1800280
      WRITE (INVI) CMAVS, CMBVS                                     P1800290
      WRITE (INVI) MCAVI, MCBVI                                     P1800300
      WRITE (INVI) DPAVS, DPBVS                                     P1800310
      WRITE (INVI) CMA1S                                            P1800320
      WRITE (INVI) (CMA1S(IVI), IVI = 1,5,1 )                       P1800330
      REWIND INVI                                                   P1800340
      READ (INVI) CMCVS, CMDVS                                      P1800350
      READ (INVI) MCCVI, MCDVI                                      P1800360
      READ (INVI) DPCVS, DPDVS                                      P1800370
      READ (INVI) CMB1S                                             P1800380
      READ (INVI) (AC1S(IVI), IVI = 1,5,1 )                         P1800390
C*****     CHECK RECORDS BY SUBTRACTING CORRESPONDING VALUES.       P1800400
      CMEVS = CMAVS - CMCVS                                         P1800410
      CMFVS = CMBVS - CMDVS                                         P1800420
      MCEVI = MCAVI - MCCVI                                         P1800430
      MCFVI = MCBVI - MCDVI                                         P1800440
      DPEVS = DPAVS - DPCVS                                         P1800450
      DPFVS = DPBVS - DPDVS                                         P1800460
      ACVS = CMA1S(1) - CMB1S(1)                                    P1800470
      BCVS = CMA1S(2) - CMB1S(2)                                    P1800480
      CCVS = CMA1S(3) - CMB1S(3)                                    P1800490
      DCVS = CMA1S(4) - CMB1S(4)                                    P1800500
      FFCVS = CMA1S(5)- CMB1S(5)                                    P1800510
      CMGVS = CMA1S(1) - AC1S(1)                                    P1800520
      CMHVS = CMA1S(2) - AC1S(2)                                    P1800530
      CMIVS = CMA1S(3) - AC1S(3)                                    P1800540
      CMJVS = CMA1S(4) - AC1S(4)                                    P1800550
      CMKVS = CMA1S(5) - AC1S(5)                                    P1800560
      WRITE (NUVI,181) CMEVS, CMFVS, MCEVI, MCFVI, DPEVS, DPFVS,    P1800570
     1       ACVS, BCVS, CCVS, DCVS, FFCVS, CMGVS, CMHVS, CMIVS, CMJVS,P1800580
     2       CMKVS                                                  P1800590
0181  FORMAT (//2(F20.10/),2(I19/),7(F20.10/))                     P1800600
```

```
C*****    READ AND WRITE VARIABLES OF DIFFERENT TYPES                         P1800610
      REWIND INVI                                                             P1800620
      WRITE (INVI) CMAVS, MCAVI                                               P1800630
      WRITE (INVI) CMA1S(1), CMA1S(2), CMBVS, MCBVI                           P1800640
      WRITE (INVI) CMA1S(3), CMA1S(4), CMA1S(5), DPAVS, DPBVS                 P1800650
      REWIND INVI                                                             P1800660
      READ (INVI) CMCVS, MCCVI                                                P1800670
      READ (INVI) CMB1S(1), CMB1S(2), CMDVS, MCDVI                            P1800680
      READ (INVI) CMB1S(3), CMB1S(4), CMB1S(5), DPCVS, DPDVS                  P1800690
      CMEVS = CMAVS - CMCVS                                                   P1800700
      CMFVS = CMBVS - CMDVS                                                   P1800710
      MCEVI = MCAVI - MCCVI                                                   P1800720
      MCFVI = MCBVI - MCDVI                                                   P1800730
      DPEVS = DPAVS - DPCVS                                                   P1800740
      DPFVS = DPBVS - DPDVS                                                   P1800750
      CMGVS = CMA1S(1) - CMB1S(1)                                             P1800760
      CMHVS = CMA1S(2) - CMB1S(2)                                             P1800770
      CMIVS = CMA1S(3) - CMB1S(3)                                             P1800780
      CMJVS = CMA1S(4) -CMB1S(4)                                              P1800790
      CMKVS = CMA1S(5) - CMB1S(5)                                             P1800800
      WRITE (NUVI,0182) CMEVS, CMFVS, MCEVI, MCFVI, DPEVS, DPFVS, CMGVS,P1800810
     1 CMHVS, CMIVS, CMJVS, CMKVS                                            P1800820
0182  FORMAT (//2(F20.10/),2(I19/),7(F20.10/))                               P1800830
C*****    TEST UNFORMATTED READ WITH NO LIST                                  P1800840
      REWIND INVI                                                             P1800850
      WRITE (INVI) CMAVS, MCAVI                                               P1800860
      WRITE (INVI) CMA1S                                                      P1800870
      WRITE (INVI) CMBVS, MCBVI                                               P1800880
      WRITE (INVI) CMA1S(5),CMA1S(4),CMA1S(3),CMA1S(2),CMA1S(1)              P1800890
C*****    ENDFILE CAN NOT BE TESTED, BUT INCLUDED FOR ACCEPTANCE AS          P1800900
C*****    A STATEMENT.                                                        P1800910
      ENDFILE INVI                                                            P1800920
      REWIND INVI                                                             P1800930
C*****CHECK THAT A RECORD IS READ WHEN NO LIST IS SUPPLIED BY COMPARING P1800940
C***** VALUES OF THE THIRD RECORD                                             P1800950
      READ (INVI) CMCVS, MCCVI                                                P1800960
      READ (INVI)                                                             P1800970
      READ (INVI) CMDVS, MCDVI                                                P1800980
      CMEVS = CMAVS - CMCVS                                                   P1800990
      CMFVS = CMBVS - CMDVS                                                   P1801000
      MCEVI = MCAVI - MCCVI                                                   P1801010
      MCFVI = MCBVI - MCDVI                                                   P1801020
      WRITE (NUVI, 0183)  CMEVS, CMFVS, MCEVI, MCFVI                          P1801030
 183  FORMAT(//2(F20.10/),2(I19/))                                           P1801040
      WRITE (NUVI,0184)                                                       P1801050
 184  FORMAT(37H0 ALL ABOVE ANSWERS SHOULD BE ZERO IF /                      P1801060
     1        37H  THE READ AND WRITE RECORDS COMPARE. )                      P1801070
      REWIND INVI                                                             P1801080
C*****    END OF TEST SEGMENT 180                                            P1801090
C*****  WHEN EXECUTING ONLY SEGMENT 180, THE  STOP  AND  END                 P1801100
C*****  CARDS WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=               P1801110
C*****   IN COLUMNS  1  AND  2  REMOVED.                                     P1801120
C=    STOP                                                                    P1801130
C=    END                                                                     P1801140
      STOP                                                                    P180C1
      END                                                                     P180C2
C*******************************************************************P1820010
C*****                                                                        P1820020
C*****                          BACUP (182)                                   P1820030
C*****                                                                        P1820040
C*****   ***********************************************************P1820050
C*****  GENERAL PURPOSE                                          ASA REF P1820060
C*****     WRITE A BLOCK, 1024 WORDS IN LENGTH, UNFORMATTED,   7.1.3.2.5P1820070
C***      TO TAPE,BACKSPACE, READ TO MEMORY                    7.1.3.3.2P1820080
C*****                                                         7.1.3.2.4P1820090
C*****  S P E C I F I C A T I O N S  SEGMENT 182                             P1820100
C*****                                                                        P0013780
C*****  WHEN EXECUTING ONLY SEGMENT 182, THE SPECIFICATION STATEMENTS  P0013785
```

```
C*****    WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                  P0013790
C*****    IN COLUMNS  1  AND  2  REMOVED.                                 P0013795
C*****                                                                    P0013800
C=     DIMENSION IV1I(1024)                                               P0013805
       DIMENSION IV1I(1024)                                               P182A1
C*****                                                                    P0013810
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENTS.   NO INPUT TAPE.  P1820110
C*****                                                                    P0072880
C*****    WHEN EXECUTING ONLY SEGMENT 182, THE FOLLOWING STATEMENTS       P0072885
C*****    NUVI=6 ANO IRVI=9 MUST HAVE THE C= IN COLUMNS 1 ANO 2 REMOVED.  P0072890
C*****                                                                    P0072895
C=     NUVI = 6                                                           P0072900
C=     INVI = 9                                                           P0072905
       NUVI = 6                                                           P182B1
       INVI = 9                                                           P182B2
C*****                                                                    P0072910
1820   FORMAT(1H1,1X,28HBACUP - (182) BACKSPACE TAPE//2X,18HASA REF. 7.1.P1820120
     33.3.2//9H  RESULTS)                                                 P1820130
       WRITE(NUVI,1820)                                                   P1820140
C*****  HEADER FOR SEGMENT 182 WRITTEN                                    P1820150
C*****                                                                    P1820160
       REWIND INVI                                                        P1820170
C*****    CREATE A LIST, 1024 WORDS IN LENGTH, CONTAINING                 P1820180
C*****    THE INTEGERS 1 TO 1024, ONE INTEGER PER WORD.                   P1820190
       ISVI = 0                                                           P1820200
       MRRVI = 1                                                          P1820210
1821   ISVI = ISVI + 1                                                    P1820220
       IV1I(ISVI) = ISVI                                                  P1820230
       IF (ISVI - 1024) 1821, 1822, 1823                                 P1820240
C*****   WRITE THE LIST TO AN INTERMEDIATE TAPE                           P1820250
1822   WRITE (INVI) IV1I                                                  P1820260
       WRITE(NUVI,1828) MRRVI, (IV1I(JCVI), JCVI=1,9),                    P1820270
     1 (IV1I(KCVI),KCVI=1016,1024)                                        P1820280
C*****   CHANGE MEMORY VALUES TO 5 TIMES THE ORIGINAL VALUES              P1820290
       MRRVI = 2                                                          P1820300
       ISVI = 0                                                           P1820310
1825   ISVI = ISVI + 1                                                    P1820320
       IV1I(ISVI) = 5 * ISVI                                              P1820330
       IF (ISVI - 1024) 1825,1826,1823                                   P1820340
1826   BACKSPACE  INVI                                                    P1820350
C*****   WRITE THE CHANGEO VALUES                                         P1820360
       WRITE(NUVI,1828) MRRVI, (IV1I(JCVI), JCVI=1,9),                    P1820370
     1 (IV1I(KCVI),KCVI=1016,1024)                                        P1820380
       MRRVI = 3                                                          P1820390
C*****   READ INTERMEDIATE TAPE WHICH HAS BEEN BACKSPACEO                 P1820400
       READ(INVI) IV1I                                                    P1820410
       REWIND INVI                                                        P1820420
C*****   WRITE INITIAL VALUES FROM BACKSPACED TAPE.                       P1820430
       WRITE(NUVI,1828) MRRVI,(IV1I(LVI), LVI=1,9),(IV1I(KVI),KVI=        P1820440
     1   1016, 1024)                                                      P1820450
1823   WRITE (NUVI,1829)                                                  P1820460
1828   FORMAT(//7H  GROUP,I3,3(/2X,3(I6)), 3(/2X,3(I6)))                  P1820470
1829   FORMAT(//2X,33HGROUPS 1 ANO 3 SHOULO BE THE SAME/                  P1820480
     I  30H  ANO GROUP 2, 5 TIMES GROUP 1)                               P1820490
C*****     ENO OF TEST SEGMENT 182                                        P1820500
C*****    WHEN EXECUTING ONLY SEGMENT 182, THE   STOP  ANO  ENO           P1820510
C*****    CARDS WHICH APPEAR AS COMMENT CAROS, MUST HAVE THE C=           P1820520
C*****    IN COLUMNS  1  AND  2  REMOVED.                                 P1820530
C=     STOP                                                               P1820540
C=     END                                                                P1820550
       STOP                                                               P182C1
       END                                                                P182C2
C********************************************************************P1900010
C*****                                                                    P1900020
C*****                         DOTRM - (190)                              P1900030
C*****                                                                    P1900040
C********************************************************************P1900050
C*****                                                                    P1900060
```

```
C*****    GENERAL PURPOSE                                          ASA REF  P1900070
C*****       DO LOOPS TESTED WITH ALL ALLOWABLE                   7.1.2.8  P1900080
C*****       TERMINAL STATEMENTS (I/O TESTED SEPARATELY)                   P1900090
C*****       CONTINUE, ASSIGN, LOGICAL IF                                  P1900100
C*****    RESTRICTIONS OBSERVED                                            P1900110
C*****    * M1, M2 AND M3 ARE GREATER THAN ZERO                 7.1.2.8/23 P1900120
C*****    * TERMINAL STATEMENT OF EACH DO PHYSICALLY FOLLOWS    7.1.2.8/08 P1900130
C*****       THE DO AND IS IN THE SAME PROGRAM UNIT                        P1900140
C*****    * TERMINAL STATEMENT IS EXECUTABLE BUT NOT A          7.1.2.8/07 P1900150
C*****       GO TO, ARITHMETIC IF, RETURN, STOP, PAUSE OR       7.1.2.8/10 P1900160
C*****       DO STATEMENT                                                  P1900170
C*****    * M1, M2 AND M3 ARE NOT REDEFINED WITHIN DO         7.1.2.8.2/54 P1900180
C*****    * BRANCHES TO TERMINAL STATEMENT FOR MORE THAN       7.1.2.8.2/01 P1900190
C*****       ONE DO ARE CONTAINED IN INNERMOST DO OF A NEST               P1900200
C*****    * CONTROL IS NEVER PASSED INTO RANGE OF DO FROM      7.1.2.8.2/44 P1900210
C*****       OUTSIDE ITS RANGE                                            P1900220
C*****                                                                    P1900230
C*****    S P E C I F I C A T I O N S   SEGMENT 190                       P1900240
C*****                                                                    P0013820
C*****    WHEN EXECUTING ONLY SEGMENT 190, THE SPECIFICATION STATEMENTS   P0013825
C*****    WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE   C=               P0013830
C*****    IN COLUMNS  1  AND  2  REMOVED.                                 P0013835
C*****                                                                    P0013840
C=     DIMENSION IAC1I(5)                                                 P0013845
       DIMENSION IAC1I(5)                                                 P190A1
C*****                                                                    P0013850
C*****    O U T P U T   T A P E   ASSIGNMENT STATEMENT. NO INPUT TAPE.    P1900250
C*****                                                                    P0072920
C*****    WHEN EXECUTING ONLY SEGMENT 190, THE FOLLOWING STATEMENT        P0072925
C*****    NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.          P0072930
C*****                                                                    P0072935
C=     NUVI = 6                                                           P0072940
       NUVI = 6                                                           P190B1
C*****                                                                    P0072945
       WRITE (NUVI,8906)                                                  P1900260
8906   FORMAT (1H1,1X,25HDOTRM - (190) DO TERMINAL//2X,                   P1900270
      -17HASA REF - 7.1.2.8//2X,7HRESULTS)                               P1900280
C*****    HEADER FOR SEGMENT 190                                          P1900290
C*****       CONTINUE WITH EXPLICIT INCREMENT***********************7.1.2.8 P1900300
       WRITE (NUVI,8905)                                                  P1900310
8905   FORMAT  (//2X,23HTEST1 CONTINUE EXPLICIT)                          P1900320
C*****    HEADER FOR CONTINUE EXPLICIT TEST                               P1900330
       DO 1901 JACVI = 1,4,1                                              P1900340
          IAC1I(JACVI) = JACVI                                           P1900350
1901   CONTINUE                                                          P1900360
       IF (IAC1I(1)-1) 1909,1902,1909                                    P1900370
1902   IF (IAC1I(2)-2) 1909,1903,1909                                    P1900380
1903   IF (IAC1I(3)-3) 1909,1904,1909                                    P1900390
1904   IF (IAC1I(4)-4) 1909,1905,1909                                    P1900400
C*****    WRITE OUT ERROR MESSAGE                                         P1900410
1909   MRRVI=1                                                           P1900420
       WRITE (NUVI,8904)MRRVI                                            P1900430
8904   FORMAT   (/2X,6H**TEST,I1,1X,17HINDICATES ERROR**)                P1900440
C*****    ERROR  FOR CONTINUE EXPLICIT TEST                               P1900450
       GO TO 8909                                                         P1900460
C*****    NO ERROR                                                        P1900470
C*****    WRITE OUT CONTINUE EXPLICIT TEST IS SUCCESS                     P1900480
1905   MRRVI=1                                                           P1900490
       WRITE (NUVI,8903)MRRVI                                            P1900500
8903   FORMAT   (/2X,6H**TEST,I1,1X,12HSUCCESSFUL**)                      P1900510
C*****    SUCCESS FOR CONTINUE EXPLICIT TEST                              P1900520
C*****       CONTINUE TERMINAL IMPLIED TEST************************7.1.2.8 P1900530
       WRITE (NUVI,8902)                                                  P1900540
8902   FORMAT   (//2X,22HTEST2 CONTINUE IMPLIED)                         P1900550
C*****    HEADER FOR CONTINUE IMPLIED TEST                                P1900560
8909   LCCVI=2                                                           P1900570
       DO  7900   KBCVI = LCCVI,4                                        P1900580
7900   IAC1I(KBCVI) = KBCVI + 1                                         P1900590
```

```
C*****      CHECK VALUES IN IAC1I ARRAY                                 P1900600
      IF (IAC1I(2)-3) 7909,8900,7909                                    P1900610
8900  IF (IAC1I(3)-4) 7909,8901,7909                                    P1900620
8901  IF (IAC1I(4)-5) 7909,7901,7909                                    P1900630
7909  MRRVI=2                                                           P1900640
      WRITE (NUVI,8904)MRRVI                                            P1900650
C*****      ERROR IN CONTINUE IMPLIED TEST                              P1900660
      GO TO 8908                                                        P1900670
C*****      WRITE OUT CONTINUE IMPLIEO IS SUCCESS                       P1900680
7901  MRRVI=2                                                           P1900690
      WRITE (NUVI,8903)MRRVI                                            P1900700
C*****      SUCCESS IN CONTINUE IMPLIED TEST                            P1900710
C*****      ASSIGN JERMINAL TEST *********************************7.1.2.8 P1900720
      WRITE (NUVI,9908)                                                 P1900730
9908  FORMAT    (//2X,12HTEST3 ASSIGN)                                  P1900740
C*****      HEADER FOR ASSIGN TEST                                      P1900750
8908  MDCVI = 0                                                         P1900760
      ASSIGN 7904 TO JFCVI                                              P1900770
      DO  7902  NECVI = 2,5,2                                           P1900780
      MOCVI = MOCVI +1                                                  P1900790
7902  ASSIGN 7903 TO JFCVI                                              P1900800
      GO TO JFCVI, (7903,7904,7904)                                     P1900810
C*****      AN ERROR IN ASSIGN TEST                                     P1900820
7904  MRRVI=3                                                           P1900830
      WRITE (NUVI,8904)MRRVI                                            P1900840
C*****      ERROR FOR ASSIGN TEST                                       P1900850
      GO TO 8907                                                        P1900860
7903  IF (MDCVI-2) 7904,7905,7904                                       P1900870
C*****      ASSIGN TEST IS SUCCESS                                      P1900880
7905  MRRVI=3                                                           P1900890
      WRITE (NUVI,8903)MRRVI                                            P1900900
C*****      SUCCESS FOR ASSIGN TEST                                     P1900910
C*****      LOGICAL IF TERMINAL TEST****************************7.1.2.8 P1900920
      WRITE (NUVI,9905)                                                 P1900930
9905  FORMAT    (//2X,16HTEST4 LOGICAL IF)                             P1900940
C*****      HEAOER FOR LOGICAL IF TEST                                  P1900950
8907  KGCVI = 1                                                         P1900960
      LHCVI = 3                                                         P1900970
      ASSIGN 7908 TO KCVI                                               P1900980
      OO  7906  JCVI = 1,3                                              P1900990
      KGCVI = KGCVI +1                                                  P1901000
7906  IF (KGCVI .EO. LHCVI) ASSIGN 7907 TO KCVI                        P1901010
      GO TO KCVI, (7908,7907,7908)                                      P1901020
C*****      TEST IS SUCCESS                                             P1901030
7907  MRRVI=4                                                           P1901040
      WRITE (NUVI,8903)MRRVI                                            P1901050
C*****      SUCCESS FOR LOGICAL IF TEST                                 P1901060
      GO TO 9902                                                        P1901070
C*****      LOGICAL IF IS NOT SUCCESS                                   P1901080
7908  MRRVI=4                                                           P1901090
      WRITE (NUVI,8904)MRRVI                                            P1901100
C*****      ERROR FOR LOGICAL IF TEST                                   P1901110
9902  CONTINUE                                                          P1901120
C*****      ENO OF TEST SEGMENT 190                                     P1901130
C*****      WHEN EXECUTING ONLY SEGMENT 190, THE  STOP  AND  ENO  CARDS P1901140
C*****      WHICH APPEAR AS COMMENT CAROS MUST HAVE THE  C=             P1901150
C*****      IN COLUMNS  1  AND  2  REMOVEO.                             P1901160
C=    STOP                                                              P1901170
C=    ENO                                                               P1901180
      STOP                                                              P190C1
      ENO                                                               P190C2
C************************************************************************P1910010
C*****                                                                  P1910020
C*****                         OOLMT - (191)                            P1910030
C*****                                                                  P1910040
C************************************************************************P1910050
C*****  GENERAL PURPOSE                                      ASA REF P1910060
C*****      TEST DO LOOPS WHERE                           7.1.2.8/18P1910070
```

```
C*****          INITIAL                                              P1910080
C*****          TERMINAL                                             P1910090
C*****          INCREMENT VALUES                                     P1910100
C*****      ARE COMPUTED AND SET AT OBJECT TIME                      P1910110
C*****   RESTRICTIONS OBSERVED                                       P1910120
C*****   * M1, M2 AND M3 ARE GREATER THAN ZERO           7.1.2.8/21P1910130
C*****   * TERMINAL STATEMENT OF EACH DO PHYSICALLY FOLLOWS 7.1.2.8/08P1910140
C*****     THE DO AND IS IN THE SAME PROGRAM UNIT                    P1910150
C*****   * TERMINAL STATEMENT IS EXECUTABLE BUT NOT A     7.1.2.8/07P1910160
C*****     GO TO, ARITHMETIC IF, RETURN, STOP, PAUSE OR  7.1.2.8/10P1910170
C*****     DO STATEMENT                                              P1910180
C*****   * M1, M2 AND M3 ARE NOT REDEFINED WITHIN DO    7.1.2.8.2/54P1910190
C*****   * BRANCHES TO TERMINAL STATEMENT FOR MORE THAN 7.1.2.8.2/01P1910200
C*****     ONE DO ARE CONTAINED IN INNERMOST DO OF A NEST            P1910210
C*****   * CONTROL IS NEVER PASSED INTO RANGE OF DO FROM 7.1.2.8.2/44P1910220
C*****     OUTSIDE ITS RANGE                                         P1910230
C*****                                                               P1910240
C*****   O U T P U T  T A P E  ASSIGNMENT STATEMENT. NO INPUT TAPE.  P1910250
C*****                                                               P0072950
C*****   WHEN EXECUTING ONLY SEGMENT 191, THE FOLLOWING STATEMENT    P0072955
C*****   NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.      P0072960
C*****                                                               P0072965
C=    NUVI = 6                                                       P0072970
      NUVI = 6                                                       P191B1
C*****                                                               P0072975
      WRITE (NUVI,1914)                                              P1910260
1914  FORMAT (1H1,1X,27HDOLMT - (191) DO SET LIMITS//2X,             P1910270
     - 18HASA REF. - 7.1.2.8//2X,7HRESULTS)                         P1910280
C*****     HEADER FOR SEGMENT 191 WRITTEN                            P1910290
      JACVI = 1                                                     P1910300
      KBCVI = 3                                                     P1910310
      LCCVI = 1                                                     P1910320
      NECVI = 0                                                     P1910330
      DO  1911 MDCVI = JACVI, KBCVI, LCCVI                          P1910340
         NECVI = NECVI + JACVI + KBCVI + MDCVI + LCCVI              P1910350
1911  CONTINUE                                                      P1910360
      IF (NECVI-21) 1913,1912,1913                                 P1910370
C*****     ERROR                                                    P1910380
1913  WRITE (NUVI,1915)                                             P1910390
1915  FORMAT    (/2X,24H**TEST INDICATES ERROR**//2X,10H*********)  P1910400
C*****     DOLMT TEST FAILS,LIMIT VALUE SET INCORRECTLY             P1910410
      GO TO 1917                                                    P1910420
C*****     CORRECT                                                  P1910430
1912  WRITE (NUVI,1916)                                             P1910440
1916  FORMAT    (/2X,19H**TEST SUCCESSFUL**)                        P1910450
C*****     DOLMT TEST IS SUCCESSFUL                                 P1910460
1917  CONTINUE                                                      P1910470
C*****     END OF TEST SEGMENT 191                                  P1910480
C*****   WHEN EXECUTING ONLY SEGMENT 191, THE  STOP  AND  END  CARDS P1910490
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=            P1910500
C*****   IN COLUMNS  1  AND  2  REMOVED..                           P1910510
C=    STOP                                                          P1910520
C=    END                                                          P1910530
      STOP                                                          P191C1
      END                                                          P191C2
C*************************************************************************P1920010
C*****                                                               P1920020
C*****                         DONSC - (192)                        P1920030
C*****                                                               P1920040
C*************************************************************************P1920050
C*****   GENERAL PURPOSE                                  ASA REF P1920060
C*****     TEST NESTED DO LOOPS                          7.1.2.8/28P1920070
C*****     WITH 2, 3, 4, 5 LEVELS                                   P1920080
C*****   SPECIAL CONSIDERATION                                      P1920090
C*****     5 LEVELS ARBITRARILY ASSIGNED AS MINIMUM REQUIREMENT     P1920100
C*****   RESTRICTIONS OBSERVED                                      P1920110
C*****   * M1, M2 AND M3 ARE GREATER THAN ZERO           7.1.2.8/21P1920120
C*****   * TERMINAL STATEMENT OF EACH DO PHYSICALLY FOLLOWS 7.1.2.8/28P1920130
```

```
C*****      THE DO AND IS IN THE SAME PROGRAM UNIT                          P1920140
C*****    * TERMINAL STATEMENT IS EXECUTABLE BUT NOT A          7.1.2.8/07P1920150
C*****      GO TO, ARITHMETIC IF, RETURN, STOP, PAUSE OR        7.1.2.8/10P1920160
C*****      DO STATEMENT                                                    P1920170
C*****    * M1, M2 AND M3 ARE NOT REDEFINED WITHIN DO         7.1.2.8.2/54P1920180
C*****    * BRANCHES TO TERMINAL STATEMENT FOR MORE THAN      7.1.2.8.2/01P1920190
C*****      ONE DO ARE CONTAINED IN INNERMOST DO OF A NEST                  P1920200
C*****                                                                      P1920210
C*****    S P E C I F I C A T I O N S   SEGMENT 192                         P1920220
C*****                                                                      P0013860
C*****    WHEN EXECUTING ONLY SEGMENT 192, THE SPECIFICATION STATEMENTS     P0013865
C*****    WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                    P0013870
C*****    IN COLUMNS  1  AND  2  REMOVED.                                   P0013875
C*****                                                                      P0013880
C=      INTEGER MCA3I(2,3,3)                                                P0013885
        INTEGER MCA3I(2,3,3)                                                P192A1
C*****                                                                      P0013890
C*****    O U T P U T   T A P E   ASSIGNMENT STATEMENT. NO INPUT TAPE.      P1920230
C*****                                                                      P0072980
C*****    WHEN EXECUTING ONLY SEGMENT 192, THE FOLLOWING STATEMENT          P0072985
C*****    NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.            P0072990
C*****                                                                      P0072995
C=      NUVI = 6                                                            P0073000
        NUVI = 6                                                            P192B1
C*****                                                                      P0073005
        WRITE (NUVI,8920)                                                   P1920240
8920    FORMAT (1H1,1X,26HDONSC - (192) NESTED LOOPS// 2X,                  P1920250
       -18HASA REF. - 7.1.2.8//2X,7HRESULTS)                               P1920260
C*****      HEADER FOR SEGMENT 192 WRITTEN                                  P1920270
C*****      TWO LEVELS OF NESTING*********************************************P1920280
        MRRVI=2                                                            P1920290
        WRITE (NUVI,8921)MRRVI                                             P1920300
8921    FORMAT   (//2X,I1,1X,17HLEVELS OF NESTING)                         P1920310
C*****      HEADER FOR TWO LEVELS                                          P1920320
        JACVI = 0                                                          P1920330
        DO  1922 KBCVI = 1,  2,  1                                         P1920340
        JACVI = KBCVI*3 + JACVI                                            P1920350
         DO  1921  LCCVI = 1,5,  2                                         P1920360
        JACVI = JACVI + LCCVI                                              P1920370
1921      CONTINUE                                                        P1920380
1922    CONTINUE                                                          P1920390
C*****      TEST JACVI FOR VALUE OF 27                                     P1920400
        IF (JACVI-27) 1924,1923,1924                                       P1920410
C*****      CORRECT                                                        P1920420
1923    WRITE (NUVI,8922)                                                  P1920430
8922    FORMAT  (2X,19H**TEST SUCCESSFUL**)                                P1920440
C*****      TWO LEVELS OF NESTING IS CORRECT                               P1920450
        GO TO 7927                                                         P1920460
C*****      ERROR                                                          P1920470
1924    WRITE (NUVI,8923)                                                  P1920480
8923    FORMAT  (2X,24H**TEST INDICATES ERROR**)                           P1920490
C*****      TWO LEVELS OF NESTING IN ERROR                                 P1920500
C*****      THREE LEVELS OF NESTING***************************************P1920510
7927    MRRVI=3                                                           P1920520
        WRITE (NUVI,8921)MRRVI                                             P1920530
C*****      HEADER FOR THREE LEVELS                                        P1920540
        MDCVI = 0                                                          P1920550
        DO  1927  LCCVI = 6,7                                              P1920560
         DO 1926  KBCVI = 8,10,2                                           P1920570
          DO 1925  JACVI = 1,3,1                                           P1920580
        MDCVI = MDCVI + JACVI + KBCVI + LCCVI                              P1920590
1925      CONTINUE                                                        P1920600
1926    CONTINUE                                                          P1920610
1927    CONTINUE                                                          P1920620
C*****      TEST MDCVI FOR VALUE OF 210                                    P1920630
        IF (MDCVI - 210) 1928,1929,1928                                    P1920640
C*****      ERROR                                                          P1920650
1928    WRITE (NUVI,8923)                                                  P1920660
```

```
C*****    THREE LEVELS OF NESTING IN ERROR                          P1920670
      GO TO 7928                                                    P1920680
C*****    CORRECT                                                   P1920690
1929  WRITE (NUVI,8922)                                             P1920700
C*****    THREE LEVELS OF NESTING IS CORRECT                        P1920710
C*****    FOUR LEVELS OF NESTING***************************************P1920720
7928  MRRVI=4                                                       P1920730
      WRITE (NUVI,8921)MRRVI                                        P1920740
C*****    HEADER FOR FOUR LEVELS                                    P1920750
      IHDVI = 0                                                     P1920760
      IGDVI = 0                                                     P1920770
      IFDVI = 0                                                     P1920780
      IEDVI = 0                                                     P1920790
      ICVI = 1                                                      P1920800
      DO  7920  MDCVI = 2,3                                         P1920810
      IHDVI = IHDVI + MDCVI + IEDVI                                 P1920820
        DO 7920  LCCVI = 3,5,3                                      P1920830
       IGDVI = IGDVI + LCCVI + IHDVI                                P1920840
          DO 7920 KBCVI = 1,2,ICVI                                 P1920850
         IFDVI = IFDVI + KBCVI + IGDVI                              P1920860
            DO 7920  JACVI = 4,5,2                                 P1920870
            IEDVI = IEDVI + JACVI + IFDVI                           P1920880
7920  CONTINUE                                                      P1920890
C*****    TEST IEDVI FOR VALUE OF 185                               P1920900
      IF (IEDVI - 185)  7921,7922,7921                              P1920910
C*****    ERROR                                                     P1920920
7921  WRITE (NUVI,8923)                                             P1920930
C*****    FOUR LEVELS OF NESTING IN ERROR                           P1920940
      GO TO 7929                                                    P1920950
C*****    CORRECT                                                   P1920960
7922  WRITE (NUVI,8922)                                             P1920970
C*****    FOUR LEVELS OF NESTING IS CORRECT                         P1920980
C*****    FIVE LEVELS OF NESTING****************************************P1920990
7929  MRRVI=5                                                       P1921000
      WRITE (NUVI,8921)MRRVI                                        P1921010
C*****    HEADER FOR FIVE LEVELS                                    P1921020
      IGDVI = 0                                                     P1921030
      DO  7923  NECVI = 10,11,1                                     P1921040
        DO 7923 MDCVI = 4,5,1                                       P1921050
         DO 7924 LCCVI = 1,2,3                                      P1921060
            DO 7924 KBCVI = 6, 8, 4                                P1921070
              DO 7924 JACVI = 1,3,2                                P1921080
              IGDVI=IGDVI+JACVI-KBCVI+LCCVI-MDCVI+NECVI             P1921090
7924  CONTINUE                                                      P1921100
7923  CONTINUE                                                      P1921110
C*****    TEST IGDVI FOR VALUE OF 24                                P1921120
      IF (IGDVI - 24)  7925, 7926,7925                              P1921130
C*****    ERROR                                                     P1921140
7925  WRITE (NUVI,8923)                                             P1921150
C*****    FIVE LEVELS IN ERROR                                      P1921160
      GO TO 9923                                                    P1921170
7926  WRITE (NUVI,8922)                                             P1921180
C*****    FIVE LEVELS CORRECT                                       P1921190
C*****    CONTROL VARIABLES FOR 3 DO LOOPS USED IN SUBSCRIPT EXPRESSIONS P1921200
C*****    FOR A 3 DIMENSIONAL ARRAY                                 P1921210
9923  WRITE(NUVI, 9920)                                             P1921220
9920  FORMAT(//2X,34HCONTROL VARIABLE USED IN SUBSCRIPT )           P1921230
      IVI = 1                                                       P1921240
      KVI = 0                                                       P1921250
8924  KVI = KVI + 1                                                 P1921260
      JVI = 0                                                       P1921270
8925  JVI = JVI + 1                                                 P1921280
      MCA3I(IVI,JVI,KVI) = IVI + 2*(JVI-1)+ 6*(KVI-1)               P1921290
      MCA3I(IVI+1,JVI,KVI) = IVI+1 +2*(JVI-1)+6*(KVI-1)             P1921300
      IF(JVI-3) 8925,8926,8929                                      P1921310
8926  IF(KVI-3)8924,8927,8929                                       P1921320
8927  IIVI = 1                                                      P1921330
      DO 8928 KVI =1,3                                              P1921340
```

```
              DO 8928  JVI = 1,3                                              P1921350
                DO 8928  IVI = 1,2                                            P1921360
          IAVI =MCA3I(IVI,JVI,KVI) - IIVI                                     P1921370
          IF (IAVI) 8929, 8928, 8929                                         P1921380
 8928     IIVI = IIVI + 1                                                     P1921390
          WRITE (NUVI, 8922)                                                  P1921400
          GO TO 9921                                                         P1921410
 8929     WRITE (NUVI, 8923)                                                  P1921420
 9921     CONTINUE                                                           P1921430
C*****      END OF TEST SEGMENT 192                                          P1921440
C*****    WHEN EXECUTING ONLY SEGMENT 192, THE  STOP  AND  END  CARDS        P1921450
C*****    WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=                   P1921460
C*****    IN COLUMNS  1  AND  2  REMOVED.                                    P1921470
C=      STOP                                                                 P1921480
C=      END                                                                  P1921490
        STOP                                                                 P192C1
        END                                                                 P192C2
C***********************************************************************P1930010
C*****                                                                       P1930020
C*****                         DONSI - (193)                                 P1930030
C*****                                                                       P1930040
C***********************************************************************P1930050
C*****    GENERAL PURPOSE                                         ASA REF P1930060
C*****      TESTS INCOMPLETE DO LOOP                          7.1.2.8.1/19P1930070
C*****    RESTRICTIONS OBSERVED                                              P1930080
C*****    * M1, M2 AND M3 ARE GREATER THAN ZERO                 7.1.2.8/21P1930090
C*****    * TERMINAL STATEMENT OF EACH DO PHYSICALLY FOLLOWS    7.1.2.8/08P1930100
C*****      THE DO AND IS IN THE SAME PROGRAM UNIT                           P1930110
C*****    * TERMINAL STATEMENT IS EXECUTABLE BUT NOT A          7.1.2.8/07P1930120
C*****      GO TO, ARITHMETIC IF, RETURN, STOP, PAUSE OR        7.1.2.8/10P1930130
C*****      DO STATEMENT                                                     P1930140
C*****    * M1, M2 AND M3 ARE NOT REDEFINED WITHIN DO         7.1.2.8.1/54P1930150
C*****    * BRANCHES TO TERMINAL STATEMENT FOR MORE THAN      7.1.2.8.1/01P1930160
C*****      ONE DO ARE CONTAINED IN INNERMOST DO OF A NEST                   P1930170
C*****                                                                       P1930180
C*****    O U T P U T   T A P E   ASSIGNMENT STATEMENT. NO INPUT TAPE.       P1930190
C*****                                                                       P0073010
C*****    WHEN EXECUTING ONLY SEGMENT 193, THE FOLLOWING STATEMENT           P0073015
C*****    NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.             P0073020
C*****                                                                       P0073025
C=      NUVI = 6                                                             P0073030
        NUVI = 6                                                             P193B1
C*****                                                                       P0073035
        WRITE (NUVI,1935)                                                    P1930200
 1935   FORMAT (1H1,1X,27HDONSI - (193) INCOMPLETE DO//2X,                   P1930210
      - 18HASA REF. - 7.1.2.8//2X,7HRESULTS)                                 P1930220
C*****      HEADER FOR SEGMENT 193 WRITTEN                                   P1930230
        KBCVI = 0                                                            P1930240
        DO  1931  JACVI = 1,5,1                                              P1930250
        KBCVI = KBCVI + JACVI                                                P1930260
        IF(KBCVI - 6) 1931, 1930, 1931                                      P1930270
 1930   GO TO 1932                                                           P1930280
 1931   CONTINUE                                                             P1930290
C*****      ERROR EXIT                                                       P1930300
        WRITE (NUVI,1936)                                                    P1930310
 1936   FORMAT (1H0,2X,28H**INCOMPLETE LOOP IN ERROR**)                      P1930320
C*****    INCOMPLETE LOOP TEST IN ERROR                                      P1930330
        GO TO 1937                                                           P1930340
C*****      TEST JACVI FOR VALUE OF 3                         7.1.2.8.1/21P1930350
 1932   IF (JACVI - 3) 1933,1934,1933                                        P1930360
C*****      ERROR IN INDUCTION VARIABLE                                      P1930370
 1933   WRITE (NUVI,1938)                                                    P1930380
 1938   FORMAT (1H0,2X,31H**INDUCTION VARIABLE IN ERROR**)                   P1930390
C*****      INDUCTION VARIABLE SET INCORRECTLY OUTSIDE LOOP                  P1930400
        GO TO 1937                                                           P1930410
 1934   WRITE (NUVI,1939)                                                    P1930420
 1939   FORMAT (1H0,1X,30H**INCOMPLETE LOOP SUCCESSFUL**)                    P1930430
C*****      INCOMPLETE LOOP TEST SUCCESS                                     P1930440
```

```
1937  CONTINUE                                                             P1930450
C*****      END OF TEST SEGMENT 193                                        P1930460
C*****   WHEN EXECUTING ONLY SEGMENT 193, THE  STOP  AND  END  CARDS       P1930470
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                    P1930480
C*****   IN COLUMNS  1  AND  2  REMOVED.                                    P1930490
C=     STOP                                                                 P1930500
C=     END                                                                  P1930510
       STOP                                                                 P193C1
       END                                                                  P193C2
C*************************************************************************P1940010
C*****                                                                      P1940020
C*****                          DONSX - (194)                              P1940030
C*****                                                                      P1940040
C*************************************************************************P1940050
C*****    GENERAL PURPOSE                                       ASA REF P1940060
C*****      TESTS EXTENDED RANGE OF DO LOOP VARIABLE            7.1.2.8.2P1940070
C*****    RESTRICTIONS OBSERVED                                            P1940080
C*****    * M1, M2 AND M3 ARE GREATER THAN ZERO                7.1.2.8/21P1940090
C*****    * TERMINAL STATEMENT OF EACH DO PHYSICALLY FOLLOWS   7.1.2.8/08P1940100
C*****      THE DO AND IS IN THE SAME PROGRAM UNIT                         P1940110
C*****    * TERMINAL STATEMENT IS EXECUTABLE BUT NOT A         7.1.2.8/07P1940120
C*****      GO TO, ARITHMETIC IF, RETURN, STOP, PAUSE OR       7.1.2.8/10P1940130
C*****      DO STATEMENT                                                   P1940140
C*****    * M1, M2 AND M3 ARE NOT REDEFINED WITHIN DO          7.1.2.8.2/54P1940150
C*****    * BRANCHES TO TERMINAL STATEMENT FOR MORE THAN       7.1.2.8.2/01P1940160
C*****      ONE DO ARE CONTAINED IN INNERMOST DO OF A NEST                 P1940170
C*****    * THE EXTENDED RANGE OF A DO DOES NOT CONTAIN A      7.1.2.8.2/48P1940180
C*****      DO OF THE SAME PROGRAM UNIT THAT HAS AN                        P1940190
C*****      EXTENDED RANGE.                                                P1940200
C*****                                                                     P1940210
C*****    S P E C I F I C A T I O N S   SEGMENT 194                        P1940220
C*****                                                                     P0013900
C*****   WHEN EXECUTING ONLY SEGMENT 194, THE SPECIFICATION STATEMENTS     P0013905
C*****   WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE  C=                   P0013910
C*****   IN COLUMNS  1  AND  2  REMOVED.                                    P0013915
C*****                                                                     P0013920
C=     DIMENSION IAC1I(5)                                                   P0013925
C=     INTEGER I3I(2,2,2)                                                   P0013930
       DIMENSION IAC1I(5)                                                   P194A1
       INTEGER I3I(2,2,2)                                                   P194A2
C*****                                                                     P0013935
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENT. NO INPUT TAPE.       P1940230
C*****                                                                     P0073040
C*****   WHEN EXECUTING ONLY SEGMENT 194, THE FOLLOWING STATEMENT          P0073045
C*****   NUVI = 6   MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.           P0073050
C*****                                                                     P0073055
C=     NUVI = 6                                                            P0073060
       NUVI = 6                                                            P194B1
C*****                                                                     P0073065
       WRITE (NUVI,8944)                                                   P1940240
8944   FORMAT (1H1,1X,31HDONSX - (194) EXTENDED DO RANGE//2X,             P1940250
      120HASA REF. - 7.1.2.8.2//2X,7HRESULTS)                            P1940260
C*****      HEADER FOR SEGMENT 194 WRITTEN                                 P1940270
C*****      EXTENDED RANGE FROM SINGLE LEVEL*****************************P1940280
       MRRVI=1                                                            P1940290
       WRITE (NUVI,8942)MRRVI                                            P1940300
8942   FORMAT (//2X,26HEXTENDED RANGE FROM LEVEL ,I1)                     P1940310
C*****      HEADER FOR SINGLE LEVEL WRITTEN                                P1940320
       DO  1941  JACVI = 1,4,2                                           P1940330
       IAC1I(JACVI) = JACVI                                              P1940340
       GO TO 1942                                                        P1940350
1943   IF(JACVI-1) 1945,1941,1945                                        P1940360
1941   CONTINUE                                                          P1940370
       GO TO 1949                                                        P1940380
C*****      TEST JACVI FOR VALUE OF 1                                      P1940390
1942   IF (JACVI - 1) 1946,1943,1946                                     P1940400
C*****      TEST IAC1I(1) AND IAC1I(3) FOR VALUES OF 1 AND 3               P1940410
1946   IF (IAC1I(1)-1) 1947,7946,1947                                    P1940420
```

```
7946   IF (IAC1I(3)-3) 1947,1943,1947                              P1940430
C*****       ERROR                                                 P1940440
1947   WRITE (NUVI,7947)                                           P1940450
7947   FORMAT (/2X,24H**TEST INDICATES ERROR**)                    P1940460
C*****       ERROR IN SETTING OF IAC1I ARRAY, LOOP NOT WORKING     P1940470
       GO TO 8940                                                  P1940480
C*****       TEST JACVI FOR VALUE OF 3                             P1940490
1945   IF (JACVI - 3) 1948,1941,1948                              P1940500
C*****       ERROR                                                 P1940510
1948    WRITE (NUVI,7947)                                          P1940520
C*****       ERROR IN SETTING OF INDUCTION VARIABLE                P1940530
       GO TO 8940                                                  P1940540
1949   WRITE (NUVI,7949)                                           P1940550
7949   FORMAT (/2X,19H**TEST SUCCESSFUL**)                         P1940560
C*****       EXTENDED RANGE SUCCESS FOR SINGLE LEVEL               P1940570
8940   MRRVI=2                                                     P1940580
C*****       EXTENDED RANGE FROM DOUBLE LEVEL*********************************P1940590
       WRITE (NUVI,8942)MRRVI                                      P1940600
C*****       HEADER FOR DOUBLE LEVEL WRITTEN                       P1940610
       DO 7940  KBCVI = 3,4                                        P1940620
         DO 7940 JACVI = 1,2,3                                     P1940630
         GO TO 7941                                                P1940640
8947     IGDVI=  1                                                 P1940650
7940   CONTINUE                                                    P1940660
C*****       TEST JACVI FOR VALUE OF 1                             P1940670
7941   IF (JACVI-1) 7942,7943,7942                                P1940680
C*****       ERROR                                                 P1940690
7942   WRITE (NUVI,7947)                                           P1940700
C*****       DOUBLE LEVEL NESTING IN ERROR                         P1940710
       GO TO 8946                                                  P1940720
C*****       TEST KBCVI FOR VALUE OF 3 OR 4                        P1940730
7943   IF (KBCVI-3) 7942,8947,7944                                P1940740
7944   IF (KBCVI-4) 7942,7945,7942                                P1940750
C*****       CORRECT                                               P1940760
7945   WRITE (NUVI,7949)                                           P1940770
C*****       DOUBLE LEVEL TEST CORRECT                             P1940780
8946   CONTINUE                                                    P1940790
       I3I(1,1,1) = 2                                              P1940800
       I3I(2,1,1) = 4                                              P1940810
       I3I(1,2,1) = 1                                              P1940820
       I3I(2,2,1) = 2                                              P1940830
       I3I(1,1,2)= -2                                              P1940840
       I3I(2,1,2) = 0                                              P1940850
       I3I(1,2,2) = -3                                             P1940860
       I3I(2,2,2) = -2                                             P1940870
8952   FORMAT(//2X,40HEXTENDED RANGE CONTAINING A DO STATEMENT)    P1940880
       WRITE(NUVI, 8952)                                           P1940890
       DO 8948 IVI = 1,2                                           P1940900
       I3I(1,1,IVI) = I3I(1,1,IVI) + 1                             P1940910
       DO 8948  JVI = 1,2                                          P1940920
       I3I(1,JVI,IVI) = I3I(1,JVI,IVI) + 2                         P1940930
       GO TO 8949                                                  P1940940
8951   CONTINUE                                                    P1940950
8948   CONTINUE                                                    P1940960
       WRITE (NUVI, 8950) I3I                                      P1940970
8950   FORMAT(8(/I5) /30H   THE ABOVE 8 VALUES SHOULD BE/          P1940980
      1 33H   IN DESCENDING ORDER FROM 8 TO 1)                     P1940990
       GO TO 8953                                                  P1941000
8949   DO 8954  KVI = 1,2                                          P1941010
       I3I(KVI,JVI,IVI) = I3I(KVI,JVI,IVI) + 3                     P1941020
8954   CONTINUE                                                    P1941030
       GO TO 8951                                                  P1941040
8953   CONTINUE                                                    P1941050
C*****       END OF TEST SEGMENT 194                               P1941060
C*****   WHEN EXECUTING ONLY SEGMENT 194, THE   STOP   AND   END   CARDS    P1941070
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=           P1941080
C*****   IN COLUMNS  1  AND  2  REMOVED.                           P1941090
C=     STOP                                                        P1941100
```

```
C=    END                                                              P1941110
      STOP                                                             P194C1
      END                                                              P194C2
C***********************************************************************P1950010
C****                                                                  P1950020
C****                         DONML - (195)                           P1950030
C****                                                                  P1950040
C***********************************************************************P1950050
C****   GENERAL PURPOSE                                      ASA REF P1950060
C****     TESTS TWO INDEPENDENT LOOPS NESTED                7.1.2.8/28P1950070
C****       WITHIN LARGER ONE                                         P1950080
C****   RESTRICTIONS OBSERVED                                         P1950090
C****   * M1, M2 AND M3 ARE GREATER THAN ZERO               7.1.2.8/21P1950100
C****   * TERMINAL STATEMENT OF EACH DO PHYSICALLY FOLLOWS  7.1.2.8/08P1950110
C****       THE DO AND IS IN THE SAME PROGRAM UNIT                    P1950120
C****   * TERMINAL STATEMENT IS EXECUTABLE BUT NOT A        7.1.2.8/07P1950130
C****       GO TO, ARITHMETIC IF, RETURN, STOP, PAUSE OR    7.1.2.8/10P1950140
C****       DO STATEMENT                                              P1950150
C****   * M1, M2 AND M3 ARE NOT REDEFINED WITHIN DO       7.1.2.8.1/54P1950160
C****   * BRANCHES TO TERMINAL STATEMENT FOR MORE THAN     7.1.2.8.1/01P1950170
C****       ONE DO ARE CONTAINED IN INNERMOST DO OF A NEST            P1950180
C****                                                                  P1950190
C****   O U T P U T   T A P E  ASSIGNMENT STATEMENT. NO INPUT TAPE.   P1950200
C****                                                                  P0073070
C****   WHEN EXECUTING ONLY SEGMENT 195, THE FOLLOWING STATEMENT      P0073075
C****   NUVI = 6   MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.       P0073080
C****                                                                  P0073085
C=    NUVI = 6                                                         P0073090
      NUVI = 6                                                         P195B1
C****                                                                  P0073095
      WRITE (NUVI,1950)                                                P1950210
1950  FORMAT  (1H1,1X,30HDONML - (195) MULT-LEVEL LOOPS//2X,          P1950220
     - 18HASA REF. - 7.1.2.8//2X,7HRESULTS)                           P1950230
C****       HEADER FOR SEGMENT 195 WRITTEN                            P1950240
      IHDVI = 1                                                       P1950250
      IGDVI = 2                                                       P1950260
      IFDVI = 3                                                       P1950270
      DO  1951  JACVI = 1,2                                           P1950280
      IFDVI = IFDVI + JACVI                                           P1950290
        DO 1952 KBCVI = 2,4,1                                         P1950300
        IGDVI = IGDVI + 1                                             P1950310
1952  CONTINUE                                                        P1950320
      IFDVI = IFDVI + IGDVI                                           P1950330
        DO  1953  LCCVI = 6,7,3                                       P1950340
      IHDVI = 1 + IHDVI                                               P1950350
1953     CONTINUE                                                     P1950360
      IFDVI = IFDVI + IHDVI                                           P1950370
1951  CONTINUE                                                        P1950380
C****       TEST IFDVI FOR VALUE OF 24                               P1950390
      IF (IFDVI - 24) 1954,1955,1954                                 P1950400
C****       ERROR                                                     P1950410
1954  WRITE (NUVI,1956)                                               P1950420
1956  FORMAT    (/2X,24H**TEST INDICATES ERROR**)                    P1950430
C****       MULTI-LEVEL TEST IN ERROR                                 P1950440
      GO TO 1958                                                      P1950450
C****       CORRECT                                                   P1950460
1955  WRITE (NUVI,1957)                                               P1950470
1957  FORMAT    (/2X,19H**TEST SUCCESSFUL**)                         P1950480
C****       MULTI-LEVEL TEST CORRECT                                  P1950490
1958  CONTINUE                                                        P1950500
C****       END OF TEST SEGMENT 195                                   P1950510
C****   WHEN EXECUTING ONLY SEGMENT 195, THE  STOP  AND  END  CARDS   P1950520
C****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=              P1950530
C****   IN COLUMNS  1  AND  2  REMOVED.                               P1950540
 =    STOP                                                            P1950550
C=    END                                                             P1950560
      STOP                                                            P195C1
      END                                                            P195C2
```

```
C*************************************************************************P1960010
C*****                                                                    P1960020
C*****                            DONIO - (196)                           P1960030
C*****                                                                    P1960040
C*************************************************************************P1960050
C*****    GENERAL PURPOSE                                      ASA REF P1960060
C*****       TO TEST DO LOOPS WHICH HAVE I/O TERMINAL           7.1.2.8 P1960070
C*****       STATEMENTS (FORMATTEO REAO, FORMATTED WRITE     7.1.3.2.2P1960080
C*****       ANO REWINO ARE USEO AS TERMINAL STATEMENTS)     7.1.3.2.3P1960090
C*****                                                       7.1.3.3.1P1960100
C*****    RESTRICTIONS OBSERVEO                                          P1960110
C*****    * M1, M2 ANO M3 ARE GREATER THAN ZERO             7.1.2.8/21P1960120
C*****    * TERMINAL STATEMENT OF EACH OO PHYSICALLY FOLLOWS 7.1.2.8/08P1960130
C*****       THE OO AND IS IN THE SAME PROGRAM UNIT                     P1960140
C*****    * TERMINAL STATEMENT IS EXECUTABLE BUT NOT A       7.1.2.8/07P1960150
C*****       GO TO, ARITHMETIC IF, RETURN, STOP, PAUSE OR    7.1.2.8/10P1960160
C*****       OO STATEMENT                                               P1960170
C*****    * M1, M2 ANO M3 ARE NOT REOEFINEO WITHIN OO      7.1.2.8.2/54P1960180
C*****    * BRANCHES TO TERMINAL STATEMENT FOR MORE THAN   7.1.2.8.2/01P1960190
C*****       ONE DO ARE CONTAINEO IN INNERMOST OO OF A NEST             P1960200
C*****                                                                  P1960210
C*****    S P E C I F I C A T I O N S   SEGMENT 196                     P1960220
C*****                                                                  P0013940
C*****    WHEN EXECUTING ONLY SEGMENT 196, THE SPECIFICATION STATEMENTS P0013945
C*****    WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE   C=             P0013950
C*****    IN COLUMNS  1  ANO  2  REMOVED.                               P0013955
C*****                                                                  P0013960
C=     DIMENSION IAC1I(5),AC2S(5,6)                                     P0013965
C=     LOGICAL MCAVB,MCBVB,GH2B(1,2)                                    P0013970
C=     OOUBLE PRECISION CC30(7,2,2),OPAVO,OPBVO                         P0013975
C=     COMPLEX NUMVC,OENVC,LL1C(32)                                     P0013980
       DIMENSION IAC1I(5),AC2S(5,6)                                     P196A1
       LOGICAL MCAVB,MCBVB,GH2B(1,2)                                    P196A2
       DOUBLE PRECISION CC30(7,2,2),DPAVD,DPBVO                         P196A3
       COMPLEX NUMVC,DENVC,LL1C(32)                                     P196A4
C*****                                                                  P0013985
C*****    O U T P U T   T A P E   ASSIGNMENT STATEMENTS. NO INPUT TAPE.  P1960230
C*****                                                                  P0073100
C*****    WHEN EXECUTING ONLY SEGMENT 196, THE FOLLOWING STATEMENTS     P0073105
C*****    NUVI=6 AND INVI=9   MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.P0073110
C*****                                                                  P0073115
C=     NUVI = 6                                                         P0073120
C=     INVI = 9                                                         P0073125
       NUVI = 6                                                         P196B1
       INVI = 9                                                         P196B2
C*****                                                                  P0073130
       WRITE (NUVI,1960)                                                P1960240
1960   FORMAT (1H1,1X,31HOONIO - (196) OO LOOPS WITH I/O/16X,           P1960250
      119HTERMINAL STATEMENTS/ 20H  ASA REF. - 7.1.2.8/ 9H  RESULTS)    P1960260
C*****       HEAOER FOR SEGMENT 196 WRITTEN                             P1960270
       KCAVI = 1                                                        P1960280
       CKAVS = 1.0                                                      P1960290
       OPBVO = 1.000                                                    P1960300
       DENVC = (1.0,1.0)                                                P1960310
       MCBVB = .TRUE.                                                   P1960320
       IAC1I(2) = 1                                                     P1960330
       AC2S(4,3) = 1.                                                   P1960340
       CC30(5,1,2) = 1.000                                             P1960350
       LL1C(2) = (1.0,1.0)                                              P1960360
       GH2B(1,1) = .TRUE.                                               P1960370
       WRITE (INVI,1965) KCAVI, CKAVS, OPBVO, OENVC, MCBVB, IAC1I(2),   P1960380
      1              AC2S(4,3), CC30(5,1,2), LL1C(2), GH2B(1,1)         P1960390
       REWINO INVI                                                      P1960400
       DO  1964  JACVI = 1,3,1                                          P1960410
C*****                                                                  P1960420
       OO 1961 KBCVI = 1,1,1                                            P1960430
1961     REAO (INVI,1965) MCAVI,CMAVS,OPAVO,NUMVC,MCAVB,IAC1I(KBCVI),   P1960440
      1         AC2S(5,4), CC3D(6,1,2), LL1C(3), GH2B(KBCVI,2)          P1960450
```

NBS FORTRAN Test Programs Version 1   181

```
C*****                                                              P1960460
          DO 1962  LCCVI = 1,2,1                                    P1960470
1962      REWIND INVI                                              P1960480
C*****                                                              P1960490
          DO 1963  MDCVI = 1,1,1                                    P1960500
1963      WRITE (NUVI,1966) MCAVI, IAC1I(1), CMAVS, AC2S(5,4), DPAVD, P1960510
     1                      CC3D(6,1,2), NUMVC, LL1C(3), MCAVB,    P1960520
     2                      GH2B(MDCVI, MDCVI+1)                    P1960530
1964  CONTINUE                                                      P1960540
      WRITE (NUVI,1967)                                             P1960550
C*****     FORMAT STATEMENTS FOR THIS SEGMENT                       P1960560
1965  FORMAT (2(I5,F5.1,D8.1,2(F5.1),L5))                           P1960570
1966  FORMAT ( // 2(I10/),2(F11.1/),2(D15.1/),2(F5.1,F6.1/),2(L10/)) P1960580
1967  FORMAT   (//30H  THIS TEST IS SUCCESSFUL IF 3/38H   IDENTICAL GROUPP1960590
     1S OF OUTPUT HAVE BEEN/12H   GENERATED.)                      P1960600
C*****     END OF SEGMENT 196                                      P1960610
C*****  WHEN EXECUTING ONLY SEGMENT 196, THE   STOP   AND   END   CARDS P1960620
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=           P1960630
C*****  IN COLUMNS  1   AND   2   REMOVED.                         P1960640
C=    STOP                                                         P1960650
C=    END                                                          P1960660
      STOP                                                         P196C1
      END                                                         P196C2
C*********************************************************************P1970010
C*****                                                              P1970020
C*****                        MORDO - (197)                         P1970030
C*****                                                              P1970040
C*********************************************************************P1970050
C*****  GENERAL PURPOSE                                  ASA REF P1970060
C*****     A MORE COMPLICATED SEGMENT TESTING THE DO STATEMENT   7.1.2.8P1970070
C*****                                                              P1970080
C*****  S P E C I F I C A T I O N S  SEGMENT 197                    P1970090
C*****                                                              P0013990
C*****  WHEN EXECUTING ONLY SEGMENT 197  THE SPECIFICATION STATEMENTS P0013995
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=            P0014000
C*****  IN COLUMNS  1   AND   2   REMOVED.                          P0014005
C*****                                                              P0014010
C=    DIMENSION  IAC1I(5), MCA1I(5)                                 P0014015
      DIMENSION  IAC1I(5), MCA1I(5)                                 P197A1
C*****                                                              P0014020
C*****  WHEN EXECUTING ONLY SEGMENT 197, THE SEGMENT 005, WHICH     P1970100
C*****  CONTAINS THE STATEMENT FUNCTIONS BEING USED HERE, MUST BE   P1970110
C*****  INSERTED AFTER THE SPECIFICATION STATEMENTS OF SEGMENT 197. P1970120
C*****                                                              P1970130
C*********************************************************************P0050500
C*****                                                              P0050510
C*****                        BSFDF - (005)                         P0050520
C*****                                                              P0050530
C*********************************************************************P0050540
C*****  GENERAL PURPOSE                                  ASA REF P0050550
C*****     DEFINING STATEMENT FUNCTIONS THAT ARE TO BE TESTED       P0050560
C*****     IN SEGMENT 197                                    8.1.1P0050570
C*****     HEADER FOR SEGMENT 005                                   P0050580
C*****     DEFINING EXPRESSION CONTAINS CONSTANTS AND VARIABLES     P0050590
      CMAFS(CAWVS,CBWVS) = CAWVS * 2. + CBWVS                       P0050600
      CMBFS(MAWVI,MBWVI,MCWVI) =(MAWVI + MBWVI + MCWVI)/3           P0050610
      MCAFI(MAWVI,MBWVI) = MAWVI ** MBWVI                          P0050620
      MCBFI(CAWVS,CBWVS,CCWVS) = (CAWVS + CBWVS + CCWVS) * 2.0      P0050630
C*****     DEFINING EXPRESSION CONTAINS CONSTANTS, VARIABLES AND    P0050640
C*****     INTRINSIC FUNCTIONS                                      P0050650
      CMCFS(CAWVS,CBWVS,CCWVS) = ABS(CAWVS**2 - (CBWVS+CCWVS)**2)   P0050660
      CMDFS(MAWVI,MBWVI) = ISIGN((MAWVI+MBWVI),(MAWVI-MBWVI))       P0050670
      MCCFI(MAWVI,MBWVI,CAWVS) = MAWVI**2 + MBWVI**2 + IFIX(CAWVS)**2 P0050680
      MCDFI(CAWVS,CBWVS,CCWVS,CDWVS,CEWVS) = (CAWVS + CBWVS + CCWVS + P0050690
     1CDWVS +CEWVS) ** (ABS(CAWVS))                                P0050700
C*****     DEFINING EXPRESSION CONTAINS PREVIOUSLY DEFINED STATEMENT P0050710
C*****     FUNCTIONS AND/OR EXTERNAL FUNCTION REFERENCES            P0050720
      CMEFS(CAWVS,CBWVS) = CMBFS(1,2,3) + SQRT((CAWVS + CBWVS))     P0050730
```

```
      CMFFS(MAWVI,MBWVI,MCWVI) = MCCFI(MAWVI,MBWVI,3.0) + MCWVI **2      P0050740
      MCEFI(MAWVI,MBWVI) = MCAFI(MAWVI,MBWVI) ** MCAFI(MAWVI,MBWVI)       P0050750
      MCFFI(CAWVS,CBWVS,CCWVS) = SQRT(CAWVS) + SQRT(CBWVS) + EXP(CCWVS)   P0050760
C*****      DEFINING EXPRESSION CONTAINS CONSTANTS, VARIABLES, INTRINSIC  P0050770
C*****      OR EXTERNAL FUNCTION REFERENCES AND PREVIOUSLY DEFINED        P0050780
C*****      STATEMENT FUNCTIONS.                                          P0050790
      CMGFS(MAWVI,MBWVI,CAWVS,CBWVS) = FLOAT(MAWVI ** 2) - CMAFS(CAWVS,   P0050800
     1CBWVS) + SQRT((FLOAT(MAWVI + MBWVI)))                              P0050810
      MCGFI(MAWVI,MBWVI,MCWVI,CAWVS) = MCEFI(MAWVI,MBWVI) - MCEFI(MAWVI,  P0050820
     1MCWVI) + IFIX(EXP(CAWVS))                                          P0050830
C*****      END OF TEST SEGMENT 005                                       P0050840
C*****   O U T P U T   T A P E   ASSIGNMENT STATEMENTS. NO INPUT TAPE.    P1970140
C*****                                                                    P0073140
C*****   WHEN EXECUTING ONLY SEGMENT 197, THE FOLLOWING STATEMENTS        P0073145
C*****   NUVI=6 AND INVI=9  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.  P0073150
C*****                                                                    P0073155
C=    NUVI = 6                                                            P0073160
C=    INVI = 9                                                            P0073165
      NUVI = 6                                                            P197B1
      INVI = 9                                                            P197B2
C*****                                                                    P0073170
      WRITE (NUVI,1970)                                                   P1970150
1970  FORMAT (1H1, 1X,37HMORDO - (197) A MORE COMPLICATED SEG./16X,       P1970160
     1        16HOF DO STATEMENTS//                                       P1970170
     2 35H   ASA REFS - 7.1.2.8 AND 7.1.2.8.1 // 9H   RESULTS )           P1970180
C*****      HEADER FOR SEGMENT 197 WRITTEN                                P1970190
C*****      TEST OF DO WITH STATEMENT FUNCTIONS AND INTRINSIC FUNCTIONS   P1970200
C*****      REFERENCED WITHIN ITS RANGE. TO BE RUN WITH SEG. 005 AND 412  P1970210
      ASSIGN 9190 TO MVI                                                  P1970220
      MCBVI = 0                                                           P1970230
      MCHVI = 1971                                                        P1970240
      DO 1971 MCAVI = 4,8,4                                               P1970250
      CMAVS = CMAFS(1.0, FLOAT(MCAVI))                                    P1970260
1971  MCBVI = MCBVI + MCAFI(MCAVI,IFIX(CMAVS) - (MCAVI+2))               P1970270
      IF (MCBVI - 2) 9966, 9190, 9966                                    P1970280
9190  MCHVI = 1973                                                        P1970290
C*****      TEST OF DO WITH CALL STATEMENTS REFERENCED WITHIN ITS RANGE   P1970300
      IVI = 0                                                             P1970310
      ASSIGN 9968 TO MVI                                                  P1970320
      DO 1973 MCAVI = 1,3                                                 P1970330
1973  CALL  MDQ( MCAVI, IVI)                                             P1970340
      IF(IVI - 6) 9966, 9968, 9966                                       P1970350
C*****      TEST OF DO WITH THE FOLLOWING FEATURES COMBINED -             P1970360
C*****      1.  AN EXIT FROM THE RANGE OF A DO BY THE EXECUTION OF A       P1970370
C*****          GO-TO STATEMENT, THE CONTROL VARIABLE OF THE DO IS        P1970380
C*****          DEFINED                                    7.1.2.8.1/19-23P1970390
C*****      2.  A GO TO STATEMENT CAUSES CONTROL TO PASS FROM AN          P1970400
C*****          INNER DO TO THE OUTER DO (WITHIN THE NESTED RANGE)        P1970410
9968  MCHVI = 1976                                                        P1970420
      ASSIGN 9191 TO MVI                                                  P1970430
      MCBVI = 0                                                           P1970440
      DO 1976 MCAVI = 1,1,1                                               P1970450
9192  MCBVI = MCBVI + 1                                                   P1970460
      DO 1975 MCCVI = 1,3,1                                               P1970470
      MCBVI = MCBVI + 1                                                   P1970480
      IF(MCBVI - 4) 9197, 9192, 1975                                     P1970490
9197  GO TO (1975, 1975, 9966), MCCVI                                    P1970500
1975  CONTINUE                                                            P1970510
1976  CONTINUE                                                            P1970520
      IF (MCBVI - 8) 9966, 9191, 9966                                    P1970530
C*****      TEST THAT THE STATEMENT LABEL OF THE TERMINAL STATEMENT       P1970540
C*****      OF MORE THAN ONE DO CAN BE USED IN ANY GO TO OR ARITHMETIC    P1970550
C*****      IF STATEMENT THAT OCCURS IN THE RANGE OF THE MOST DEEPLY      P1970560
C*****      CONTAINED DO WITH THAT TERMINAL STATEMENT.    7.1.2.8.2/1-6   P1970570
C*****      ALSO THE CONTROL VARIABLE IS DEFINED WHEN EXIT IS MADE BY THE P1970580
C*****      EXECUTION OF AN ARITHMETIC IF STATEMENT.                      P1970590
9191  ASSIGN 9194 TO MVI                                                  P1970600
      MCHVI = 1977                                                        P1970610
```

```
            MCEVI = -24                                                         P1970620
            DO 1977 MCAVI = 1,2                                                  P1970630
            MCEVI = MCEVI + 1                                                    P1970640
               DO 1977 MCBVI = 1,2                                              P1970650
               MCEVI = MCEVI + 1                                                P1970660
                  DO 1977 MCCVI = 1,5,1                                         P1970670
                  MCEVI = MCEVI + 1                                            P1970680
                  IF(MCEVI )      1977, 1977, 1978                             P1970690
1977   CONTINUE                                                                 P1970700
C*****  ERROR IF LOOP TERMINATES THRU CONTINUE                                  P1970710
       GO TO 9966                                                               P1970720
C*****  CONTROL VARIABLE DEFINED ON FIRST LEVEL ON ARITH. IF                    P1970730
1978   MCEVI = MCAVI + MCBVI + MCCVI                                            P1970740
       MCHVI = 1978                                                             P1970750
       IF(MCEVI -8) 9966,9194,9966                                             P1970760
9194   MCHVI = 1974                                                             P1970770
       MCEVI = 0                                                                P1970780
       ASSIGN 9961 TO MVI                                                       P1970790
       DO 1974 MCAVI = 1,2                                                      P1970800
          DO 1974 MCBVI = 1,2,1                                                P1970810
             DO 1974 MCCVI = 4,5,1                                             P1970820
             DO 1974 MCDVI = 2,3                                               P1970830
             GO TO 9193                                                        P1970840
9195         GO TO 1974                                                        P1970850
9193         MCEVI = MCAVI + MCBVI + MCCVI + MCDVI + MCEVI                     P1970860
             GO TO 9195                                                        P1970870
1974            CONTINUE                                                        P1970880
       IF(MCEVI - 160) 9966, 9961, 9966                                       P1970890
C*****     TEST OF DO WITH I/O STATEMENTS REFERENCED WITHIN ITS RANGE.          P1970900
C*****     REWIND, UNFORMATTED READ AND WRITE ARE REFERENCED. THE               P1970910
C*****     FOLLOWING 3 DOS MUST BE KEPT TOGETHER FOR SELF-CHECKING              P1970920
C*****     PURPOSES                                                             P1970930
9961   MCHVI = 1972                                                            P1970940
       ASSIGN 9196 TO MVI                                                       P1970950
       REWIND INVI                                                              P1970960
       DO 9963 MCAVI = 1,4                                                      P1970970
       MCA1I(MCAVI) = MCAVI                                                     P1970980
       WRITE ( INVI) (MCA1I(MCBVI), MCBVI = 1,MCAVI, 1)                         P1970990
9963   CONTINUE                                                                 P1971000
       DO 9964 MCCVI = 1,4                                                      P1971010
9964   REWIND INVI                                                             P1971020
       DO 1972 MCDVI = 1,4                                                      P1971030
       READ (INVI) (IAC1I(MCEVI),MCEVI = 1,MCDVI)                              P1971040
       DO 1972 MCFVI = 1, MCDVI                                                 P1971050
       MCGVI = IAC1I(MCFVI) - MCA1I(MCFVI)                                      P1971060
       IF (MCGVI) 9966, 1972, 9966                                            P1971070
1972   CONTINUE                                                                 P1971080
9196   WRITE(NUVI, 9969)                                                        P1971090
       GO TO 9198                                                               P1971100
C*****     ERROR MESSAGES IF DO STATEMENT IS EXECUTED IN ERROR.                 P1971110
9966   WRITE (NUVI,9967) MCHVI                                                  P1971120
9967   FORMAT (// 36H  DO RANGE ENDING AT STATEMENT LABEL,I5,                  P1971130
      114H  IS IN ERROR.)                                                       P1971140
9969   FORMAT(// 35H  THIS SEGMENT SUCCESSFULLY TESTED /                        P1971150
      222H  IF NO ERROR MESSAGES)                                               P1971160
       GO TO MVI,(9190,9968,9191,9194,9961,9196)                               P1971170
9198   REWIND INVI                                                             P1971180
C*****     END OF TEST SEGMENT 197                                             P1971190
C*****  WHEN EXECUTING ONLY SEGMENT 197, THE  STOP  AND  END  CARDS            P1971200
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                         P1971210
C*****  IN COLUMNS  1  AND  2  REMOVED.                                         P1971220
C=     STOP                                                                     P1971230
C=     END                                                                      P1971240
       STOP                                                                     P197C1
       END                                                                      P197C2
C************************************************************************P4120010
C*****                                                                          P4120020
C*****                         MDQ   - (412)                                   P4120030
```

```
C*****                                                                P4120040
C*******************************************************************P4120050
C*****    GENERAL PURPOSE                                 ASA REF  P4120060
C*****       THIS SUBROUTINE IS USED WITH SEGMENT 197 TO            P4120070
C*****       SHOW THAT SUBROUTINES MAY BE CALLED FROM DO LOOPS      P4120080
      SUBROUTINE MDQ(MWVI,IWVI)                                     P4120090
      IWVI = MWVI + IWVI                                            P4120100
      RETURN                                                        P4120110
C*****       END OF TEST SEGMENT 412                                P4120120
      END                                                          P4120130
C*******************************************************************P2000010
C*****                                                              P2000020
C*****                       SUBR1 - (200)                          P2000030
C*****                                                              P2000040
C*******************************************************************P2000050
C*****   GENERAL PURPOSE                                 ASA REF. P2000060
C*****       TO TEST SUBROUTINE SUBPROGRAM WITHOUT AN ARGUMENT LIST 8.4.1.1P2000070
C*****   GENERAL COMMENTS                                           P2000080
C*****       IT IS TO BE RUN WITH SEGMENT 410                       P2000090
C*****   RESTRICTIONS OBSERVED                                      P2000100
C*****       SYMBOLIC NAME OF A SUBROUTINE MAY NOT APPEAR IN ANY 8.4.1.1/56P2000110
C*****       STATEMENT IN THIS SUBROUTINE EXCEPT IN THE             P2000120
C*****       SUBROUTINE STATEMENT ITSELF                            P2000130
C*****     * SYMBOLIC NAMES OF DUMMY ARGUMENTS MAY NOT APPEAR    8.4.1.1/39P2000140
C*****       IN EQUIVALENCE OR COMMON STATEMENTS IN THE SUBPROGRAM  P2000150
C*****     * SUBROUTINES MAY NOT CONTAIN A FUNCTION STATEMENT,   8.4.1.1/45P2000160
C*****       ANOTHER SUBROUTINE STATEMENT, OR ANY STATEMENT THAT    P2000170
C*****       DIRECTLY OR INDIRECTLY REFERENCES THE SUBROUTINE       P2000180
C*****       BEING DEFINED                                          P2000190
C*****     * AT LEAST ONE RETURN STATEMENT MUST BE IN A SUBROUTINE  P2000200
C*****                                                 8.4.1.1/49P2000210
C*****   S P E C I F I C A T I O N S   SEGMENT 200                  P2000220
C*****                                                              P0014030
C*****   WHEN EXECUTING ONLY SEGMENT 200, THE SPECIFICATION STATEMENTS P0014035
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=             P0014040
C*****   IN COLUMNS  1  AND  2  REMOVED.                            P0014045
C=     COMMON  AXVS, CXVS, IXVI, IAX1I(4)                           P0014050
      COMMON  AXVS, CXVS, IXVI, IAX1I(4)                            P200A1
C*****                                                              P0014055
C*****   O U T P U T   T A P E  ASSIGNMENT STATEMENT. NO INPUT TAPE. P2000230
C*****   WHEN EXECUTING ONLY SEGMENT 200, THE FOLLOWING STATEMENTS  P0073180
C*****   NUVI=6 AND INVI=9 MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED. P0073185
C*****                                                              P0073190
C=     NUVI = 6                                                     P0073195
C=     INVI = 9                                                     P0073200
      NUVI = 6                                                      P200B1
      INVI = 9                                                      P200B2
      WRITE(NUVI, 0200)                                             P2000240
200    FORMAT(39H1 SUBR1 - (200)   SUBROUTINE SUBPROGRAM /15X,      P2000250
     124HWITHOUT AN ARGUMENT LIST //18H  ASA REF. - 8.4.1//9H  RESULTS) P2000260
      IXVI = NUVI                                                   P2000270
      IAX1I(1) = INVI                                               P2000280
      CALL SUBRQ                                                    P2000290
      CONTINUE                                                      P2000300
C*****       END OF SEGMENT 200                                     P2000310
C*****   WHEN EXECUTING ONLY SEGMENT 200, THE STOP AND END CARDS    P2000320
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=             P2000330
C*****   IN COLUMNS  1  AND  2  REMOVED.                            P2000340
C=     STOP                                                         P2000350
C=     END                                                          P2000360
      STOP                                                          P200C1
      END                                                           P200C2
C*******************************************************************P4100010
C*****                                                              P4100020
C*****                       SUBRQ - (410)                          P4100030
C*****                                                              P4100040
C*******************************************************************P4100050
C*****   THIS SEGMENT TESTS THAT A VARIETY OF FORTRAN STATEMENTS    P4100060
```

```
C*****  CAN BE USED IN A SUBROUTINE.  IT IS TO BE RUN WITH SEGMENT 200   P4100070
      SUBROUTINE SUBRQ                                                    P4100080
8867  FORMAT (//36H  DO RANGE ENDING AT STATEMENT LABEL,I5,14H  IS IN ERP4100090
     1ROR.)                                                              P4100100
      DIMENSION KCA1I(5), KAC1I(5)                                       P4100110
      COMMON  BXVS, DXVS, NXVI, IXVI                                     P4100120
C*****    DEFINE ARITHMETIC STATEMENT FUNCTION                           P4100130
      CKAFS(CEWVS,CFWVS) = CEWVS*2. + CFWVS                              P4100140
8868  FORMAT (//35H  THIS SEGMENT SUCCESSFULLY TESTED /                  P4100150
     1 23H  IF NO ERROR MESSAGES.)                                       P4100160
      KCAFI(KEWVI,KFWVI) = KEWVI**KFWVI                                  P4100170
C*****    TEST OF DO WITH STATEMENT FUNCTIONS                            P4100180
      KCHVI = 4101                                                       P4100190
      ASSIGN 4102 TO MVI                                                 P4100200
      KCBVI = 0                                                          P4100210
      DO 4101 KCAVI = 4,8,4                                              P4100220
      CKAVS = CKAFS(1.0, FLOAT(KCAVI))                                   P4100230
4101  KCBVI = KCBVI + KCAFI(KCAVI,IFIX(CKAVS) - (KCAVI + 2))             P4100240
      IF(KCBVI - 2) 8866, 4102, 8866                                     P4100250
C*****    TEST OF DO WITH THE FOLLOWING FEATURES COMBINED -              P4100260
C*****    1.  AN EXIT FROM THE RANGE OF A DO BY THE EXECUTION OF A        P4100270
C*****        GO-TO STATEMENT, THE CONTROL VARIABLE OF THE DO IS          P4100280
C*****        DEFINED                                                     P4100290
C*****    2.  A GO TO STATEMENT CAUSES CONTROL TO PASS FROM AN            P4100300
C*****        INNER DO TO THE OUTER DO (WITHIN THE NESTED RANGE)          P4100310
4102  KCHVI = 4106                                                       P4100320
      ASSIGN 8870 TO MVI                                                 P4100330
      KCBVI = 0                                                          P4100340
      DO 4106 KCAVI = 1,1,1                                              P4100350
8872  KCBVI = KCBVI + 1                                                  P4100360
      DO 4105 KCCVI = 1,3,1                                              P4100370
      KCBVI = KCBVI + 1                                                  P4100380
      IF (KCBVI - 4) 8873, 8872, 4105                                    P4100390
8873  GO TO (4105,4105,8866), KCCVI                                      P4100400
4105  CONTINUE                                                           P4100410
4106    CONTINUE                                                         P4100420
      IF(KCBVI - 8) 8866, 8870, 8866                                     P4100430
C*****    TEST THAT THE STATEMENT LABEL OF THE TERMINAL STATEMENT         P4100440
C*****    OF MORE THAN ONE DO CAN BE USED IN ANY GO TO OR ARITHMETIC      P4100450
C*****    IF STATEMENT THAT OCCURS IN THE RANGE OF THE MOST DEEPLY        P4100460
C*****    CONTAINED DO WITH THAT TERMINAL STATEMENT                       P4100470
8870  ASSIGN 8876 TO MVI                                                 P4100480
      KCHVI = 4107                                                       P4100490
      KCEVI = -24                                                        P4100500
      DO 4107 KCAVI = 1,2                                                P4100510
      KCEVI = KCEVI + 1                                                  P4100520
       DO 4107 KCBVI = 1,2                                               P4100530
       KCEVI = KCEVI + 1                                                 P4100540
        DO 4107 KCCVI = 1,5,1                                           P4100550
        KCEVI = KCEVI + 1                                               P4100560
        IF(KCEVI )        4107,4107,4104                                P4100570
4107    CONTINUE                                                         P4100580
C*****ERROR IF LOOP TERMINATES THRU CONTINUE                             P4100590
      GO TO 8866                                                         P4100600
C*****CONTROL VARIABLE DEFINED ON FIRST LEVEL ON ARITH. IF               P4100610
4104  KCEVI = KCAVI + KCBVI + KCCVI                                      P4100620
      KCHVI = 4104                                                       P4100630
      IF(KCEVI - 8) 8866,8876,8866                                       P4100640
8876  KCHVI = 4103                                                       P4100650
      KCEVI = 0                                                          P4100660
      ASSIGN 8871 TO MVI                                                 P4100670
      DO 4103 KCAVI =1,2                                                 P4100680
       DO 4103 KCBVI = 1,2,1                                             P4100690
        DO 4103 KCCVI = 4,5,1                                           P4100700
         DO 4103 KCDVI = 2,3                                            P4100710
         GO TO 8878                                                     P4100720
8877     GO TO 4103                                                     P4100730
8878     KCEVI = KCAVI + KCBVI + KCCVI + KCDVI + KCEVI                  P4100740
```

```
              GO TO 8877                                              P4100750
4103          CONTINUE                                               P4100760
      IF(KCEVI - 160)8866,8871,8866                                  P4100770
C*****    TEST OF DO WITH I/O STATEMENTS                             P4100780
8871  ASSIGN 8860 TO MVI                                             P4100790
      KCHVI = 4108                                                   P4100800
      REWIND IXVI                                                    P4100810
      DO 8863 KCAVI = 1,4                                            P4100820
      KCA1I(KCAVI) = KCAVI                                           P4100830
      WRITE(IXVI)(KCA1I(KCBVI),KCBVI = 1,KCAVI,1)                    P4100840
8863  CONTINUE                                                       P4100850
      DO 8864 KCCVI =1,4                                             P4100860
8864  REWIND IXVI                                                    P4100870
      DO 4108  KCDVI = 1,4                                           P4100880
      READ(IXVI)(KAC1I(KCEVI),KCEVI = 1,KCDVI     )                  P4100890
      DO 4108 KCFVI = 1, KCDVI                                       P4100900
      KCGVI = KAC1I(KCFVI)-KCA1I(KCFVI)                              P4100910
      IF(KCGVI) 8866,4108,8866                                       P4100920
4108  CONTINUE                                                       P4100930
8860  WRITE(NXVI,8868)                                               P4100940
      GO TO 8869                                                     P4100950
8866  WRITE(NXVI,8867) KCHVI                                         P4100960
      GO TO MVI,(8860,4102,8870,8871,8876)                          P4100970
8869  REWIND IXVI                                                    P4100980
      RETURN                                                         P4100990
C*****    END OF TEST SEGMENT 410                                    P4101000
      END                                                            P4101010
C******************************************************************* P3000010
C*****                                                               P3000020
C*****                       LOGIF - (300)                           P3000030
C*****                                                               P3000040
C******************************************************************* P3000050
C*****    GENERAL PURPOSE                                ASA REF     P3000060
C*****       TEST LOGICAL IF STATEMENT                   7.1.2.3     P3000070
C*****    GENERAL COMMENT                                            P3000080
C*****       ASSIGNED GO TO,INTRINSIC FUNCTION,ARITHMETIC IF,CALL,   P3000090
C*****       COMPUTED GO TO AND I/O STATEMENTS ASSUMED WORKING.      P3000100
C*****                                                               P3000110
C*****    S P E C I F I C A T I O N S  SEGMENT 300                   P3000120
C*****                                                               P0014060
C*****    WHEN EXECUTING ONLY SEGMENT 300, THE SPECIFICATION STATEMENTS P0014065
C*****    WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=             P0014070
C*****    IN COLUMNS  1  AND  2  REMOVED.                            P0014075
C*****                                                               P0014080
C=    LOGICAL MCAVB,MCBVB,MCA1B(7)                                   P0014085
C=    DOUBLE PRECISION DPAVD, DPBVD,DPCVD,DPDVD,DPEVD,DPFVD          P0014090
      LOGICAL MCAVB,MCBVB,MCA1B(7)                                   P300A1
      DOUBLE PRECISION DPAVD, DPBVD,DPCVD,DPDVD,DPEVD,DPFVD          P300A2
C*****                                                               P0014095
C*****    O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE. P3000130
C*****    WHEN EXECUTING ONLY SEGMENT 300, THE FOLLOWING STATEMENT   P0073210
C*****    NUVI = 6  MUST HAVE THE C=  IN COLUMNS 1 AND 2 REMOVED.    P0073215
C*****                                                               P0073220
C=    NUVI = 6                                                       P0073225
      NUVI = 6                                                       P300B1
      WRITE (NUVI,3000)                                              P3000140
3000  FORMAT (1H1, 1X,34HLOGIF - (300) LOGICAL IF STATEMENT//        P3000150
     120H  ASA REF. - 7.1.2.3//10H  RESULTS //                       P3000160
     2/37H  TEST EXPLICITLY WRITTEN SIGNED ZERO/2X)                  P3000170
C*****    HEADER FOR SEGMENT 300 WRITTEN                             P3000180
      MACVI = 0                                                      P3000190
      MCAVB = .TRUE.                                                 P3000200
      MCBVB = .FALSE.                                                P3000210
      MCA1B(1) = .TRUE.                                              P3000220
      MCA1B(2) = .FALSE.                                             P3000230
C*****    TEST THAT MINUS ZERO AND PLUS ZERO ARE TREATED    4.2/11  P3000240
C*****    AS EQUAL VALUES                                            P3000250
      IVI = -8                                                       P3000260
```

```fortran
      IIVI = -8                                                         P3000270
      JVI = +0                                                          P3000280
      JJVI = -0                                                         P3000290
      KVI = 8                                                           P3000300
      KKVI = 8                                                          P3000310
      AVS = -0.5                                                        P3000320
      AAVS = -0.5                                                       P3000330
      BVS = +0.0                                                        P3000340
      BBVS = -0.0                                                       P3000350
      CVS = 0.5                                                         P3000360
      CCVS = 0.5                                                        P3000370
      DPAVD = -0.5D0                                                    P3000380
      DPBVD = -0.5D0                                                    P3000390
      DPCVD = +0.0D0                                                    P3000400
      DPDVD = -0.0D0                                                    P3000410
      DPEVD = 0.5D0                                                     P3000420
      DPFVD = 0.5D0                                                     P3000430
C*****   TEST FOR EXPLICITLY WRITTEN -0 EQUAL TO +0                     P3000440
      IF((JVI) .EQ. (JJVI))MACVI = MACVI + 1                           P3000450
      IF((JJVI) .EQ. (JVI)) MACVI = MACVI + 1                          P3000460
      IF((+0) .EQ. (-0)) MACVI = MACVI + 1                             P3000470
      IF((-0) .EQ. (+0)) MACVI = MACVI + 1                             P3000480
      IF (MACVI - 4) 9951, 9954, 9951                                  P3000490
 9951 WRITE (NUVI, 9953)                                               P3000500
      GO TO 9955                                                        P3000510
 9952 FORMAT(14H   +0 EQUALS -0)                                        P3000520
 9953 FORMAT(17H   +0 NOT EQUAL -0)                                     P3000530
 9954 WRITE (NUVI, 9952)                                               P3000540
 9955 MACVI = 0                                                         P3000550
C*****   TEST EXPLICITLY WRITTEN +0.0 EQUALS -0.0                       P3000560
      IF ((BVS) .EQ. (BBVS)) MACVI = MACVI + 1                         P3000570
      IF ((BBVS) .EQ. (BVS)) MACVI = MACVI + 1                         P3000580
      IF ((+0.0) .EQ. (-0.0)) MACVI = MACVI + 1                        P3000590
      IF ((-0.0) .EQ. ( 0.0)) MACVI = MACVI + 1                        P3000600
      IF (MACVI - 4) 9944, 9947, 9944                                  P3000610
 9944 WRITE (NUVI, 9946)                                               P3000620
      GO TO 9948                                                        P3000630
 9945 FORMAT (18H   +0.0 EQUALS -0.0)                                   P3000640
 9946 FORMAT (21H   +0.0 NOT EQUAL -0.0)                                P3000650
 9947 WRITE (NUVI, 9945)                                               P3000660
C*****   TEST EXPLICITLY WRITTEN +0.0D0 EQUALS -0.0D0                   P3000670
 9948 MACVI = 0                                                         P3000680
      IF ((DPCVD) .EQ. (DPDVD)) MACVI = MACVI +1                       P3000690
      IF ((DPDVD).EQ. (DPCVD)) MACVI = MACVI + 1                       P3000700
C*****                                                                  P3000710
      IF ((+0.0D0) .EQ. (-0.0D0)) MACVI = MACVI + 1                    P3000720
      IF ((-0.0D0) .EQ. (0.0D0)) MACVI = MACVI + 1                     P3000730
      IF (MACVI - 4) 9949, 9957, 9949                                  P3000740
 9949 WRITE (NUVI, 9960)                                               P3000750
      GO TO 9958                                                        P3000760
 9959 FORMAT (22H   +0.0D0 EQUALS -0.0D0)                               P3000770
 9960 FORMAT (25H   +0.0D0 NOT EQUAL -0.0D0)                            P3000780
 9957 WRITE (NUVI, 9959)                                               P3000790
 9958 MACVI = 0                                                         P3000800
      WRITE (NUVI, 7950)                                               P3000810
 7950 FORMAT (33H0 TEST COMPUTATIONAL SIGN OF ZERO/2X)                  P3000820
C*****   TEST FOR COMPUTATIONALLY CREATED +0 AND -0                     P3000830
      IF((IVI * JVI) .EQ. (JVI))MACVI = MACVI + 1                      P3000840
      IF((JVI) .EQ. (JVI * IIVI))MACVI = MACVI + 1                     P3000850
      IF((JVI / IVI) .EQ. (+0) )MACVI = MACVI + 1                      P3000860
      IF((IVI + KVI) .EQ. (JVI))MACVI = MACVI + 1                      P3000870
      IF((KKVI + IIVI) .EQ. (JVI))MACVI = MACVI + 1                    P3000880
      IF((IIVI - IVI) .EQ. (JVI))MACVI = MACVI + 1                     P3000890
      IF((KVI - KKVI) .EQ. (JVI))MACVI = MACVI + 1                     P3000900
      IF (MACVI - 7) 9956, 9940, 9956                                  P3000910
 9956 WRITE (NUVI,9953)                                                P3000920
      GO TO 7955                                                        P3000930
 9940 WRITE (NUVI,9952)                                                P3000940
```

```
C*****   TEST FOR COMPUTATIONALLY CREATED +0.0 AND -0.0                    P3000950
7955   MACVI = 0                                                           P3000960
       IF ((AVS * BVS) .EQ. (BVS)) MACVI = MACVI + 1                       P3000970
       IF ((BVS) .EQ. (BVS * AAVS)) MACVI = MACVI + 1                      P3000980
       IF ((BVS / AVS) .EQ. ( 0.0)) MACVI = MACVI + 1                      P3000990
       IF ((AVS + CVS) .EQ. (BVS)) MACVI = MACVI + 1                       P3001000
       IF ((CCVS + AAVS) .EQ. (BVS)) MACVI = MACVI + 1                     P3001010
       IF ((AAVS - AVS) .EQ. (BVS)) MACVI = MACVI + 1                      P3001020
       IF ((CVS - CCVS) .EQ. (BVS)) MACVI = MACVI + 1                      P3001030
       IF (MACVI - 7) 7951, 7952, 7951                                     P3001040
7951   WRITE (NUVI, 9946)                                                  P3001050
       GO TO 7953                                                          P3001060
7952   WRITE (NUV.I, 9945)                                                 P3001070
C*****   TEST FOR COMPUTATIONALLY CREATED +0.0D0 AND -0.0D0                P3001080
7953   MACVI = 0                                                           P3001090
       IF ((DPAVD * DPCVD) .EQ. (DPCVD)) MACVI = MACVI + 1                 P3001100
       IF ((DPCVD) .EQ. (DPCVD * DPBVD)) MACVI = MACVI + 1                 P3001110
       IF ((DPCVD / DPAVD) .EQ. (0.0D0)) MACVI = MACVI + 1                 P3001120
       IF ((DPAVD + DPEVD) .EQ. (DPCVD)) MACVI = MACVI + 1                 P3001130
       IF ((DPFVD + DPBVD) .EQ. (DPCVD)) MACVI = MACVI + 1                 P3001140
       IF ((DPBVD - DPAVD) .EQ. (DPCVD)) MACVI = MACVI + 1                 P3001150
       IF ((DPEVD - DPFVD) .EQ. (DPCVD)) MACVI = MACVI + 1                 P3001160
       IF (MACVI - 7) 7954, 9939, 7954                                     P3001170
7954   WRITE (NUVI, 9960)                                                  P3001180
       GO TO 9941                                                          P3001190
9939   WRITE (NUVI, 9959)                                                  P3001200
 9941  MCAVI = 0                                                           P3001210
       WRITE (NUVI, 9942)                                                  P3001220
9942   FORMAT(31H0 TEST -LOGICAL IF- FOLLOWED BY/                          P3001230
      131H   DIFFERENT KINDS OF STATEMENTS )                              P3001240
C*****   TEST 1                                                            P3001250
C*****      LOGICAL IF FOLLOWED BY SIMPLE ASSIGNMENT STATEMENT             P3001260
C*****      CORRECT RESULT = 0, OTHERWISE RESULT = 1                       P3001270
       IF (MCA1B(2)) MCAVI = 1                                             P3001280
       WRITE (NUVI,3009) MCAVI                                             P3001290
C*****   TEST 2                                                            P3001300
C*****      LOGICAL IF FOLLOWED BY USE OF INTRINSIC FUNCTION               P3001310
C*****      CORRECT RESULT =0, OTHERWISE RESULT =2                         P3001320
       MCAVI = 2                                                           P3001330
       IF (MCAVB) MCAVI = IFIX(5.0 - 4.0 - 1.0)                           P3001340
       WRITE (NUVI,3009) MCAVI                                             P3001350
       MCAVI = 0                                                          P3001360
C*****   TEST 3                                                            P3001370
C*****      LOGICAL IF FOLLOWED BY ARITHMETIC STATEMENT                    P3001380
C*****      CORRECT RESULT =0, OTHERWISE RESULT =3                         P3001390
       IF (MCAVB .AND. MCBVB) MCAVI = 3* 2 / 2                            P3001400
       WRITE (NUVI,3009) MCAVI                                             P3001410
C*****   TEST 4                                                            P3001420
C*****      LOGICAL IF FOLLOWED BY GO TO STATEMENT                         P3001430
C*****      CORRECT RESULT =0, OTHERWISE RESULT =4                         P3001440
       MCAVI = 0                                                          P3001450
       IF (MCAVB .AND. MCBVB .OR. MCA1B(1)) GO TO 3001                    P3001460
       MCAVI = 4                                                          P3001470
3001   WRITE (NUVI,3009) MCAVI                                             P3001480
C*****   TEST 5                                                            P3001490
C*****      LOGICAL IF FOLLOWED BY CALL STATEMENT                          P3001500
C*****      CORRECT RESULT =0, OTHERWISE RESULT =5                         P3001510
       MCAVI =0                                                           P3001520
       IF (MCBVB .OR. (1 .GE. 2) .AND..FALSE.) CALL SMCQ(MCAVI)           P3001530
       WRITE (NUVI,3009) MCAVI                                             P3001540
C*****   TEST 6                                                            P3001550
C*****      LOGICAL IF FOLLOWED BY NESTED USE OF INTRINSIC FUNCTIONS       P3001560
C*****      CORRECT RESULT =0, OTHERWISE RESULT =6                         P3001570
       MCAVI = 6                                                          P3001580
       IF (.TRUE. .OR. ((1. .LE. (0.1 + 1.5)) .AND. (MCA1B(1) .OR. .TRUE  P3001590
      1.)) .AND. MCBVB)  MCAVI = IFIX(REAL((0.0,1.0)))                    P3001600
       WRITE (NUVI,3009) MCAVI                                             P3001610
C*****   TEST 7                                                            P3001620
```

```
C*****      LOGICAL IF FOLLOWED BY ASSIGNED GO TO STATEMENT              P3001630
C*****        CDRRECT RESULT =0, OTHERWISE RESULT =7                     P3001640
      ASSIGN 3002 TD MCBVI                                               P3001650
      MCAVI = 7                                                          P3001660
      IF (.NOT. (MCAVB .AND. MCBVB .AND. .FALSE. .OR. (.NOT. .TRUE.)))   P3001670
     1GO TO MCBVI,(3001,3002,3003)                                       P3001680
      GO TO 3003                                                         P3001690
3002  MCAVI = 0                                                          P3001700
3003  WRITE (NUVI,3009) MCAVI                                            P3001710
C*****   TEST 8                                                          P3001720
C*****      LDGICAL IF FDLLDWED BY ARITHMETIC IF STATEMENT               P3001730
C*****        CORRECT RESULT =0, OTHERWISE RESULT =8                     P3001740
      MCAVI = 0                                                          P3001750
      IF (.NDT. (.NDT.(.TRUE. .DR. MCAVB .AND. (8. .NE. 7.))))           P3001760
     1IF (MCAVI) 3004,3005,3004                                          P3001770
3004  MCAVI = 8                                                          P3001780
3005  WRITE (NUVI,3009) MCAVI                                            P3001790
C*****   TEST 9                                                          P3001800
C*****      LDGICAL IF FOLLOWED BY I/O STATEMENT                         P3001810
C*****        CDRRECT RESULT =0, DTHERWISE RESULT =9                     P3001820
      MCAVI = 0                                                          P3001830
      IF ((8.0D0 .EQ. (1. + 7.)) .AND. (.NOT. (3 .NE. 3)))              P3001840
     1WRITE (NUVI,3009) MCAVI                                            P3001850
C*****   TEST 10                                                         P3001860
C*****      LDGICAL IF FDLLOWED BY CDMPUTED GD TO STATEMENT              P3001870
C*****        CDRRECT RESULT =0, DTHERWISE RESULT =10                    P3001880
      MCAVI = 2                                                          P3001890
      IF ( .TRUE. .AND. (8 .GE. 6) .DR. (.FALSE.)) GD TD (9950,3006),    P3001900
     1MCAVI                                                              P3001910
9950  MCAVI = 10                                                         P3001920
      GD TO 3007                                                         P3001930
3006  MCAVI = 0                                                          P3001940
3007  WRITE (NUVI,3009) MCAVI                                            P3001950
      WRITE (NUVI,3008)                                                  P3001960
C*****   TEST EXPRESSIDNS IN LDGICAL IF STATEMENTS                       P3001970
C*****     TEST 11  .LT. EXPRESSIDN, RELATIDN, EXPRESSION  (TRUE)        P3001980
      MCAVI = 11                                                         P3001990
      IF((SNGL(DABS(-DSIGN(DBLE(2.0),1.0D0)))).LT.AMIN1((FLDAT(IDIM      P3002000
     1 (1 + 2, 0))), (AIMAG(CMPLX(1.0,2.0)))) + 1.0) MCAVI = 0          P3002010
      WRITE (NUVI, 3009) MCAVI                                           P3002020
C*****     TEST 12  .LT. EXPRESSION, RELATION, CONSTANT  (TRUE)          P3002030
      MACVI = 12                                                         P3002040
      IF((AMIN1(FLOAT(IDIM(4 - 1,0)) , AIMAG(CMPLX(1.0,2.0))).LT. 4.0)   P3002050
     1MACVI = 0                                                          P3002060
      WRITE (NUVI, 3009) MACVI                                           P3002070
C*****     TEST 13  .LT.  CDNSTANT(D.P.),RELATIDN, EXPRESSIDN (REAL)(TRUE)P3002080
      MACVI = 13                                                         P3002090
C*****IF (1.(DO).LT. (SNGL(DABS(DSIGN(DBLE(4.0),1.0D0))))) MACVI = 0     P3002100
C*****WRITE (NUVI, 3009) MACVI                                           P3002110
C*****     TEST 14  .LE. .AND. .LE.  (SHDULD BE LESS AND EQUAL)  (TRUE)   P3002120
      MACVI = 14                                                         P3002130
      IF((REAL(CDNJG((1.0,-2.0))) + AIMAG((16.0,-4.0)) .LE.             P3002140
     1     AIMAG(CDNJG((1.0,-2.0))) + REAL((-4.0,16.0)) + 1.0) .AND.     P3002150
     2    (AIMAG(CDNJG((2.0,-4.0))) + REAL((-8.0,16.0)).LE.             P3002160
     3     REAL(CDNJG((4.0,-2.0))) + AIMAG((16.0,-8.0)))MACVI = 0       P3002170
      WRITE (NUVI, 3009) MACVI                                           P3002180
C*****     TEST I5 .LE.  (FALSE)                                         P3002190
      MACVI = 0                                                          P3002200
      IF (MAX1((AMAX0(4,2,-(1 * 4))),16.0) .LE. 2 ** 3)MACVI = 15       P3002210
      WRITE (NUVI, 3009) MACVI                                           P3002220
C*****     TEST 16   .NE. .AND.  .EQ.  (TRUE)                            P3002230
      MACVI = 16                                                         P3002240
      IF(((AINT(AINT(AINT(1.4 + 2.9)+1.6)-8.1)).NE.(-8.0)).AND.(-1.0.EQ.P3002250
     1AINT(AINT(AINT(2.6 + 4.8) + 1.4)-9.2)))MACVI = 0                  P3002260
      WRITE (NUVI, 3009) MACVI                                           P3002270
C*****     TEST 17 .GT.  (TRUE)                                          P3002280
      MACVI = 17                                                         P3002290
      IF((FLDAT(IABS(IFIX(ABS(-5.0+ SIGN(-1.0,2.0)))))) .GT. 2.0D0)     P3002300
```

```
      1MACVI = 0                                                            P3002310
       WRITE (NUVI, 3009) MACVI                                             P3002320
C*****    TEST 18  .GE.  EQUAL  (TRUE)                                      P3002330
       MACVI = 18                                                          P3002340
       IF((8.0).GE.(FLOAT(IABS(IFIX(ABS(-4.0+SIGN(4.0,-2.0))))))))MACVI=0  P3002350
       WRITE (NUVI, 3009) MACVI                                             P3002360
C*****    TEST 19  .GE.  GREATER (TRUE)                                     P3002370
       MACVI = 19                                                          P3002380
       IF((MACVI).GE.(IABS(IFIX(ABS(-4.0 + SIGN(8.0,-4.0))))))MACVI = 0    P3002390
       WRITE (NUVI, 3009) MACVI                                             P3002400
C*****    TEST 20   .GT.  (FALSE)  .OR.  .EQ. (TRUE)                        P3002410
       MACVI = 20                                                          P3002420
       IF((-MACVI) .GT. (MAX1 (AMAX0(8,-(2*4),4) ,16.0)).OR. .NOT.(IABS    P3002430
      1 (-20) .NE. MACVI))MACVI = 0                                        P3002440
       WRITE (NUVI, 3009) MACVI                                             P3002450
       WRITE (NUVI, 9943)                                                   P3002460
 9943  FORMAT(28H0 ALL VALUES SHOULD BE ZERO./                             P3002470
      137H  A VALUE OTHER THAN ZERO WILL BE THE /                          P3002480
      234H  NUMBER OF THE TEST WHICH FAILED. )                             P3002490
 3008  FORMAT(34H0 THERE SHOULD BE 10 VALUES ABOVE, /                      P3002500
      131H  IF ONLY 9, TEST 9 HAS FAILED.)                                 P3002510
 3009  FORMAT(12X, I10)                                                    P3002520
C*****    END OF TEST SEGMENT 300                                          P3002530
C*****  WHEN EXECUTING ONLY SEGMENT 300, THE  STOP  AND  END  CARDS        P3002540
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                     P3002550
C*****   IN COLUMNS  1  AND  2  REMOVED.                                    P3002560
C=     STOP                                                                P3002570
C=     END                                                                 P3002580
       STOP                                                                P300C1
       END                                                                 P300C2
C*******************************************************************P4110010
C*****                                                                     P4110020
C*****                         SMCQ  - (411)                               P4110030
C*****                                                                     P4110040
C*******************************************************************P4110050
C*****  GENERAL PURPOSE                                                     P4110060
C*****     TO DEFINE SUBROUTINE SMCQ WHICH IS USED IN SEGMENT 300          P4110070
       SUBROUTINE SMCQ(MWVI)                                               P4110080
       MWVI = MWVI + 5                                                     P4110090
       RETURN                                                              P4110100
C*****    END OF TEST SEGMENT 411                                          P4110110
       END                                                                 P4110120
C*******************************************************************P3010010
C*****                                                                     P3010020
C*****                        BARIF - (301)                                P3010030
C*****                                                                     P3010040
C*******************************************************************P3010050
C*****  GENERAL PURPOSE                                     ASA REF P3010060
C*****     TEST BASIC FORTRAN ARITHMETIC IF STATEMENT          7.1.2.2P3010070
C*****  GENERAL COMMENTS                                                    P3010080
C*****     BASIC INTRINSIC FUNCTIONS ASSUMED WORKING                       P3010090
C*****                                                                     P3010100
C*****  S P E C I F I C A T I O N S  SEGMENT 301                           P3010110
C*****                                                                     P0014100
C*****  WHEN EXECUTING ONLY SEGMENT 301, THE SPECIFICATION STATEMENTS      P0014105
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE  C=                    P0014110
C*****   IN COLUMNS  1  AND  2  REMOVED.                                    P0014115
C=     DIMENSION L1I(10)                                                   P0014120
C=     DIMENSION MCA1I(5),CMA1S(5)                                         P0014125
       DIMENSION L1I(10)                                                   P301A1
       DIMENSION MCA1I(5),CMA1S(5)                                         P301A2
C*****                                                                     P0014130
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.        P3010120
C*****                                                                     P0073230
C*****  WHEN EXECUTING ONLY SEGMENT 301, THE FOLLOWING STATEMENT           P0073235
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.             P0073240
C*****                                                                     P0073245
C=     NUVI = 6                                                            P0073250
```

```
         NUVI = 6                                                          P30181
C*****                                                                     P0073255
      WRITE (NUVI,3010)                                                    P3010130
3010  FORMAT (1H1,1X,27HBARIF - (301) BASIC FORTRAN/15X,          24HP3010140
     1 ARITHMETIC IF STATEMENT/2X,18HASA REF. - 7.1.2.2/2X,7HRESULTS)      P3010150
C*****      HEADER FOR SEGMENT 301 WRITTEN                                 P3010160
      MCA1I(1) = 5                                                         P3010170
      MCAVI = 0                                                           P3010180
      MCBVI = 21                                                          P3010190
      JACVI = -0                                                          P3010200
      CMA1S(1) = 10.5                                                     P3010210
      CMAVS = -0.0                                                        P3010220
      CMBVS = -15.E0                                                      P3010230
C*****   TEST FOR SIGN OF ZERO - TYPE INTEGER                    4.2/11 P3010240
      DO 8335  IVI = 1,9                                                  P3010250
8335  L1I(IVI) = 0                                                       P3010260
      MVI = 1                                                            P3010270
      KVI = 0                                                            P3010280
      JVI = -0                                                           P3010290
      BVS = -0.0                                                         P3010300
      NVI = 1                                                            P3010310
      WRITE (NUVI, 8300)                                                 P3010320
      IF (-0) 8311, 8314, 8317                                           P3010330
8320  IF (0) 8312, 8315, 8318                                            P3010340
8321  IF (+0) 8313, 8316, 8319                                           P3010350
8322  NVI = 10                                                           P3010360
      IF (JVI + (-0)) 8311, 8314, 8317                                   P3010370
8323  IF (-IABS(JVI)) 8312, 8315, 8318                                   P3010380
8324  IF (-JVI + (+0)) 8313, 8316, 8319                                  P3010390
8325  WRITE (NUVI, 8303)(L1I(IVI), IVI = 1,9)                            P3010400
C*****    TEST FOR SIGN OF ZERO - TYPE REAL                              P3010410
      MVI = 2                                                            P3010420
      KVI = 0                                                            P3010430
      NVI = 1                                                            P3010440
      DO 8336  IVI = 1,9                                                 P3010450
8336  L1I(IVI) = 0                                                       P3010460
      WRITE (NUVI, 8304)                                                 P3010470
      IF (-0.0) 8311, 8314, 8317                                         P3010480
8326  IF (0.0) 8312, 8315, 8318                                          P3010490
8327  IF (+0.0) 8313, 8316, 8319                                         P3010500
8328  NVI = 10                                                           P3010510
      IF (BVS +(-0.0)) 8311, 8314, 8317                                  P3010520
8329  IF (-ABS(BVS))  8312, 8315, 8318                                   P3010530
8330  IF (-BVS + (+0.0)) 8313, 8316, 8319                                P3010540
8331  WRITE (NUVI, 8303) (L1I(IVI), IVI = 1,9)                           P3010550
      WRITE (NUVI, 8337)                                                 P3010560
      GO TO 8305                                                         P3010570
C*****  SWITCH FOR INTEGER AND REAL TESTS                                P3010580
8332  KVI = KVI + 1                                                      P3010590
      GO TO (8333, 8334) , MVI                                           P3010600
C*****  RETURNS FOR TEST SIGN OF INTEGER ZERO                            P3010610
8333  GO TO (8320, 8321, 8322, 8323, 8324, 8325), KVI                    P3010620
C*****  RETURNS FOR TEST SIGN OF REAL ZERO                               P3010630
8334  GO TO (8326, 8327, 8328, 8329, 8330, 8331), KVI                    P3010640
C*****  TALLY RESULTS OF CONTROL TRANSFERS                               P3010650
8311  L1I(1) = L1I(1) + NVI                                              P3010660
      GO TO 8332                                                         P3010670
8312  L1I(2) = L1I(2) + NVI                                              P3010680
      GO TO 8332                                                         P3010690
8313  L1I(3) = L1I(3) + NVI                                              P3010700
      GO TO 8332                                                         P3010710
8314  L1I(4) = L1I(4) + NVI                                              P3010720
      GO TO 8332                                                         P3010730
8315  L1I(5) = L1I(5) + NVI                                              P3010740
      GO TO 8332                                                         P3010750
8316  L1I(6) = L1I(6) + NVI                                              P3010760
      GO TO 8332                                                         P3010770
8317  L1I(7) = L1I(7) + NVI                                              P3010780
```

```
          GO TO 8332                                                  P3010790
 8318    L1I(8) = L1I(8) + NVI                                         P3010800
          GO TO 8332                                                  P3010810
 8319    L1I(9) = L1I(9) + NVI                                         P3010820
          GO TO 8332                                                  P3010830
 8300    FORMAT(/ 38H  TEST FOR SIGN OF ZERO - TYPE INTEGER// 29H PATH  * FP3010840
     1ORM OF EXPRESSION */ 29H OF IF *   -0  *    0  *  +0  *  )       P3010850
 8303    FORMAT( 1H ,7(4H***)/ 1H ,4(6X,1H*)/ 8H   NEG. *,3(I4,3H  *)/1H ,4P3010860
     1(6X,1H*)/8H  ZERO *,3(I4,3H  *)/1H ,4(6X,1H*)/8H  POS. *,3(I4,   P3010870
     23H  *)/1H , 4(6X,1H*)/1H )                                      P3010880
 8304    FORMAT(//35H  TEST FOR SIGN OF ZERO - TYPE REAL //  29H PATH  * FOP3010890
     1RM OF EXPRESSION */ 29H OF IF * -0.0 *  0.0 * +0.0 *  )          P3010900
 8337    FORMAT(//34H  ALL ENTRIES SHOULD BE  0  EXCEPT /36H  THE ZERO PATH,P3010910
     1 WHICH SHOULD BE  11 /33H  IN EACH COLUMN. OTHER TESTS MAY   / 31HP3010920
     2  FAIL IF THESE RESULTS DIFFER.///37H  TEST EXPRESSIONS IN   IF  STP3010930
     3ATEMENTS /1H )                                                  P3010940
C*****      ARITHMETIC IF WITH EXPRESSIONS OF TYPE INTEGER            P3010950
C*****      TEST 1 - SHOULD TAKE ZERO BRANCH                          P3010960
 8305    IF (MCA1I(1) - 5) 9981,3011,9981                             P3010970
C*****      TEST 2 - SHOULD TAKE ZERO BRANCH                          P3010980
 3011    IF (MCA1I(1) + 5 - IFIX(CMA1S(1))) 9982,3012,9982            P3010990
C*****      TEST 3 - SHOULD TAKE MINUS BRANCH                         P3011000
 3012    IF ((MCBVI * 2 / 7) - IABS(IFIX(10.5 - 10.4)) - 7) 3013,9983,9983 P3011010
C*****      TEST 4 - SHOULD TAKE PLUS BRANCH                          P3011020
 3013    IF ((MCA1I(1) - 4) ** 99 /(MCBVI - 4 * MCA1I(1))) 9984,9984,3014  P3011030
C*****      ARITHMETIC IF WITH EXPRESSION OF TYPE REAL                P3011040
C*****      TEST 5 - SHOULD TAKE ZERO BRANCH                          P3011050
 3014    IF (CMA1S(1) - 10.5) 9985,3015,9985                          P3011060
C*****      TEST 6 - SHOULD TAKE MINUS BRANCH                         P3011070
 3015    IF (CMA1S(1) * 2.0 -(FLOAT(MCBVI) **1) - 1.0) 3016,9986,9986 P3011080
C*****      TEST 7 - SHOULD TAKE PLUS BRANCH                          P3011090
 3016    IF (CMBVS * (-2.0) ** (MCBVI - 4 * MCA1I(1)) - 29.0)9987,9987,3017P3011100
C*****      TEST 8 - SHOULD TAKE ZERO BRANCH                          P3011110
 3017    IF (MCAVI) 9988,3018,9980                                    P3011120
 3018    WRITE (NUVI,3019)                                            P3011130
          GO TO 9980                                                  P3011140
 3019    FORMAT (   18H   TESTS SUCCESSFUL )                          P3011150
 9981    MCAVI = 1                                                    P3011160
          IF (IABS(MCA1I(1) - 5)) 8301,8302,8301                      P3011170
 8301    WRITE (NUVI,9989) MCAVI                                      P3011180
          GO TO 3011                                                  P3011190
 8302    WRITE (NUVI,8306) MCAVI                                      P3011200
 8306    FORMAT (//2X,14HERROR IN TEST ,I2,23H BECAUSE MINUS ZERO WAS/ P3011210
     1   30H   TREATED AS A NEGATIVE NUMBER)                          P3011220
          GO TO 3011                                                  P3011230
 9982    MCAVI = 2                                                    P3011240
          IF (IABS(MCA1I(1) + 5 - IFIX(CMA1S(1)))) 8307,8308,8307     P3011250
 8307    WRITE (NUVI,9989) MCAVI                                      P3011260
          GO TO 3012                                                  P3011270
 8308    WRITE (NUVI,8306) MCAVI                                      P3011280
          GO TO 3012                                                  P3011290
 9983    MCAVI = 3                                                    P3011300
          WRITE (NUVI,9989) MCAVI                                     P3011310
          GO TO 3013                                                  P3011320
 9984    MCAVI = 4                                                    P3011330
          WRITE (NUVI,9989) MCAVI                                     P3011340
          GO TO 3014                                                  P3011350
 9985    MCAVI = 5                                                    P3011360
          IF (ABS(CMA1S(1) - 10.5)) 8309,8310,8309                    P3011370
 8309    WRITE (NUVI,9989) MCAVI                                      P3011380
          GO TO 3015                                                  P3011390
 8310    WRITE (NUVI,8306) MCAVI                                      P3011400
          GO TO 3015                                                  P3011410
 9986    MCAVI = 6                                                    P3011420
          WRITE (NUVI,9989) MCAVI                                     P3011430
          GO TO 3016                                                  P3011440
 9987    MCAVI = 7                                                    P3011450
          WRITE (NUVI,9989) MCAVI                                     P3011460
```

```
      GO TO 3017                                                     P3011470
9988  MCAVI = 8                                                      P3011480
      WRITE (NUVI,9989) MCAVI                                        P3011490
9989  FORMAT ( 6H  TEST,I2,7H FAILED)                               P3011500
9980  CONTINUE                                                       P3011510
C*****    END OF TEST SEGMENT 301                                    P3011520
C*****  WHEN EXECUTING ONLY SEGMENT 301, THE  STOP  AND  END  CARDS  P3011530
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=              P3011540
C*****  IN COLUMNS  1  ANO  2  REMOVED.                              P3011550
C=    STOP                                                           P3011560
C=    END                                                            P3011570
      STOP                                                           P301C1
      END                                                            P301C2
C*********************************************************************P3020010
C*****                                                               P3020020
C*****                        FARIF - (302)                          P3020030
C*****                                                               P3020040
C*********************************************************************P3020050
C*****   GENERAL PURPOSE                                   ASA REF P3020060
C*****     TEST OF FULL FORTRAN ARITHMETIC IF STATEMENT    7.1.2.2P3020070
C*****       GENERAL COMMENTS                                        P3020080
C*****       INTRINSIC FUNCTIONS ASSUMEO WORKING                     P3020090
C*****                                                               P3020100
C*****  S P E C I F I C A T I O N S  SEGMENT 302                     P3020110
C*****                                                               P0014140
C*****  WHEN EXECUTING ONLY SEGMENT 302, THE SPECIFICATION STATEMENTS P0014145
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE  C=             P0014150
C*****  IN COLUMNS  1  ANO  2  REMOVED.                              P0014155
C*****                                                               P0014160
C=    OIMENSION MCA1I(5),AC2S(5,6)                                   P0014165
C=    DOUBLE PRECISION MCAVD,MCBVD                                   P0014170
C=    COMPLEX CHAVC                                                  P0014175
      DIMENSION MCA1I(5),AC2S(5,6)                                   P302A1
      DOUBLE PRECISION MCAVD,MCBVD                                   P302A2
      COMPLEX CHAVC                                                  P302A3
C*****                                                               P0014180
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.  P3020120
C*****                                                               P0073260
C*****  WHEN EXECUTING ONLY SEGMENT 302, THE FOLLOWING STATEMENT     P0073265
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 ANO 2 REMOVEO.       P0073270
C*****                                                               P0073275
C=    NUVI = 6                                                       P0073280
      NUVI = 6                                                       P302B1
C*****                                                               P0073285
      WRITE (NUVI,3020)                                              P3020130
3020  FORMAT (1H1,1X,26HFARIF - (302) FULL FORTRAN/  16X,24HARITHMETIC IP3020140
     1F STATEMENTS/                                                  P3020150
     220H  ASA REF. - 7.1.2.2/2X,7HRESULTS)                         P3020160
C*****    HEADER FOR SEGMENT 302 WRITTEN                             P3020170
      MCA1I(1) = 5                                                   P3020180
      MCAVI = 0                                                      P3020190
      AC2S(1,1) = 10.5                                               P3020200
      MCAVO = -15.000                                                P3020210
      CHAVC = (1.0,2.0)                                              P3020220
      MCBVO = -0.0D0                                                 P3020230
C*****    ARITHMETIC IF WITH EXPRESSION OF TYPE DOUBLE PRECISION     P3020240
C*****    TEST THAT MINUS ZERO IS TREATEO AS ZERO          4.2/11P3020250
      IF (MCBVO) 9301,9303,9301                                      P3020260
9301  WRITE (NUVI,9302)                                              P3020270
9302  FORMAT (//2X,37HERROR, MINUS ZERO TREATEO AS NEGATIVE/         P3020280
     1 36H  NUMBER - OTHER TESTS MAY FAIL AS A/                      P3020290
     2 8H  RESULT)                                                   P3020300
      MCAVI = 0                                                      P3020310
C*****    TEST 1 - SHOULO TAKE ZERO BRANCH                           P3020320
9303  IF (MCAVD + 15.0D0) 3028,3021,3028                             P3020330
C*****    TEST 2 - SHOULD TAKE MINUS BRANCH                          P3020340
3021  IF (MCAVO / DBLE(FLOAT(MCA1I(1))) * 2.00) 3022,3029,3029       P3020350
C*****    TEST 3 - SHOULD TAKE MINUS BRANCH                          P3020360
```

```
 3022   IF (MCAVD/(-15.0D0) + 6.0D0 - 2.0D0 ** 3) 3023,9971,9971        P3020370
C*****        TEST 4 - SHOULD TAKE PLUS BRANCH                           P3020380
 3023   IF (DSIGN(1.0D0,DBLE(REAL(CHAVC)))) 9972,9972,3024               P3020390
C*****        TEST 5 - SHOULD TAKE ZERO BRANCH                           P3020400
 3024   IF (2.0D0 ** 2 - 4.0D0/ 1.0D0) 9973, 3025, 9973                 P3020410
 3025   IF (MCAVI) 9974,3026,9970                                        P3020420
 3026   WRITE (NUVI,3027)                                                P3020430
        GO TO 9970                                                       P3020440
 3027   FORMAT (//34H  SEGMENT 302 TESTED SUCCESSFULLY.)                 P3020450
 3028   MCAVI = 1                                                        P3020460
        IF (DABS(MCAVD + 15.0D0))9304,9305,9304                          P3020470
 9304   WRITE (NUVI,9975) MCAVI                                          P3020480
        GO TO 3021                                                       P3020490
 9305   WRITE (NUVI,9306) MCAVI                                          P3020500
 9306   FORMAT (//2X,14HERROR IN TEST ,I2,23H BECAUSE MINUS ZERO WAS/    P3020510
       1  30H  TREATED AS A NEGATIVE NUMBER)                            P3020520
        GO TO 3021                                                       P3020530
 3029   MCAVI = 2                                                        P3020540
        WRITE (NUVI,9975) MCAVI                                          P3020550
        GO TO 3022                                                       P3020560
 9971   MCAVI = 3                                                        P3020570
        WRITE (NUVI,9975) MCAVI                                          P3020580
        GO TO 3023                                                       P3020590
 9972   MCAVI = 4                                                        P3020600
        WRITE (NUVI,9975) MCAVI                                          P3020610
        GO TO 3024                                                       P3020620
 9973   MCAVI = 5                                                        P3020630
        IF (DABS(2.0D0 ** 2 - 4.0D0 / 1.0D0)) 9307, 9308, 9307          P3020640
 9307   WRITE (NUVI,9975) MCAVI                                          P3020650
        GO TO 3025                                                       P3020660
 9308   WRITE (NUVI,9306) MCAVI                                          P3020670
        GO TO 3025                                                       P3020680
 9974   MCAVI = 6                                                        P3020690
        WRITE (NUVI,9975) MCAVI                                          P3020700
 9975   FORMAT (//6H  TEST,I3,8H FAILED.)                                P3020710
 9970   CONTINUE                                                         P3020720
C*****      END OF TEST SEGMENT 302                                      P3020730
C*****   WHEN EXECUTING ONLY SEGMENT 302, THE  STOP  AND  END  CARDS     P3020740
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 P3020750
C*****   IN COLUMNS  1  AND  2  REMOVED.                                 P3020760
C=      STOP                                                             P3020770
C=      END                                                             P3020780
        STOP                                                            P302C1
        END                                                             P302C2
C**********************************************************************P3100010
C*****                                                                  P3100020
C*****                        IOFMT - (310)                             P3100030
C*****                                                                  P3100040
C**********************************************************************P3100050
C*****   GENERAL PURPOSE                                    ASA REFSP3100060
C*****      TO TEST ADDITIONAL FEATURES OF FORMATTED READ      7.1.3.2.2P3100070
C*****      AND WRITE STATEMENTS AND FORMAT STATEMENTS         7.1.3.2.3P3100080
C*****   RESTRICTIONS OBSERVED                                          P3100090
C*****   *  ALL FORMAT STATEMENTS ARE LABELED                 7.2.3  /57P3100100
C*****   *  H AND X DESCRIPTORS ARE NEVER REPEATED            7.2.3.3/54P3100110
C*****   *  FOR W.D DESCRIPTORS, D IS ALWAYS SPECIFIED AND    7.2.3.1/31P3100120
C*****      W IS EQUAL TO OR GREATER THAN D                   7.2.3.1/33P3100130
C*****   *  FIELD WIDTH IS NEVER ZERO                         7.2.3  /18P3100140
C*****   *  IF THERE IS AN I/O LIST, THE FORMAT STATEMENT     7.2.3.4/22P3100150
C*****      CONTAINS AT LEAST ONE FIELD DESCRIPTOR (OTHER               P3100160
C*****      THAN H OR X)                                                P3100170
C*****   *  ITEMS IN I/O LIST CORRESPOND TO FORMAT DESCRIPTORS 7.2.3.4/36P3100180
C*****   *  NEGATIVE OUTPUT VALUES ARE SIGNED                 7.2.3.6/56P3100190
C*****   *  FIELD WIDTH NEVER EXCEEDED BY OUTPUT              7.2.3.6/01P3100200
C*****   *  FOR I CONVERSION, EXTERNAL INPUT FIELDS ARE       7.2.3.6.1/07P3100210
C*****      INTEGER CONSTANTS                                           P3100220
C  INPUT DATA TO THIS SEGMENT CONSISTS OF 38 CARD IMAGES IN COL. 1 - 80 P3100230
C    COLS.          22  25  31   34-35   40-43  55  67  69  74-76       P3100240
```

```
CARD  1          .    .    .      0.   E+00  +   +   .     E00        P3100250
C    COLS.      16   31   33  42-45  50  59-60                        P3100260
CARD  2              +    +    .   D+00   .     D0                    P3100270
C    COLS. 1-----------14  18-----26  28-------38  42-------------58  P3100280
CARD 3      1.23456987654.  +1.234E-0  -98.7654E+0  + 2345.67891011+2  · P3100290
C    COLS.  69-----78                                                 P3100300
CARD 3      -.109876-4                                                P3100310
C    COLS        1---5                                                P3100320
CARDS 4,5,6,7,8   12345                                               P3100330
C    COLS.       1-3                                                  P3100340
CARDS 9,10,11,12  1.1                                                 P3100350
C    COLS. 1-----------------------------------------------------58   P3100360
CARD 13    +0.339567E+02                                             P3100370
CARD 14     + .339567+2                                              P3100380
CARD 15    + 3.395670E1                                              P3100390
CARD 16    0.962951342440+04                                        P3100400
CARD 17     .96295134244D04                                          P3100410
CARD 18     0.96295134244+4                                          P3100420
CARD 19    0.96295134244D+04                                         P3100430
CARD 20    31.23+0.14E+04+0.2D+02                                    P3100440
CARD 21    31.23   .14E+04    +.2+2                                  P3100450
CARD 22    -0.13579E+054444                                          P3100460
CARD 23    4444                                                      P3100470
CARD 24    4444                                                      P3100480
CARD 25    4444                                                      P3100490
CARD 26    4444                                                      P3100500
CARD 27    -333 5.555+0.4545E-04                                     P3100510
CARD 28    -6.666   .9989E+12                                        P3100520
CARD 29    7.77-0.747E-02   +0.549E022                               P3100530
CARD 30    +0.662E-00  0.468-1011                                    P3100540
CARD 31    0.59542D+04-44.6666-0.1234567890D-03                      P3100550
CARD 32    54.9327-0.1395624534D+00                                  P3100560
CARD 33    65432.1                                                   P3100570
CARD 34    +0.848E+03     .848E3 + .1290D7+0.129D+07  0.412D21       P3100580
CARD 35    222222222222222222222222222222222222222222222222222222222 P3100590
CARD 36     -.987E0-0.987E+00    +0.6D0 + 0.6D+00   .368D-5          P3100600
CARD 37       5   5   5   5                                          P3100610
CARD 38      987654   8647.86   987.654                              P3100620
CARD COLS. NOT MENTIONED ARE BLANK                                   P3100630
C*****                                                               P3100640
C*****    READ AND WRITE STATEMENTS FOR ENTIRE SEGMENT FOLLOW        P3100650
C*****                                                               P3100660
C*****    TEST THAT COMPLETELY BLANK FIELDS IN THE INPUT      7.2.3.6/45P3100670
C*****    ARE TREATED AS ZEROS. (ALL VARIABLES AND ARRAY            P3100680
C*****    ELEMENTS USED IN THIS TEST ARE FIRST SET TO               P3100690
C*****    NON-ZERO VALUES.  I, E, F AND D DESCRIPTORS               P3100700
C*****    APPEAR IN THE CORRESPONDING FORMAT STATEMENT              P3100710
C*****                                                               P3100720
C*****  S P E C I F I C A T I O N S   SEGMENT 310                     P3100730
C*****                                                               P0014190
C*****  WHEN EXECUTING ONLY SEGMENT 310, THE SPECIFICATION STATEMENTS P0014195
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE  C=             P0014200
C*****  IN COLUMNS  1  AND  2  REMOVED.                              P0014205
C*****                                                               P0014210
C=    DIMENSION A1S(5),A2S(2,2),A3S(3,3,3),EP1S(33)                   P0014215
C=    DIMENSION IAC1I(5),IAC2I(2,7),AC1S(25),AC2S(5,6)                P0014220
C=    INTEGER MCA3I(2,3,3)                                            P0014225
C=    REAL MVS                                                        P0014230
C=    DOUBLE PRECISION  MCAVD,MCBVD,MCCVD,A1D(4),A2D(2,2),A3D(2,2,2)   P0014235
C=    DOUBLE PRECISION DPAVD,DPBVD,DPCVD,DPDVD,DPEVD,DPFVD,DPHVD,AAAVD  P0014240
      DIMENSION A1S(5),A2S(2,2),A3S(3,3,3),EP1S(33)                   P310A1
      DIMENSION IAC1I(5),IAC2I(2,7),AC1S(25),AC2S(5,6)                P310A2
      INTEGER MCA3I(2,3,3)                                            P310A3
      REAL MVS                                                        P310A4
      DOUBLE PRECISION  MCAVD,MCBVD,MCCVD,A1D(4),A2D(2,2),A3D(2,2,2)   P310A5
      DOUBLE PRECISION DPAVD,DPBVD,DPCVD,DPDVD,DPEVD,DPFVD,DPHVD,AAAVD  P310A6
C*****                                                               P0014245
C*****  I N P U T - O U T P U T  TAPE ASSIGNMENT STATEMENTS          P3100740
```

```
C*****                                                                P0073290
C*****    WHEN EXECUTING ONLY SEGMENT 310, THE FOLLOWING STATEMENTS    P0073295
C*****    NUVI = 6 , IRVI = 5 MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.P0073300
C=     NUVI = 6                                                        P0073305
C=     IRVI = 5                                                        P0073310
       NUVI = 6                                                        P310B1
       IRVI = 5                                                        P310B2
C*****                                                                 P0073315
C*****      HEADER FORMAT STATEMENT                                    P3100750
3100   FORMAT (1H1,1X,38HIOFMT - (310) ADDITIONAL FORMATTED I/O        P3100760
      1  //2X,38HASA REFS - 7.1.3.2.2  7.1.3.2.3  7.2.3//2X,7HRESULTS) P3100770
       WRITE (NUVI,3100)                                               P3100780
       JACVI = 11111                                                   P3100790
       IAC1I(1) = -2345                                                P3100800
       IAC2I(1,1) = 9999                                               P3100810
       MCA3I(1,1,1) = 2                                                P3100820
       ACVS = 1.2                                                      P3100830
       BCVS = -.34E-3                                                  P3100840
       A1S(1) = 34.56                                                  P3100850
       A1S(2) = 456.789E+02                                            P3100860
       A2S(1,1) = -7899.3                                              P3100870
       A2S(2,1) = +9876.543E-01                                        P3100880
       A3S(1,1,1) = .543                                               P3100890
       A3S(2,1,1) = 4.33E+1                                            P3100900
       AAAVD = +2.22D+01                                               P3100910
       A1D(1) = -.33456D-01                                            P3100920
       A2D(1,1) = 9987.76D+2                                           P3100930
       A3D(1,1,1) = 44.D-2                                             P3100940
C*****      FORMATS TO TEST THAT BLANK INPUT FIELDS ARE        7.2.3.6/45P3100950
C*****      TREATED AS ZEROS. I, E, F AND D FIELDS ARE TESTED          P3100960
C*****    CARDS 1 AND 2                                                P3100970
3101   FORMAT (4(I5), 4(F3.1), 4(E11.4)/ 4(D15.8))                     P3100980
       READ (IRVI,3101) JACVI, IAC1I(1), IAC2I(1,1), MCA3I(1,1,1), ACVS, P3100990
      1     A1S(1), A2S(1,1), A3S(1,1,1), BCVS, A1S(2), A2S(2,1),      P3101000
      2     A3S(2,1,1), AAAVD, A1D(1), A2D(1,1), A3D(1,1,1)            P3101010
3102   FORMAT ( /2X,16HTEST BLANK INPUT/2X,26HEACH ANSWER SHOULD BE ZERO,P3101020
      1  4(/I6)   / 4(/F8.1) / 4(/E12.1) / 4(/D12.1))                  P3101030
       WRITE (NUVI,3102) JACVI, IAC1I(1), IAC2I(1,1), MCA3I(1,1,1), ACVS,P3101040
      1     A1S(1), A2S(1,1), A3S(1,1,1), BCVS, A1S(2), A2S(2,1),      P3101050
      2     A3S(2,1,1), AAAVD, A1D(1), A2D(1,1), A3D(1,1,1)            P3101060
C*****      TEST THAT DECIMAL POINTS APPEARING IN INPUT FIELDS  7.2.3.6/47P3101070
C*****      OVERRIDE THE SPECIFICATIONS SUPPLIED BY E, F AND          P3101080
C*****      D FIELD DESCRIPTORS                                        P3101090
3103   FORMAT (/34H   TEST DEC. PT. SPECIFIED BY INPUT/ 36H   3 LINES IN EAP3101100
      1CH GROUP SHOULD MATCH / 26H   * LINE IS HOLLERITH DATA )        P3101110
       WRITE (NUVI,3103)                                              P3101120
       CMAVS = 1.23456                                                 P3101130
       CMBVS = 987654.                                                 P3101140
       CMEVS = 0.1234E+01                                              P3101150
       CMFVS = -0.987654E+02                                           P3101160
       DPAVD = 0.234567891011D+06                                      P3101170
       DPBVD = -0.109876D-04                                           P3101180
C*****    CARD 3                                                       P3101190
3104   FORMAT (2(F7.3), 2(E12.5), 2(D20.11))                          P3101200
       READ (IRVI,3104) ACVS, BCVS, FFCVS, GGCVS, MCAVD, MCBVD        P3101210
3105   FORMAT (/12H   *   1.23456,2(/F12.5)//13H   *   987654.0,2(/F13.1) / P3101220
      1 /15H   *   0.1234E+01,2(/E15.4)//17H   * -0.987654E+02,2(/E17.6) / P3101230
      2 /23H   *   0.234567891011D+06, 2(/D23.12)//17H   * -0.109876D-04, P3101240
      3  2(/D17.6) )                                                   P3101250
       WRITE (NUVI,3105) CMAVS, ACVS, CMBVS, BCVS, CMEVS, FFCVS, CMFVS, P3101260
      1     GGCVS, DPAVD, MCAVD, DPBVD, MCBVD                          P3101270
C*****      TEST SIMPLE REPETITION OF FORMAT DESCRIPTORS         7.2.3.4/ P3101280
C*****      WHEN ADDITIONAL ITEMS REMAIN IN AN I/O LIST         7.1.3.2.1/ P3101290
C*****      AND THE LAST RIGHT PARENTHESIS HAS BEEN REACHED            P3101300
C*****      IN THE CORRESPONDING FORMAT STATEMENT                      P3101310
3106   FORMAT (    35H1 TEST FORMAT DESCRIPTOR REPETITION/ 32H   ALL LINES P3101320
      1IN EACH GROUP SHOULD/ 14H   BE IDENTICAL)                       P3101330
       WRITE (NUVI,3106)                                              P3101340
```

```
            JACVI = +12345                                                      P3101350
            KBCVI = 3                                                           P3101360
            CMAVS = 1.1                                                         P3101370
            CMBVS = 1.23                                                        P3101380
            CMEVS = 33.9567                                                     P3101390
            CMGVS = 1.4E+03                                                     P3101400
            DPAVD = 962951342.44D-5                                             P3101410
            DPBVD = 2.0D1                                                       P3101420
      C*****   CARDS 4, 5, 6, 7, 8                                              P3101430
      3107  FORMAT (I5)                                                         P3101440
            READ (IRVI,3107) IAC1I                                             P3101450
      C*****   CARDS 9, 10, 11, 12                                             P3101460
      3108  FORMAT (F3.1)                                                       P3101470
            READ (IRVI,3108) A2S                                               P3101480
      C*****   CARDS 13, 14, 15                                                 P3101490
      9320  FORMAT (E13.6)                                                      P3101500
            READ (IRVI,9320) A1S(1), HHCVS, A1S(2)                             P3101510
      C*****   CARDS 16, 17, 18, 19                                            P3101520
      9321  FORMAT (D18.11)                                                     P3101530
            READ (IRVI,9321) A2D                                               P3101540
      C*****   CARDS 20, 21                                                     P3101550
      9322  FORMAT (I1,F4.2,E9.2,D8.1)                                          P3101560
            READ (IRVI,9322) LCCVI, DCVS, AC2S(5,6), A3D(1,2,2), MDCVI, FFCVS,P3101570
           1     GGCVS, AAAVD                                                   P3101580
      9323  FORMAT ( /10H  *   12345)                                           P3101590
            WRITE (NUVI,9323)                                                   P3101600
      9324  FORMAT (I10)                                                        P3101610
            WRITE (NUVI,9324) JACVI, IAC1I                                     P3101620
      9325  FORMAT (/ 8H  *   1.1)                                              P3101630
            WRITE (NUVI,9325)                                                   P3101640
      9326  FORMAT (F8.1)                                                       P3101650
            WRITE (NUVI,9326) CMAVS, A2S                                       P3101660
      9329  FORMAT (/17H  *   0.339567E+02)                                     P3101670
            WRITE (NUVI,9329)                                                   P3101680
      9330  FORMAT (E17.6)                                                      P3101690
            WRITE (NUVI,9330) CMEVS, A1S(1), HHCVS, A1S(2)                     P3101700
      9331  FORMAT (/22H  *   0.96295134244D+04)                               P3101710
            WRITE (NUVI,9331)                                                   P3101720
      9332  FORMAT (D22.11)                                                     P3101730
            WRITE (NUVI,9332) DPAVD, A2D                                       P3101740
      9333  FORMAT (/31H  *   3   1.23   0.14E+04   0.2D+02)                    P3101750
            WRITE (NUVI,9333)                                                   P3101760
      9334  FORMAT (I6,F6.2,E10.2,D9.1)                                         P3101770
            WRITE (NUVI,9334) KBCVI, CMBVS, CMGVS, DPBVD, LCCVI, DCVS,         P3101780
           1     AC2S(5,6), A3D(1,2,2), MDCVI, FFCVS, GGCVS, AAAVD            P3101790
      C*****   TEST THAT FORMAT CONTROL PASSES TO THE GROUP         7.2.3.4/03P3101800
      C*****   ENCLOSED BY THE LAST PRECEDING RIGHT PAREN.        7.1.3.2.1/39P3101810
      C*****   WHEN THE I/O LIST CONTAINS MORE ELEMENTS THAN                   P3101820
      C*****   THE NUMBER OF DESCRIPTORS IN THE FORMAT STMNT.                  P3101830
            JACVI = +4444                                                       P3101840
            KBCVI = -333                                                        P3101850
            LCCVI = 22                                                          P3101860
            MDCVI = 11                                                          P3101870
            ACVS = 5.555                                                        P3101880
            BCVS = -6.666                                                       P3101890
            CCVS = +7.77                                                        P3101900
            DCVS = 65432.1                                                      P3101910
            CMAVS = -0.13579E+5                                                 P3101920
            CMBVS = 0.4545E-04                                                  P3101930
            CMCVS = 0.9989E12                                                   P3101940
            CMDVS = -0.747E-2                                                   P3101950
            CMEVS = +0.549E+00                                                  P3101960
            CMFVS = 0.662E-0                                                    P3101970
            CMGVS = 0.468E-10                                                   P3101980
            DPAVD = +59.542D02                                                  P3101990
            DPBVD = -0.0123456789D-2                                           P3102000
            DPCVD = -1395624534.D-10                                           P3102010
            DPDVD = +129.D4                                                     P3102020
```

```
          DPEVD = 4.12D+20                                                P3102030
          DPFVD = 36.8D-7                                                 P3102040
          DPHVD = 0.6D00                                                  P3102050
          FFCVS = -44.6666                                                P3102060
          GGCVS = +.549327E+2                                             P3102070
          HHCVS = 848.                                                    P3102080
          MVS = -.987                                                     P3102090
          CMHVS = 1.23E-1                                                 P3102100
          CMIVS = 646.E-2                                                 P3102110
C*****    CARDS 22, 23, 24, 25, 26                                        P3102120
9335      FORMAT ( E12.5, (I4))                                          P3102130
          READ (IRVI,9335) A1S(2), IAC1I                                  P3102140
C*****    CARDS 27, 28                                                    P3102150
9336      FORMAT (I4, (F6.3), E11.4)                                      P3102160
          READ (IRVI,9336) MRRVI, AC1S(1), EP1S(1), A3S(1,1,1), AC2S(2,2) P3102170
C*****    CARDS 29, 30                                                    P3102180
9337      FORMAT (F4.2, (2(E10.3)), I2)                                   P3102190
          READ (IRVI,9337) A2S(2,2), A3S(2,1,1), EP1S(2), MCA3I(1,1,1),   P3102200
     1        BVS, AC2S(2,1), NECVI                                       P3102210
C*****    CARDS 31, 32                                                    P3102220
9338      FORMAT (D12.5, (F8.4,  D17.10))                                 P3102230
          READ (IRVI,9338) MCAVD, EP1S(3), A1D(1), A2S(1,2), A2D(2,1)     P3102240
C*****    CARDS 33, 34, 35, 36                                            P3102250
C*****    THIS READ CAUSES AN INPUT DATA CARD TO BE SKIPPED               P3102260
9339      FORMAT( F7.1, (/2(E10.3), 2(D10.3)), D10.3)                     P3102270
          READ (IRVI,9339)  CVS, A2S(2,1), A3S(1,2,2), A3D(1,1,1),        P3102280
     1                      A3D(1,2,1), A2D(2,2), A3S(1,2,1), EP1S(4),    P3102290
     2                      A1D(2), MCBVD, MCCVD                          P3102300
9340      FORMAT (/16H  * -0.13579E+05,2(/E16.5)//9H  *   4444,6(/I9))    P3102310
          WRITE (NUVI,9340) CMAVS, A1S(2), JACVI, IAC1I                   P3102320
9341      FORMAT (/ 8H  * -333, 2(/I8)/ 10H1 *   5.555,  2(/F10.3) //     P3102330
     115H  *   0.4545E-04, 2(/E15.4)// 10H  * -6.666, 2(/F10.3)  //       P3102340
     215H  *   0.9989E+12, 2(/E15.4))                                     P3102350
          WRITE (NUVI,9341) KBCVI, MRRVI, ACVS, AC1S(1), CMBVS, EP1S(1),  P3102360
     1        BCVS, A3S(1,1,1), CMCVS, AC2S(2,2)                          P3102370
9342      FORMAT (/9H  *   7.77 ,2(/F9.2)//14H  * -0.747E-02, 2(/E14.3) // P3102380
     1  14H  *   0.549E+00, 2(/E14.3) //7H  *   22, 2(/I7) //             P3102390
     2  14H  *   0.662E+00, 2(/E14.3) //14H  *   0.468E-10, 2(/E14.3) //  P3102400
     3   7H  *   11, 2(/I7) )                                             P3102410
          WRITE (NUVI,9342) CCVS, A2S(2,2), CMDVS, A3S(2,1,1), CMEVS,     P3102420
     1        EP1S(2), LCCVI, MCA3I(1,1,1), CMFVS, BVS, CMGVS, AC2S(2,1), P3102430
     2        MDCVI, NECVI                                                P3102440
9343      FORMAT (/16H  *   0.59542D+04,2(/D16.5)//12H  *  -44.6666,2(/F12.4)/P3102450
     1/21H  * -0.1234567890D-03,2(/D21.10)/12H1 *   54.9327,2(/F12.4)//   P3102460
     2 21H  * -0.1395624534D+00,2(/D21.10) )                             P3102470
          WRITE (NUVI,9343) DPAVD, MCAVD, FFCVS, EP1S(3), DPBVD, A1D(1),  P3102480
     1        GGCVS, A2S(1,2), DPCVD, A2D(2,1)                            P3102490
9344      FORMAT (/12H  *   65432.1/ 2(F12.1/) / 14H  *   0.848E+03/      P3102500
     1  3(E14.3/) / 14H  *   0.129D+07/ 3(D14.3/) / 14H  *   0.412D+21/   P3102510
     2  2(D14.3/) / 14H  *  -0.987E+00/ 3(E14.3/) / 12H  *   0.6D+00/     P3102520
     3  3(D12.1/) / 14H  *   0.368D-05, 2(/D14.3) )                       P3102530
          WRITE (NUVI,9344) DCVS, CVS, HHCVS, A2S(2,1), A3S(1,2,2), DPDVD, P3102540
     1                      A3D(1,1,1), A3D(1,2,1), DPEVD, A2D(2,2),      P3102550
     2                      MVS, A3S(1,2,1), EP1S(4), DPHVD, A1D(2), MCBVD, P3102560
     3                      DPFVD, MCCVD                                  P3102570
9345      FORMAT (/14H  *   0.777E+01/ (E14.3))                          P3102580
          WRITE (NUVI,9345) CCVS, A2S(2,2)                               P3102590
9346      FORMAT (/ 22H  * -333   0.59542D+04/I8, D14.5 )                 P3102600
          WRITE (NUVI,9346) KBCVI, DPAVD, MRRVI, MCAVD                    P3102610
9347      IF (MRRVI - 5) 9348, 9349, 9348                                 P3102620
C*****    CARD 37                                                         P3102630
9348      READ (IRVI, 9336) MRRVI                                        P3102640
          GO TO 9347                                                      P3102650
C*****    * ADDITIONAL  SCALE FACTOR ON INPUT-OUTPUT                      P3102660
C*****    CARD 38                                                         P3102670
9349      READ(IRVI, 9327) A1S(3), A1S(4), A1D(4)                        P3102680
9327      FORMAT ( 1PE10.3, -1PE10.2, D10.3)                             P3102690
          WRITE(NUVI, 9328) A1S(3), A1S(4), A1D(4)                        P3102700
```

```
9328   FORMAT(//22H1 SCALE FACTOR ON READ/ 31H  IN ORDER OF FORMAT OCCURRP3102710
      2ENCE/28H  NO EXPONENT ON INPUT DATA //                            P3102720
      3    40H   CARD       987654        8647.86        987.654/        P3102730
      4    40H   DESC     1PE10.3       -1PE10.2         D10.3/           P3102740
      5    40H   TO BE  .988E+02      .8648E+05      .9877D+04/           P3102750
      6    4H  IS,       E12.3,        E12.4,         D12.4)             P3102760
C*****     END OF TEST SEGMENT 310                                       P3102770
C*****     WHEN EXECUTING ONLY SEGMENT 310, THE   STOP   AND   END   CARDS   P3102780
C*****     WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=              P3102790
C*****     IN COLUMNS 1   AND   2   REMOVED.                            P3102800
C=      STOP                                                            P3102810
C=      END                                                            P3102820
        STOP                                                           P310C1
        END                                                           P310C2
```

```
                      .    .       . 0.     E+00                 +          + .      E00
            +                            + .         D+00          .         D0
1.23456987654.     +1.234E-0 -98.7654E+0    +  2345.67891011+2                -.109876-4
12345
12345
12345
12345
12345
1.1
1.1
1.1
1.1
+0.339567E+02
   + .339567+2
  + 3.395670E1
 0.96295134244D+04
    .96295134244D04
    0.96295134244+4
 0.96295134244D+04
31.23+0.14E+04+0.2D+02
31.23   .14E+04    +.2+2
-0.13579E+054444
4444
4444
4444
4444
-333 5.555+0.4545E-04
-6.666  .9989E+12
7.77-0.747E-02   +0.549E022
+0.662E-00   0.468-1011
 0.59542D+04-44.6666-0.1234567890D-03
 54.9327-0.1395624534D+00
65432.1
+0.848E+03     .848E3 +  .1290D7+0.129D+07  0.412D21
222222222222222222222222222222222222222222222222222222222222
   -.987E0-0.987E+00     +0.6D0 +  0.6D+00    .368D-5
    5    5    5    5
     987654    8647.86    987.654
```

```
C*********************************************************************C********P3120010
C*****                                                               P3120020
C*****                      RDFMT - (312)                            P3120030
C*****                                                               P3120040
C*********************************************************************C********P3120050
C*****   GENERAL PURPOSE                                             ASA REFSP3120060
C*****      TO TEST FORMATTED READ AND WRITE STATEMENTS              7.2.3.10P3120070
C*****      IN WHICH THE FORMAT STATEMENT IS CONTAINED IN            P3120080
C*****      AN ARRAY                                                 P3120090
C*****   RESTRICTIONS OBSERVED                                       P3120100
C*****   * AN H DESCRIPTOR MAY NOT BE PART OF A FORMAT               7.2.3.10/48P3120110
C*****      STATEMENT IN AN ARRAY                                    P3120120
C*****   * ALL FORMAT STATEMENTS ARE LABELED                         7.2.3  /57P3120130
C*****   * H AND X DESCRIPTORS ARE NEVER REPEATED                    7.2.3.3/54P3120140
C*****   * FOR W.D DESCRIPTORS, D IS ALWAYS SPECIFIED AND            7.2.3.1/31P3120150
C*****      W IS EQUAL TO OR GREATER THAN D                          7.2.3.1/33P3120160
```

```
C*****   *   FIELD WIDTH IS NEVER ZERO                           7.2.3   /18P3120170
C*****   *   IF THERE IS AN I/O LIST, THE FORMAT STATEMENT        7.2.3.4/22P3120180
C*****       CONTAINS AT LEAST ONE FIELD DESCRIPTOR (OTHER                  P3120190
C*****       THAN H OR X)                                                   P3120200
C*****   *   ITEMS IN I/O LIST CORRESPOND TO FORMAT DESCRIPTORS 7.2.3.4/36P3120210
C*****   *   NEGATIVE OUTPUT VALUES ARE SIGNED                   7.2.3.6/56P3120220
C*****   *   FIELD WIDTH NEVER EXCEEDED BY OUTPUT                7.2.3.6/01P3120230
C*****   *   FOR I CONVERSION, EXTERNAL INPUT FIELDS ARE     7.2.3.6.1/07P3120240
C*****       INTEGER CONSTANTS                                              P3120250
C*****   TEST HOLLERITH IN ARGUMENT OF A CALL                               P3120260
C*****       ARRAY NAME IN ARGUMENT LIST USED AS FORMAT SPECIFIER           P3120270
C*****       SUBROUTINE FMTQ ALSO TESTS THE EMPTY FORMAT STATEMENT          P3120280
C*****   THE FOLLOWING DATA STATEMENTS INITIALIZE SOME       7.2.3.10/50P3120290
C*****   ARRAYS WITH FORMAT STATEMENTS TO BE USED FOR                       P3120300
C*****   READING WITH A, F AND D CONVERSION AND FOR                         P3120310
C*****   WRITING WITH I, E AND L CONVERSION                                 P3120320
C*****                                                                      P3120330
C INPUT DATA TO THIS SEG. CONSISTS OF 13 CARD IMAGES IN COLS. 1 - 80        P3120340
C     COLS. 1-------------------------------------------50                  P3120350
CARD 1      (I5,6X,   I4, 2(I3),   I2)                                      P3120360
CARD 2      (E   9.2,3(E13.6))                                             P3120370
CARD 3      ( L1 ,2(L2),L3)                                                P3120380
CARD 4      (2X,A2,5(A2))                                                  P3120390
CARD 5      (2X,F5.3,    F4.0, 2(F7.2))                                    P3120400
CARD 6      (2X , D 16.9,D9.2)                                             P3120410
CARD 7      4756        -867224+39-6                                       P3120420
CARD 8      23498.-77.27547.18                                             P3120430
CARD 9      -.0076+11+08.93421E-13   893.421E-15+08.93421E-13              P3120440
CARD 10     -0.357901246D+00 +0.52D-2                                      P3120450
CARD 11     TTA FF9$                                                       P3120460
CARD 12     AB                                                            P3120470
CARD 13        CDE+*=123                                                  P3120480
CARD COLS. NOT MENTIONED ARE BLANK                                         P3120490
C*****                                                                      P3120500
C*****   S P E C I F I C A T I O N S   SEGMENT 312                          P3120510
C*****                                                                      P0014250
C*****   WHEN EXECUTING ONLY SEGMENT 312, THE SPECIFICATION STATEMENTS      P0014255
C*****   WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE   C=                  P0014260
C*****   IN COLUMNS  1  AND  2   REMOVED.                                   P0014265
C*****                                                                      P0014270
C=       DIMENSION  L1I(10),A3S(3,3,3),YER1S(7),IAC1I(5),AC1S(25)           P0014275
C=       DIMENSION 2U3S(3,2,2),2T1S(4),2U1S(12),2U2S(4,2),IAC2I(2,7)        P0014280
C=       INTEGER AVI,IU2I(4,2),IT3I(4,2,2),IU3I(2,3,3),MCA3I(2,3,3)         P0014285
C=       LOGICAL AVB,BVB,CVB,GG1B(2),A1B(2)                                 P0014290
C=       DOUBLE PRECISION DPAVD,DPBVD,DPCVD,A1D(4)                          P0014295
C=       COMPLEX CHAVC,CHBVC                                                P0014300
         DIMENSION  L1I(10),A3S(3,3,3),YER1S(7),IAC1I(5),AC1S(25)           P312A1
         DIMENSION IAC2I(2,7),2U1S(13),2U3S(3,2,2),2U2S(4,2),2T1S(4)        P312A2
         INTEGER AVI,IU2I(4,2),IT3I(4,2,2),IU3I(2,3,3), MCA3I(2,3,3)        P312A3
         LOGICAL AVB,BVB,CVB,GG1B(2),A1B(2)                                 P312A4
         DOUBLE PRECISION DPAVD,DPBVD,DPCVD,A1D(4)                          P312A5
         COMPLEX CHAVC,CHBVC                                                P312A6
C*****                                                                      P0014305
C*****   I N P U T - O U T P U T   TAPE ASSIGNMENT STATEMENTS               P3120520
C*****                                                                      P0073320
C*****   WHEN EXECUTING ONLY SEGMENT 312, THE FOLLOWING STATEMENTS          P0073325
C*****   NUVI=6 AND IRVI=5 MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.     P0073330
C*****                                                                      P0073335
C=       NUVI = 6                                                          P0073340
C=       IRVI = 5                                                          P0073345
         NUVI = 6                                                          P312B1
         IRVI = 5                                                          P312B2
C*****                                                                      P0073350
         DATA IU2I(1,1),IU2I(2,1),IU2I(3,1),IU2I(4,1),IU2I(1,2),IU2I(2,2), P3120530
     1   IU2I(3,2)/2H(A,2H2/,2H2X,2H 5,2H(A,2H2),1H) /                     P3120540
         DATA 2U1S(1),2U1S(2),2U1S(3),2U1S(4),2U1S(5),2U1S(6),2U1S(7),     P3120550
     1   2U1S(8),2U1S(9),2U1S(10),2U1S(11),2U1S(12)  /                     P3120560
     2   2H( ,2H  ,2HF3,2H.3,1H,,2HF3,2H.0,2H ,,2H2(,2HF6,2H.2,2H)) /      P3120570
```

```
      DATA IU3I(1,1,1),IU3I(2,1,1),IU3I(1,2,1),IU3I(2,2,1),IU3I(1,3,1),  P3120580
     1      IU3I(2,3,1),IU3I(1,1,2),IU3I(2,1,2) /                         P3120590
     2      2H( ,2H D,2H16,2H.9,2H, ,1HD,2H9.,2H2) /                      P3120600
      DATA IT3I(1,1,1),IT3I(2,1,1),IT3I(3,1,1),IT3I(4,1,1),IT3I(1,2,1),  P3120610
     1      IT3I(2,2,1),IT3I(3,2,1),IT3I(4,2,1),IT3I(1,1,2),IT3I(2,1,2),  P3120620
     2      IT3I(3,1,2),IT3I(4,1,2),IT3I(1,2,2)  /2H(2,2HX,,2HI5,2H.1,    P3120630
     3      2HX,,2HI4,2H.I,2H4,,2H1X,2H.I,2H2,,2HI3,1H)  /               P3120640
      DATA 2T1S(1),2T1S(2),2T1S(3),2T1S(4)/2H(E,2H11,2H.2,1H) /          P3120650
      DATA 2U3S(1,1,1),2U3S(2,1,1),2U3S(3,1,1),2U3S(1,2,1),2U3S(2,2,1),  P3120660
     1      2U3S(3,2,1) / 2H(4,2H(E,2H14,2H.6,2H/),1H)  /                P3120670
      DATA 2U2S(1,1),2U2S(2,1),2U2S(3,1),2U2S(4,1),2U2S(1,2),2U2S(2,2),  P3120680
     2      2U2S(3,2) / 2H(L,2H3,,2H2(,2HL2,2H),,2HL3,1H)  /            P3120690
C*****      THE FOLLOWING READ STATEMENTS INITIALIZE SOME      7.2.3.10/51P3120700
C*****      ARRAYS WITH FORMAT STATEMENTS TO BE USED FOR                  P3120710
C*****      READING WITH I, E AND L CONVERSIONS AND FOR                   P3120720
C*****      WRITING WITH A, F AND D CONVERSIONS                           P3120730
C*****                                                                    P3120740
      WRITE (NUVI,3120)                                                   P3120750
C*****  CARD 1                                                            P3120760
      READ (IRVI,3121) AC1S(1), AC1S(2), AC1S(3), AC1S(4), AC1S(5),       P3120770
     1      AC1S(6),AC1S(7),AC1S(8),AC1S(9),AC1S(10),AC1S(11),AC1S(12)    P3120780
C*****  CARD 2                                                            P3120790
      READ (IRVI,3122) L1I                                                P3120800
C*****  CARD 3                                                            P3120810
      READ (IRVI,3121) A3S                                                P3120820
C*****  CARD 4                                                            P3120830
      READ (IRVI,3123) YER1S                                              P3120840
C*****  CARD 5                                                            P3120850
      READ (IRVI,3124) MCA3I                                              P3120860
C*****  CARD 6                                                            P3120870
      READ (IRVI,3124) IAC2I                                              P3120880
C*****                                                                    P3120890
C*****                                                                    P3120900
C*****      THE FOLLOWING STATEMENTS MAKE USE OF THE FORMATS              P3120910
C*****      CONTAINED IN THE ARRAYS                                       P3120920
C*****                                                                    P3120930
C*****      READ AND WRITE WITH I CONVERSION USING FORMATS IN ARRAYS      P3120940
      JACVI = 4756                                                        P3120950
      KBCVI = -867                                                        P3120960
      LCCVI = 224                                                         P3120970
      MDCVI = +39                                                         P3120980
      NECVI = -6                                                          P3120990
C*****  CARD 7 WITH CARD 1 AS FORMAT                                      P3121000
      READ (IRVI,AC1S) AVI, MRRVI, IAC1I(1), IAC1I(2), IAC1I(3)           P3121010
      WRITE (NUVI,3125)                                                   P3121020
      WRITE(NUVI,IT3I)JACVI, KBCVI, LCCVI, MDCVI, NECVI, AVI, MRRVI,      P3121030
     1              IAC1I(1), IAC1I(2), IAC1I(3)                          P3121040
C*****      READ AND WRITE WITH F CONVERSION USING FORMATS IN ARRAYS      P3121050
      AVS   = .234                                                        P3121060
      BVS   = 98.                                                         P3121070
      CHAVC = (-77.27,+547.18E0)                                          P3121080
C*****  CARD 8 FORMAT IS (F3.3,F3.0,2(F6.2))                              P3121090
      READ (IRVI,2U1S) CVS, DVS, CHBVC                                    P3121100
      WRITE (NUVI,3127)                                                   P3121110
      WRITE (NUVI,MCA3I) AVS, BVS, CHAVC                                  P3121120
      WRITE (NUVI,MCA3I) CVS, DVS, CHBVC                                  P3121130
C*****      READ AND WRITE WITH E CONVERSION USING FORMATS IN ARRAYS      P3121140
      AVS   = -0.76E+9                                                    P3121150
      BVS   = +08.93421E-13                                               P3121160
C*****  CARD 9 WITH CARD 2 AS FORMAT                                      P3121170
      READ (IRVI,L1I) 2U3S(2,2,2),CVS,DVS,2U3S(1,2,2)                     P3121180
      WRITE (NUVI,3128)                                                   P3121190
      WRITE(NUVI,2T1S) AVS, 2U3S(2,2,2)                                   P3121200
      WRITE (NUVI,3129)                                                   P3121210
      WRITE (NUVI, 2U3S) BVS,2U3S(1,2,2),CVS, DVS                         P3121220
C*****      READ AND WRITE WITH D CONVERSION USING FORMATS IN ARRAYS      P3121230
      DPAVD = -0.357901246D+00                                            P3121240
      DPBVD = +.00052D+1                                                  P3121250
```

```
C*****  CARD 10 FORMAT IS  (D16.9,D9.2)                               P3121260
      READ  (IRVI,IU3I) A1D(1), DPCVD                                 P3121270
      WRITE (NUVI,9930)                                               P3121280
      WRITE (NUVI,IAC2I) DPAVD,DPBVD,A1D(1),DPCVD                     P3121290
C*****     READ AND WRITE WITH L CONVERSION USING FORMATS IN ARRAYS   P3121300
      AVB = .TRUE.                                                    P3121310
      BVB = .FALSE.                                                   P3121320
C*****  CARD 11 WITH CARD 3 AS FORMAT                                 P3121330
      READ  (IRVI,A3S) A1B(1), A1B(2), CVB, GG1B(2)                   P3121340
      WRITE (NUVI,9931)                                               P3121350
      WRITE (NUVI, ZU2S) AVB, AVB, BVB, BVB                           P3121360
      WRITE (NUVI,ZU2S) A1B(1), A1B(2), CVB, GG1B(2)                  P3121370
C*****     READ AND WRITE WITH A CONVERSION USING FORMATS IN ARRAYS   P3121380
C*****  CARDS 12 AND 13 FORMAT IS (A2/2X,5(A2))                       P3121390
      READ  (IRVI,IU2I) JACVI, AVS, IAC1I(1), GG1B, BVB              P3121400
      WRITE (NUVI,3126)                                               P3121410
      WRITE (NUVI,YER1S) JACVI, AVS, IAC1I(1), GG1B, BVB             P3121420
C*****                                                                P3121430
      CALL FMTQ (NUVI,ZT1S,0.9999,2HH0,2HLL,2HER,2HIT,2HH ,2HCO,2HNS, P3121440
     1    2HTA,2HNT,2HS ,2HAS,2H C,2HAL,2HL ,2HAR,2HGU,2HME,2HNT,1HS) P3121450
C*****                                                                P3121460
C*****     ADDITIONAL FORMAT STATEMENTS REQUIRED BY THIS SEGMENT      P3121470
C*****                                                                P3121480
C*****     THE FOLLOWING FORMAT STATEMENTS ARE USED TO      7.2.3.10/51P3121490
C*****     READ FORMATS INTO ARRAYS                                   P3121500
3121  FORMAT (27(A2))                                                 P3121510
3122  FORMAT (10(A2))                                                 P3121520
3123  FORMAT ( 7(A2))                                                 P3121530
3124  FORMAT (18(A2))                                                 P3121540
C*****     THE FOLLOWING ARRAYS ARE USED TO WRITE OUT ALL   7.2.3.10/48P3121550
C*****     HOLLERITH INFORMATION, SINCE H FIELD DESCRIPTORS           P3121560
C*****     MAY NOT BE PART OF A FORMAT WITHIN AN ARRAY                P3121570
3120  FORMAT (1H1,1X,31HRDFMT - (312) FORMATS IN ARRAYS//            P3121580
     1 22H  ASA REFS. - 7.2.3.10//34H  EACH GROUP OF LINES SHOULD MATCH)P3121590
3125  FORMAT (/ 22H    4756 -867 224 39 -6)                          P3121600
3126  FORMAT (/ 13H   ABCDE+*=123)                                   P3121610
3127  FORMAT (/ 25H   0.234 98. -77.27 547.18)                       P3121620
3128  FORMAT (/11H  -0.76E+09)                                       P3121630
3129  FORMAT (/14H  0.893421E-12)                                    P3121640
9930  FORMAT (/ 27H  -0.357901246D+00 0.52D-02)                      P3121650
9931  FORMAT (/ 10H  T T F  F)                                       P3121660
C*****     END OF TEST SEGMENT 312                                    P3121670
C*****  WHEN EXECUTING ONLY SEGMENT 312, THE  STOP  AND  END  CARDS   P3121680
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=              P3121690
C*****  IN COLUMNS  1  AND  2  REMOVED.                               P3121700
C=    STOP                                                            P3121710
C=    END                                                            P3121720
      STOP                                                            P312C1
      END                                                            P312C2
C*************************************************************************P4620010
C*****                                                                P4620020
C*****                           FMTQ - (462)                         P4620030
C*****                                                                P4620040
C*************************************************************************P4620050
C*****  GENERAL PURPOSE                                               P4620060
C*****     TO DEFINE SUBROUTINE FMTQ WHICH IS USED IN SEGMENT 312     P4620070
C*****     TO TEST FORMAT IN AN ARRAY PASSED AS AN ARGUMENT, AN       P4620080
C*****         EMPTY FORMAT STATEMENT, AND                            P4620090
C*****         HOLLERITH IN A CALL ARGUMENT                           P4620100
      SUBROUTINE FMTQ(NWVI,ZTW1S,AWVS,IWVH,JWVH,KWVH,LWVH,MWVH,NWVH,  P4620110
     1         IIWVH,JJWVH,KKWVH,LLWVH,MMWVH,NNWVH,IJWVH,IKWVH,       P4620120
     2         ILWVH,IMWVH,INWVH,JIWVH,JKWVH)                         P4620130
      DIMENSION ZTW1S(4)                                              P4620140
      WRITE (NWVI, 4620)                                              P4620150
4620  FORMAT(/11H  +.10E+01 )                                        P4620160
C*****FORMAT LABELED 2TW1S PASSED AS ARGUMENT IS  (E11.2)             P4620170
      WRITE (NWVI, ZTW1S) AWVS                                        P4620180
      WRITE (NWVI, 4621)                                              P4620190
```

```
4621   FORMAT(/39H  HOLLERITH CONSTANTS AS CALL ARGUMENTS )           P4620200
       WRITE (NWVI,4622)  IWVH, JWVH,KWVH,LWVH,MWVH,NWVH,IIWVH,JJWVH,   P4620210
     1                    KKWVH, LLWVH,MMWVH,NNWVH,IJWVH,IKWVH,ILWVH,   P4620220
     2                    IMWVH,INWVH,JIWVH,JKWVH                       P4620230
4622   FORMAT(2X, 19A2)                                                P4620240
       WRITE (NWVI,4623)                                               P4620250
4623   FORMAT(//29H  TEST EMPTY FORMAT STATEMENT /                     P4620260
     136H  THE FOLLOWING LINE SHOULD BE BLANK )                        P4620270
       WRITE(NWVI,4624)                                                P4620280
4624   FORMAT( )                                                       P4620290
       WRITE(NWVI,4625)                                                P4620300
4625   FORMAT(23H  END EMPTY FORMAT TEST //22H  END SEGMENT 312 TEST ) P4620310
       RETURN                                                          P4620320
       END                                                             P4620330
(I5,6X, I4, 2(I3),   I2)
(E   9.2,3(E13.6))
( L1 , 2(L2),L3)
(2X,A2,5(A2))
(2X,F5.3,   F4.0, 2(F7.2))
(2X , D 16.9,D9.2)
  4756        -867224+39-6
23498.-77.27547.18
-.0076+11+08.93421E-13   893.421E-15+08.93421E-13
-0.357901246D+00  +0.52D-2
TTA FF9$
AB
   CDE+*=123
C********************************************************************************P3500010
C*****                                                                P3500020
C*****                           MISC5 - (350)                        P3500030
C*****                                                                P3500040
C********************************************************************************P3500050
C*****    GENERAL PURPOSE                                    ASA REFP3500060
C*****      TO TEST SPECIFICATIONS FOR PROGRAM FORM          3.2     P3500070
C*****                                                       3.2.1   P3500080
C*****                                                       3.4     P3500090
C*****                                                       3.5     P3500100
C*****    GENERAL COMMENTS                                           P3500110
C*****    * AMONG OTHER THINGS, THIS SEGMENT TESTS THAT COMMENTS ARE  P3500120
C*****      NOT EXECUTEO ANO, AS A RESULT OF THIS TEST, THE COMPILER  P3500130
C*****      MAY GENERATE SOME WARNING MESSAGES.                       P3500140
C*****    * BECAUSE OF THE NATURE OF THE TESTS BEING PERFORMEO, SOME  P3500150
C*****      LABELS AND NAMES OO NOT FOLLOW THE CONVENTIONS            P3500160
C*****      SPECIFIEO IN THE USERS MANUAL.                            P3500170
C*****                                                                P3500180
C*****    S P E C I F I C A T I O N S  SEGMENT 350                    P3500190
C*****                                                                P0014310
C*****    WHEN EXECUTING ONLY SEGMENT 350, THE SPECIFICATION STATEMENTS P0014315
C*****    WHICH APPEAR AS COMMENT CAROS MUST HAVE THE C=              P0014320
C*****    IN COLUMNS  1  ANO  2  REMOVEO.                             P0014325
C*****                                                                P0014330
C=     DIMENSION J(2), JJ(1,1), JJJ(1,1,1), JJJJ(1,1),JJJJJ(1), JJJJJJ(1)P0014335
       DIMENSION J(2), JJ(1,1), JJJ(1,1,1), JJJJ(1,1),JJJJJ(1), JJJJJJ(1)P350A1
C*****                                                                P0014340
C*****    O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE. P3500200
C*****    WHEN EXECUTING ONLY SEGMENT 350, THE FOLLOWING STATEMENT    P0073360
C*****    NUVI = 6  MUST HAVE THE C=  IN COLUMNS 1 ANO 2 REMOVEO.     P0073365
C*****                                                                P0073370
C=     NUVI = 6                                                       P0073375
       NUVI = 6                                                       P350B1
       WRITE (NUVI,3500)                                              P3500210
3500   FORMAT (1H1,1X,32HMISC5 - (350) SPECIFICATIONS FOR/ 16X,   12HPROP3500220
     1GRAM FORM//2X,32HASA REFS. - 3.2  3.2.1  3.4  3.5//             P3500230
     2 2X,35HTEST THAT COMMENTS ARE NOT EXECUTED)                     P3500240
C*****     HEAOER FOR SEGMENT 350 WRITTEN                             P3500250
C*****     TEST THAT COMMENTS ARE NOT EXECUTED               3.2.1/36P3500260
C*****WRITE (NUVI,3501)                                               P3500270
3501   FORMAT  (2X,34HERROR - COMMENT STATEMENT EXECUTEO)             P3500280
```

```
C*****GO TO 3504                                                            P3500290
3502  MRRVI = 0                                                             P3500300
C*****IF (MRRVI) 3504, 3504, 3504                                           P3500310
3503  MRRVI = 1                                                             P3500320
C*****MRRVI = -1                                                            P3500330
      IF (MRRVI) 3504,3504,3505                                            P3500340
3504  WRITE (NUVI,3501)                                                    P3500350
3505  WRITE (NUVI,3506)                                                    P3500360
3506  FORMAT  (2X,35HTEST SUCCESSFUL IF NO ERROR MESSAGE)                   P3500370
      GO TO 3509                                                            P3500380
C*****      TEST THAT ALL 72 CHARACTERS IN A LINE MAY BE USED      3.2/24P3500390
3509  WRITE (NUVI,8100)                                                    P3500400
8100  FORMAT(///2X,22HTEST 72 CHARACTER LINE)                             P3500410
      WRITE (NUVI,8101)                                                    P3500420
8101 0FORMAT( /2X,29H1234567891011121314151617181 9/2X,29H12345678910111 2P3500430
     113141516171819)                                                     P3500440
      WRITE (NUVI,8102)                                                    P3500450
8102  FORMAT ( /2X,36HTEST SUCCESSFUL IF 2 LINES ABOVE ARE/2X,19HDIGITS P3500460
     11 THROUGH 19)                                                       P3500470
C*****      TEST THAT STATEMENT LABELS MAY BE 1, 2, 3, 4 OR 5      3.4/12P3500480
C*****      DIGITS LONG                                                    P3500490
      WRITE (NUVI,8112)                                                    P3500500
8112  FORMAT (//2X,37HTEST 1,2,3,4,5 CHARACTER STMNT. LABEL/)             P3500510
      GO TO 1                                                              P3500520
8113  GO TO 22                                                            P3500530
8114  GO TO 333                                                           P3500540
8115  GO TO 8099                                                          P3500550
8097  GO TO 22255                                                         P3500560
1     MRRVI = 1                                                           P3500570
      WRITE (NUVI,8118) MRRVI                                             P3500580
      GO TO 8113                                                          P3500590
22    MRRVI = 2                                                           P3500600
      WRITE (NUVI,8118) MRRVI                                             P3500610
      GO TO 8114                                                          P3500620
333   MRRVI = 3                                                           P3500630
      WRITE (NUVI,8118) MRRVI                                             P3500640
      GO TO 8115                                                          P3500650
8099  MRRVI = 4                                                           P3500660
      WRITE(NUVI, 8118) MRRVI                                             P3500670
      GO TO 8097                                                          P3500680
22255 MRRVI = 5                                                           P3500690
      WRITE (NUVI,8118) MRRVI                                             P3500700
8118  FORMAT (  2X,I1,1X,24HCHARACTER LABEL ACCEPTED)                     P3500710
C*****      TEST THAT VARIABLE AND ARRAY NAMES MAY BE             3.5/21P3500720
C*****      1, 2, 3, 4 OR 5 CHARACTERS LONG                               P3500730
      WRITE (NUVI,8098)                                                   P3500740
8098  FORMAT (//2X,36HTEST 1,2,3,4,5,6 CHARACTER VARIABLES/2X,            P3500750
     115HAND ARRAY NAMES)                                                 P3500760
      M = 1                                                               P3500770
      MM = 1                                                              P3500780
      MMM = 1                                                             P3500790
      MMMM = 1                                                            P3500800
      MMMMM = 1                                                           P3500810
      MMMMMM = 1                                                          P3500820
      J(1) = 1                                                            P3500830
      JJ(1,1) = 1                                                         P3500840
      JJJ(1,1,1) = 1                                                      P3500850
      JJJJ(1,1) = 1                                                       P3500860
      JJJJJ(1) = 1                                                        P3500870
      JJJJJJ(1) = 1                                                       P3500880
      IF (M-1) 8119, 8103, 8119                                          P3500890
8103  IF (MM-1) 8119,8104,8119                                           P3500900
8104  IF (MMM-1) 8119,8105,8119                                          P3500910
8105  IF (MMMM-1) 8119, 8106,8119                                        P3500920
8106  IF (MMMMM-1) 8119,8096,8119                                        P3500930
8096  IF (MMMMMM-1) 8119, 8107, 8119                                     P3500940
8107  IF (J(1)-1) 8119,8108,8119                                         P3500950
8108  IF (JJ(1,1)-1) 8119,8109,8119                                      P3500960
```

```
8109    IF (JJJ(1,1,1)-1) 8119,8110,8119                              P3500970
8110    IF (JJJJ(1,1)-1) 8119,8111,8119                               P3500980
8111    IF (JJJJJ(1)-1) 8119,8095,8119                                P3500990
8095    IF (JJJJJJ(1)-1) 8119,8121,8119                               P3501000
8119    WRITE (NUVI,8120)                                             P3501010
8120    FORMAT (/ 2X,21H**TEST UNSUCCESSFUL**)                        P3501020
        GO TO 8123                                                    P3501030
8121    WRITE (NUVI,8122)                                             P3501040
8122    FORMAT (/ 2X,38H**TEST SUCCESSFUL-ALL NAMES ACCEPTED**)       P3501050
C*****      TEST THAT STATEMENT LABELS MAY BE PLACED         3.4/13P3501060
C*****       ANYWHERE IN COLUMNS 1 TO 5 AND THAT LEADING     3.4/17P3501070
C*****       ZEROS ON STATEMENT LABELS ARE NOT SIGNIFICANT         P3501080
8123    WRITE (NUVI,8116)                                             P3501090
8116    FORMAT (//2X,34HTEST PLACEMENT OF STATEMENT LABELS/2X,        P3501100
    1 29HAND LABELS WITH LEADING ZEROS/)                              P3501110
        MRRVI = 1                                                     P3501120
        GO TO 10                                                      P3501130
  2     MRRVI = 2                                                     P3501140
        GO TO 010                                                     P3501150
  3     MRRVI = 3                                                     P3501160
        GO TO 0010                                                    P3501170
   4    MRRVI = 4                                                     P3501180
        GO TO 0010                                                    P3501190
    5 MRRVI = 5                                                       P3501200
        GO TO 0010                                                    P3501210
06      MRRVI = 6                                                     P3501220
        GO TO 0010                                                    P3501230
007     MRRVI = 7                                                     P3501240
        GO TO 0010                                                    P3501250
0008    MRRVI = 8                                                     P3501260
        GO TO 0010                                                    P3501270
 0009 MRRVI = 9                                                       P3501280
 0010 WRITE (NUVI,11) MRRVI                                           P3501290
011     FORMAT ( I10)                                                 P3501300
        GO TO (02,3,004,0005,6,7,8,009,8117), MRRVI                   P3501310
8117    WRITE (NUVI,012)                                              P3501320
 12     FORMAT (//2X,28HTEST SUCCESSFUL IF 9 NUMBERS/2X,              P3501330
    1 31HIN SEQUENTIAL ORDER FROM 1 TO 9/2X,                          P3501340
    2 17HARE WRITTEN ABOVE///2X,18HEND OF SEGMENT 350)               P3501350
C*****      END OF TEST SEGMENT 350                                   P3501360
C***** WHEN EXECUTING ONLY SEGMENT 350, THE  STOP  AND  END  CARDS    P3501370
C***** WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                P3501380
C***** IN COLUMNS  1  AND  2  REMOVED.                                P3501390
C=    STOP                                                            P3501400
C=    END                                                             P3501410
      STOP                                                            P350C1
      END                                                            P350C2
C*************************************************************************P3510010
C*****                                                                P3510020
C*****                         FUNMX - (351)                          P3510030
C*****                                                                P3510040
C*************************************************************************P3510050
C***** GENERAL PURPOSE                                    ASA REF P3510060
C*****    THIS SEGMENT FURTHER TESTS SOME                    8.3.3   P3510070
C*****    BASIC EXTERNAL FUNCTIONS BY USING TRIGONOMETRIC             P3510080
C*****    FORMULAE                                                    P3510090
C*****                                                                P3510100
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.   P3510110
C*****                                                                P0073380
C***** WHEN EXECUTING ONLY SEGMENT 351, THE FOLLOWING STATEMENT       P0073385
C***** NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.         P0073390
C*****                                                                P0073395
C=    NUVI = 6                                                        P0073400
      NUVI = 6                                                        P351B1
C*****                                                                P0073405
      WRITE (NUVI,3510)                                               P3510120
3510    FORMAT (1H1,2X,13HFUNMX - (351)//1X,22H THIS SEGMENT FURTHER   P3510130
    1  5HTESTS                        /21H  SOME BASIC EXTERNAL,       P3510140
```

```
     2 10H FUNCTIONS /33H  BY USING TRIGONOMETRIC FORMULAE//           P3510150
     319H   ASA REFS. - 8.3.3//2X,7HRESULTS)                           P3510160
C*****     HEAOER FOR SEGMENT 351 WRITTEN                              P3510170
C*****     TEST STATEMENTS USING ORDINARY TRIGONOMETRIC FUNCTIONS      P3510180
      CMAVS = 1.75                                                     P3510190
      CMCVS = ALOG(EXP(CMAVS)) - 1.75                                  P3510200
      CMDVS = EXP(ALOG(CMAVS)) - 1.75                                  P3510210
      CMEVS = (SIN(2.0)) ** 2 + (COS(2.0)) ** 2 - 1.0                  P3510220
      CMFVS = (1.0/COS(1.2)) ** 2 -((SIN(1.2) / COS(1.2)) ** 2) - 1.0  P3510230
      WRITE (NUVI,3511) CMCVS, CMOVS, CMEVS, CMFVS                     P3510240
      CMCVS = SIN(.78) - SQRT(1. - COS(0.78) ** 2)                     P3510250
      CMOVS = COS(1.57) - SQRT(1.0 - SIN(1.57) ** 2)                   P3510260
      CMEVS = SQRT((1.0/COS(0.5236))**2-1.0)-SIN(0.5236)/COS(0.5236)   P3510270
      CMFVS = ATAN2(SIN(0.5),COS(0.5)) - 0.5                           P3510280
      WRITE (NUVI,3511) CMCVS, CMDVS, CMEVS, CMFVS                     P3510290
C*****     TEST STATEMENTS USING HYPERBOLIC FUNCTIONS                  P3510300
      CMAVS = EXP(1.85)                                                P3510310
      CMBVS = EXP(-1.85)                                               P3510320
      CMCVS = TANH(1.85) - ((CMAVS - CMBVS) / (CMAVS + CMBVS))         P3510330
      CMEVS = 2./(EXP(1.05) + EXP(-1.05)) - SQRT(1.0-TANH(1.05)**2)    P3510340
      CMFVS = TANH(2.01)/ (SQRT(1.0 - TANH(2.01)**2))-.5*(EXP(2.01) -  P3510350
     1 EXP(-2.01))                                                     P3510360
      WRITE (NUVI,3512) CMCVS, CMEVS, CMFVS                            P3510370
      WRITE (NUVI,3513)                                                P3510380
3511  FORMAT (//4(F15.5/))                                            P3510390
3512  FORMAT (//3(F15.5/))                                            P3510400
3513  FORMAT (//39H  ALL ABOVE ANSWERS SHOULO BE 0 PLUS OR /          P3510410
     1 40H  MINUS AN ERROR FACTOR OF NOT MORE THAN /                  P3510420
     2 12H  10 ** (-4))                                               P3510430
C*****     END OF TEST SEGMENT 351                                    P3510440
C*****  WHEN EXECUTING ONLY SEGMENT 351, THE  STOP  AND  END  CARDS   P3510450
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=               P3510460
C*****  IN COLUMNS  1  AND  2  REMOVEO.                               P3510470
C=    STOP                                                            P3510480
C=    ENO                                                             P3510490
      STOP                                                            P351C1
      END                                                             P351C2
C******************************************************************** P3520010
C*****                                                                P3520020
C*****                    NAMES - (352)                              P3520030
C*****                                                                P3520040
C******************************************************************** P3520050
C*****  GENERAL PURPOSE                                   ASA REF P3520060
C*****     TO TEST THE CAPABILITY OF COMPILERS TO IOENTIFY OATA 10.1.7/54P3520070
C*****     NAMES THAT RESEMBLE FORTRAN VERBS ANO/OR PREOEFINEO         P3520080
C*****     FUNCTION NAMES.                                            P3520090
C*****  GENERAL COMMENTS                                              P3520100
C*****     BECAUSE OF THE NATURE OF THIS TEST SEGMENT, NAMING          P3520110
C*****     CONVENTIONS THAT EXISTEO IN OTHER SEGMENTS WILL NOT         P3520120
C*****     BE OBSERVEO.                                               P3520130
C*****                                                                P3520140
C*****  S P E C I F I C A T I O N S  SEGMENT 352                      P3520150
C*****                                                                P0014350
C*****  WHEN EXECUTING ONLY SEGMENT 352, THE SPECIFICATION STATEMENTS  P0014355
C*****  WHICH APPEAR AS COMMENT CAROS, MUST HAVE THE  C=              P0014360
C*****  IN COLUMNS  1  ANO  2  REMOVEO.                               P0014365
C*****                                                                P0014370
C=    OIMENSION GOTO(2,2), IF(5)                                      P0014375
      OIMENSION GOTO(2,2), IF(5)                                      P352A1
C*****                                                                P0014380
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.   P3520160
C*****                                                                P0073410
C*****  WHEN EXECUTING ONLY SEGMENT 352, THE FOLLOWING STATEMENT       P0073415
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVEO.        P0073420
C*****                                                                P0073425
C=    NUVI = 6                                                        P0073430
      NUVI = 6                                                        P352B1
C*****                                                                P0073435
```

```
          WRITE (NUVI,3520)                                              P3520170
3520    FORMAT (1H1 ,1X,13HNAMES - (352)//2X,36HTEST OF THE COMPILERS CAPAP3520180
     1BILITY OF /2X,37HIDENTIFYING DATA NAMES THAT RESEMBLE /2X,          P3520190
     2 32HFORTRAN VERBS AND/OR PREDEFINED /2X,15HFUNCTION NAMES //        P3520200
     3 22H  ASA REFS. - 10.1.7/4 //2X,7HRESULTS)                         P3520210
C*****      HEADER FOR SEGMENT 352 WRITTEN                               P3520220
        INTEG = 0                                                        P3520230
        REAL = 2.0                                                       P3520240
        GOTO5 = REAL - 2.0                                               P3520250
        GOTO(1,2) = 10.0 - 5.0 * 2.0                                     P3520260
        DO13I = INTEG                                                    P3520270
   13   DO14J = INTEG +0                                                 P3520280
   14   IF(2) = 5-5                                                      P3520290
        CALL = 0                                                         P3520300
        STOP7 = REAL - 2.0                                               P3520310
        PAUSE = REAL / 2.0 - 1.0                                         P3520320
        READ6 = 0.0 ** 5                                                 P3520330
        WRITE = 7.0 - 7.0                                                P3520340
        WRITE (NUVI,3521) GOTO5, GOTO(1,2), DO13I, DO14J, IF(2), CALL,   P3520350
     1 STOP7, PAUSE, READ6, WRITE                                        P3520360
3521    FORMAT (//10(F10.5/))                                           P3520370
C*****      TEST THAT THE SAME INTRINSIC FUNCTION NAMES OF               P3520380
C*****      A PROGRAM UNIT OF AN EXECUTABLE PROGRAM CAN BE               P3520390
C*****      USED TO IDENTIFY SOME OTHER ENTITY IN A DIFFERENT            P3520400
C*****      PROGRAM UNIT OF THAT EXECUTABLE PROGRAM                      P3520410
        MCAVI = IABS(-5)                                                 P3520420
        CALL MAQQ(MCAVI,IVI)                                             P3520430
        MCCVI = IVI                                                      P3520440
        MCBVI = ISIGN(1,-2)                                              P3520450
        CALL MBQQ(MCBVI,IVI)                                             P3520460
        MCDVI = IVI                                                      P3520470
        CMAVS = FLOAT(5 + 7)                                            P3520480
        CALL AMQQ(CMAVS,AVS)                                             P3520490
        CMCVS = AVS                                                      P3520500
        CMBVS = ABS(-10.0 - 8.00)                                       P3520510
        CALL BMQQ(CMBVS,AVS)                                             P3520520
        CMDVS = AVS                                                      P3520530
        WRITE (NUVI,3522) MCCVI, MCDVI, CMCVS, CMDVS                     P3520540
3522    FORMAT (/2(I10/)//2(F10.5/)//35H   ALL ABOVE ANSWERS SHOULD BE 0 FOP3520550
     1R/36H   THIS TEST SEGMENT TO BE SUCCESSFUL)                       P3520560
C*****      END OF TEST SEGMENT 352                                     P3520570
C*****   WHEN EXECUTING ONLY SEGMENT 352, THE  STOP  AND  END  CARDS    P3520580
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=                P3520590
C*****   IN COLUMNS  1  AND  2  REMOVED.                                P3520600
C=      STOP                                                            P3520610
C=      END                                                            P3520620
        STOP                                                           P352C1
        END                                                            P352C2
C*****************************************************************************P4130010
C*****                                                                  P4130020
C*****                          MAQQ - (413)                           P4130030
C*****                                                                  P4130040
C*****************************************************************************P4130050
C*****   GENERAL PURPOSE                                                P4130060
C*****      THIS SEGMENT CONTAINS A SUBROUTINE WHICH IS CALLED          P4130070
C*****      BY SEGMENT 352.                                            P4130080
C*****   GENERAL COMMENTS                                              P4130090
C*****      SUBROUTINE MAQQ BEING DEFINED                              P4130100
        SUBROUTINE MAQQ(MWVI,IWVI)                                     P4130110
        IABS = MWVI                                                    P4130120
        IWVI = IABS + ISIGN(MWVI, -MWVI)                               P4130130
        RETURN                                                        P4130140
        END                                                           P4130150
C*****************************************************************************P4630010
C*****                                                                  P4630020
C*****                          MBQQ - (463)                           P4630030
C*****                                                                  P4630040
C*****************************************************************************P4630050
```

```
C*****    GENERAL PURPOSE                                                P4630060
C*****       THIS SEGMENT CONTAINS A SUBROUTINE WHICH IS CALLED          P4630070
C*****       BY SEGMENT 352                                              P4630080
C*****    GENERAL COMMENTS                                               P4630090
C*****       SUBROUTINE  MBQQ BEING DEFINED                              P4630100
      SUBROUTINE MBQQ(MWVI, IWVI)                                        P4630110
      ISIGN = -MWVI                                                      P4630120
      IWVI = ISIGN + MWVI                                                P4630130
      RETURN                                                             P4630140
      END                                                               P4630150
C*********************************************************************P4730010
C*****                                                                   P4730020
C*****                       AMQQ - (473)                                P4730030
C*****                                                                   P4730040
C*********************************************************************P4730050
C*****    GENERAL PURPOSE                                                P4730060
C*****       THIS SEGMENT CONTAINS A SUBROUTINE WHICH IS CALLED          P4730070
C*****       BY SEGMENT 352                                              P4730080
C*****    GENERAL COMMENTS                                               P4730090
C*****       SUBROUTINE AMQQ BEING DEFINED                               P4730100
C*****STATEMENT FUNCTION NAME IS THE SAME AS SUBROUTINE NAME CALLED BY   P4730110
C*****SEGMENT 352, STAT. FUNCTION DUMMY ARGUMENT NAME SAME AS SUBROUTINEP4730120
C*****DUMMY ARGUMENT NAME, VARIABLE IS REFERENCED IN STAT. FUNCTION      P4730130
      SUBROUTINE AMQQ(CWVS, AWVS)                                        P4730140
      BMQQ(CWVS) = CWVS + BVS                                            P4730150
      FLOAT = AVS                                                        P4730160
      BVS = CWVS                                                         P4730170
      AWVS = BMQQ(FLOAT) - (BVS + 1.0)                                   P4730180
      DATA AVS /1.0/                                                     P4730190
      RETURN                                                            P4730200
      END                                                               P4730210
C*********************************************************************P4830010
C*****                                                                   P4830020
C*****                       BMQQ - (483)                                P4830030
C*****                                                                   P4830040
C*********************************************************************P4830050
C*****    GENERAL PURPOSE                                                P4830060
C*****       THIS SEGMENT CONTAINS A SUBROUTINE WHICH IS CALLED          P4830070
C*****       BY SEGMENT 352                                              P4830080
C*****    GENERAL COMMENTS                                               P4830090
C*****       SUBROUTINE BMQQ BEING DEFINED                               P4830100
      SUBROUTINE BMQQ(CWVS, AWVS)                                        P4830110
      ABS = CWVS                                                         P4830120
      AWVS = FLOAT(ISIGN(IFIX(ABS), - 2)) + 18.0                         P4830130
      RETURN                                                            P4830140
C*****       END OF TEST SEGMENT 483                                     P4830150
      END                                                               P4830160
C*********************************************************************P3600010
C*****                                                                   P3600020
C*****                       SPEC2 - (360)                               P3600030
C*****                                                                   P3600040
C*********************************************************************P3600050
C*****    GENERAL PURPOSE                                  ASA REFS P3600060
C*****    * TO TEST COMMON, DIMENSION AND EQUIVALENCE           7.2.1.2P3600070
C*****       STATEMENTS                                         7.2.1.3P3600080
C*****    *  TO TEST THAT VARIABLES AND ARRAYS WHICH ARE        7.2.1.4P3600090
C*****       EQUATED AND/OR IN COMMON MAY BE USED IN A                  P3600100
C*****       VARIETY OF FORTRAN STATEMENTS                              P3600110
C*****    RESTRICTIONS OBSERVED                                         P3600120
C*****    * NO DUMMY ARGUMENTS APPEAR IN COMMON OR EQUIVALENCE 7.2.1.4/40P3600130
C*****       STATEMENTS                                       8.4.1.1/23P3600140
C*****    * NUMBER OF SUBSCRIPTS IN EQUIVALENCE STATEMENTS               P3600150
C*****       CORRESPONDS TO ARRAY DIMENSIONALITY OR IS ONE    7.2.1.4/09P3600160
C*****    * COMMON NEVER LENGTHENED BY EQUIVALENCE IN A        7.2.1.4/31P3600170
C*****       BACKWARD DIRECTION                                         P3600180
C*****    * ONLY ONE OF AN EQUATED PAIR OF ITEMS APPEARS       7.2.1.4/36P3600190
C*****       IN COMMON                                                  P3600200
C*****    * VARIABLES ARE NEVER EQUATED TO MORE THAN ONE       7.2.1.4/42P3600210
```

```
C*****      ELEMENT OF THE SAME ARRAY                                    P3600220
C*****   GENERAL COMMENTS                                                P3600230
C*****      THIS SEGMENT FOLLOWS THE ORDER OF SPECIFICATION STATEMENTS   P3600240
C*****      REQUIRED IN BASIC FORTRAN  (SEE 9.1.2/56 IN BASIC ASA BOOK)  P3600250
C*****                                                                   P3600260
C*****   S P E C I F I C A T I O N S   SEGMENT 360                       P3600270
C*****                                                                   P0014390
C*****   WHEN EXECUTING ONLY SEGMENT 360, THE SPECIFICATION STATEMENTS   P0014395
C*****   WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE   C=               P0014400
C*****   IN COLUMNS  1  AND  2  REMOVED.                                 P0014405
C*****                                                                   P0014410
C=      DIMENSION MX1I(3), TX1S(3)                                       P0014415
C=      DIMENSION MX2I(2,3), TX2S(2,2), WAZ2S(3,2), RVY1S(2), RVY2S(1,2) P0014420
C=      DIMENSION JY2I(2,2), JY1I(5), NZ1I(4), NZ2I(4,2), WAZ1S(2)       P0014425
C=      DIMENSION MMY1I(400),NNY3I(20,10,2)                              P0014430
C=      EQUIVALENCE (MMY1I(1),NNY3I(1,1,1)),(NZ1I(1),NNY3I(1))           P0014435
C=      COMMON MX1I, MX2I, NZ1I, NZVI, NZ2I                              P0014440
C=      COMMON MXVI                                                      P0014445
C=      COMMON IAXVI                                                     P0014450
C=      COMMON WAZ1S                                                     P0014455
C=      COMMON TX1S, TX2S, JBZVI, WAZ2S                                  P0014460
C=      EQUIVALENCE (MYVI,NZVI), (IYVI,NZ1I(1)), (NZ2I(4,1), JYVI)       P0014465
C=      EQUIVALENCE (NZ2I(3), KYVI), (AAYVS,JBZVI,JY2I(1), RVY1S(2))     P0014470
C=      EQUIVALENCE (RVY2S(1,1),WAZ1S(2))                               P0014475
C=      EQUIVALENCE (JY1I(3),RVY1S(2))                                   P0014480
C=      EQUIVALENCE (WAZ2S(1),BBYVS,CCYVS), (WAZ2S(2,1),DDYVS)           P0014485
        DIMENSION MX1I(3), TX1S(3)                                       P360A1
        DIMENSION MX2I(2,3), TX2S(2,2), WAZ2S(3,2), RVY1S(2), RVY2S(1,2) P360A2
        DIMENSION JY2I(2,2), JY1I(5), NZ1I(4), NZ2I(4,2), WAZ1S(2)       P360A3
        DIMENSION MMY1I(400),NNY3I(20,10,2)                              P360A4
        EQUIVALENCE (MMY1I(1),NNY3I(1,1,1)),(NZ1I(1),NNY3I(1))           P360A5
        COMMON MX1I, MX2I, NZ1I, NZVI, NZ2I                              P360A6
        COMMON MXVI                                                      P360A7
        COMMON IAXVI                                                     P360A8
        COMMON WAZ1S                                                     P360A9
        COMMON TX1S, TX2S, JBZVI, WAZ2S                                  P360AA
        EQUIVALENCE (MYVI,NZVI), (IYVI,NZ1I(1)), (NZ2I(4,1), JYVI)       P360AB
        EQUIVALENCE (NZ2I(3), KYVI), (AAYVS,JBZVI,JY2I(1), RVY1S(2))     P360AC
        EQUIVALENCE (RVY2S(1,1),WAZ1S(2))                               P360AD
        EQUIVALENCE (JY1I(3),RVY1S(2))                                   P360AE
        EQUIVALENCE (WAZ2S(1),BBYVS,CCYVS), (WAZ2S(2,1),DDYVS)           P360AF
C*****                                                                   P3600280
C*****      SOME OF THE ITEMS DEFINED ABOVE ARE USED IN A VARIETY        P3600290
C*****                                                                   P3600300
C*****      OF FORTRAN STATEMENTS                                        P3600310
C*****      SEGMENT                                                      P3600320
C*****      DEFINE THE SYMBOLIC OUTPUT UNIT FOR USE IN THIS      7.1.3/22P3600330
C*****   O U T P U T - T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.    P3600340
C*****                                                                   P3600350
C*****   WHEN EXECUTING ONLY SEGMENT 360, THE FOLLOWING STATEMENT        P0073440
C*****   NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.          P0073445
C*****                                                                   P0073450
C=      NUVI = 6                                                         P0073455
        NUVI = 6                                                         P360B1
C*****                                                                   P0073460
        JY2I(1,1) = NUVI                                                 P3600360
C*****      WRITE HEADER FOR THIS SEGMENT                                P3600370
        WRITE (JBZVI,3600)                                               P3600380
3600    FORMAT (1H1, 1X,36HSPEC2 - (360) COMMON AND EQUIVALENCE//        P3600390
     1          2X,36HASA REFS - 7.2.1.2  7.2.1.3  7.2.1.4// 2X,7HRESULTS)P3600400
C*****                                                                   P3600410
C*****      TEST THAT EQUIVALENCE WORKS - ASSOCIATED ITEM OF     10.2.2/51P3600420
C*****      SAME TYPE BECOMES DEFINED WHEN EQUATED ITEM IS              P3600430
C*****      DEFINED                                                      P3600440
        MYVI = 2                                                         P3600450
        WAZ1S(2) = 2.0                                                   P3600460
        WRITE (JBZVI,3601) NZVI, RVY2S(1,1)                              P3600470
3601    FORMAT(//27H  LINE 1 BELOW IS HOLLERITH                          P3600480
```

```
       1           // 11H      2  2.0/I6,F5.1)                                    P3600490
C*****     USE DEFINED ITEMS IN ARITHMETIC STATEMENTS                  7.1.1.1P3600500
       JYVI = 4                                                                  P3600510
       MXVI = 5                                                                  P3600520
       N2VI = 3                                                                  P3600530
       JY1I(1) = 1                                                               P3600540
       MX1I(2) = 0                                                               P3600550
       NZ1I(4) = 2                                                               P3600560
       JY2I(2,1) = -8                                                            P3600570
       MX2I(1,3) = 9                                                             P3600580
       N22I(3,2) = 7                                                             P3600590
       MX1I(3) = MX2I(1,3) * (NZVI - JY1I(1)) - 18                               P3600600
       MX2I(1,1) = MX2I(1,3) * (MYVI - JY1I(1))- 18                              P3600610
       MX1I(1) = JYVI + JY2I(2,1) + N2VI - MX1I(2) + JY1I(1)                     P3600620
       IAXVI = N22I(4,1) + JY1I(4) + MYVI - MX1I(2) + JY1I(1)                    P3600630
       NZ2I(1,1) = MXVI ** NZ1I(4) - MXVI ** NZ1I(4)                             P3600640
       BBYVS = 2.0                                                               P3600650
       TX1S(3) = 1.0E1                                                           P3600660
       WA22S(1,2) = -3.0E00                                                      P3600670
       RVY1S(1)   = .04E+2                                                       P3600680
       DDYVS = RVY1S(1) ** (WAZ2S(1,2)-5.0+TX1S(3)) -13.0 + WA22S(1,2)           P3600690
       WA22S(2,1) = TX2S(2,2)**(WAZ2S(1,2)-5.0+TX1S(3))-13.0+WAZ2S(1,2)          P3600700
       WRITE (JB2VI,3602) MX1I(3), MX1I(1), NZ2I(1,1), DDYVS                     P3600710
       WRITE(JBZVI,7367) MX2I(1,1), IAXVI     , NZ2I(1,1), WAZ2S(2,1)            P3600720
3602   FORMAT (//34H  ANSWERS BELOW SHOULD BE 0 OR 0.0//                         P3600730
       1       3(I6/) , F8.1)                                                    P3600740
C*****     USE ITEMS IN ARITHMETIC IF STATEMENTS                       7.1.2.2P3600750
       IF (WA22S(1,2)) 3603,3604,3604                                           P3600760
3603   IF (MX1I(2)) 3604,3605,3604                                             P3600770
3605   IF (TX2S(2,2) + CCYVS ** N21I(4) + TX1S(3)) 3604, 3604, 3606            P3600780
3604   WRITE (JB2VI,3607)                                                       P3600790
3607   FORMAT (//22H  ARITHMETIC IF FAILED)                                     P3600800
       GO TO 3609                                                               P3600810
3606   WRITE (JB2VI,3608)                                                       P3600820
3608   FORMAT (//26H  ARITHMETIC IF SUCCESSFUL)                                 P3600830
C*****     USE ITEMS IN DO LOOP                                        7.1.2.8P3600840
3609   DO 7360 JYVI = 1,N2VI,1                                                  P3600850
       TX1S(3) = TX1S(3) + 1.0                                                  P3600860
7360   CONTINUE                                                                 P3600870
       WRITE (JBZVI,7361) TX1S(3)                                               P3600880
7361   FORMAT (//29H  ANSWER BELOW SHOULD BE 13.0// F8.1)                       P3600890
C*****     USE ITEM IN COMPUTED GO TO                                7.1.2.1.3P3600900
       GO TO (7362,7362,7364), NZVI                                            P3600910
7362   WRITE (JB2VI,7363)                                                       P3600920
7363   FORMAT (//23H  COMPUTED GO TO FAILED)                                    P3600930
       GO TO 7366                                                               P3600940
7364   WRITE (JB2VI,7365)                                                       P3600950
7365   FORMAT (//27H  COMPUTED GO TO SUCCESSFUL)                                P3600960
7367   FORMAT (3(I6/), F8.1)                                                    P3600970
7366   CONTINUE                                                                 P3600980
C*****   TEST EQUIVALENCE EXTENDS COMMON                                         P3600990
C*****   ARRAYS- NNY3I(20,10,2) EQUIVALENCED TO ARRAY MMY1I(400) WHICH ISP3601000
C*****   EQUIVALENCED TO THE 10TH STORAGE LOCATION IN BLANK    7.2.1.4/29P3601010
C*****   COMMON (N21I(1))                                                        P3601020
       WRITE (NUVI, 8366)                                                       P3601030
8366   FORMAT (34H0   TEST EQUIVALENCE EXTENDS COMMON )                         P3601040
       DO 7368  IVI = 1, 400                                                    P3601050
7368   MMY1I(IVI) = IVI                                                         P3601060
       IVI = 0                                                                  P3601070
       DO 7369 LVI = 1, 2                                                       P3601080
       DO 7369 KVI = 1, 10                                                      P3601090
       DO 7369 JVI = 1, 20                                                      P3601100
       IF(NNY3I(JVI,KVI,LVI)-(JVI+20*(KVI+10*LVI) - 220))7369,8360,7369        P3601110
8360   IVI = IVI + 1                                                            P3601120
7369   CONTINUE                                                                 P3601130
       IF (IVI - 400) 8363, 8361, 8363                                         P3601140
8363   WRITE (NUVI, 8364)                                                       P3601150
8364   FORMAT(13H0 TEST FAILED )                                                P3601160
```

```
      GO TO 8365                                                    P3601170
8361  WRITE (NUVI, 8362)                                            P3601180
8362  FORMAT(17H0 TEST SUCCESSFUL )                                 P3601190
8365  CONTINUE                                                      P3601200
C*****     END OF TEST SEGMENT 360                                  P3601210
C*****  WHEN EXECUTING ONLY SEGMENT 360, THE  STOP  AND  END  CARDS P3601220
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE   C=            P3601230
C*****   IN COLUMNS  1  AND  2  REMOVED.                            P3601240
C=    STOP 77777                                                    P3601250
C=    END                                                           P3601260
      STOP 77777                                                    P360C1
      END                                                           P360C2
```

S-114A (REV. 7-73)

U.S. DEPT. OF COMM. BIBLIOGRAPHIC DATA SHEET	1. PUBLICATION OR REPORT NO. NBS-SP- 399 Vol. 2	2. Gov't Accession No.	3. Recipient's Accession No.

TITLE AND SUBTITLE NBS FORTRAN TEST PROGRAMS	5. Publication Date October 1974
	6. Performing Organization Code

AUTHOR(S) Frances E. Holberton Elizabeth G. Parker	8. Performing Organ. Report No.

PERFORMING ORGANIZATION NAME AND ADDRESS NATIONAL BUREAU OF STANDARDS DEPARTMENT OF COMMERCE WASHINGTON, D.C. 20234	10. Project/Task/Work Unit No. 6401123
	11. Contract/Grant No.

Sponsoring Organization Name and Complete Address (Street, City, State, ZIP) Same as 9 Library of Congress Catalog Card Number: 74-12314	13. Type of Report & Period Covered Final
	14. Sponsoring Agency Code

SUPPLEMENTARY NOTES   Volumes 1, 2, and 3 contain the documentation, Version 1 program
listing, Version 3 program listing, respectively. The magnetic tape containing the NBS
FORTRAN Test Programs is available in 7-track BCD, 9-track ASCII or EBCDIC recording.

ABSTRACT (A 200-word or less factual summary of most significant information. If document includes a significant
bibliography or literature survey, mention it here.)

The NBS FORTRAN test programs, written in Standard FORTRAN, are designed to test whether
a FORTRAN compiler accepts the forms and interpretations of the FORTRAN language as des-
cribed in the American National Standard FORTRAN document X3.9-1966. The test programs,
comprised of 116 test units, are structured into two versions, each containing approxi-
mately 14,500 punch card images. The test units may be used as separate executable
FORTRAN programs, or may be linked end to end with other test units, with a minimum of
user effort, to improve operating efficiency. Version 1 is structured into 116 execut-
able FORTRAN programs, and Version 3, containing the same 116 test units, is structured
into 14 executable FORTRAN programs for use on large FORTRAN processors.

The test program design criteria was to:
. Constrain all test programs to the FORTRAN Standard X3.9-1966.
. Reduce the effect of those areas in which the FORTRAN Standard does not prescribe
  a method or solution, e.g., range, precision, size of computer, etc.
. Simplify the use of the FORTRAN test programs.
. Test FORTRAN language elements before they are used in support of other tests.
. Maintain an open ended system so that tests may be changed or added.

The test programs require the use of a card reader, printer and one intermediate tape
unit.

KEY WORDS (six to twelve entries; alphabetical order; capitalize only the first letter of the first key word unless a proper
name; separated by semicolons)
Computer Programming language; FORTRAN; FORTRAN validation; language validation;
standard FORTRAN; test program design.

AVAILABILITY ☒ Unlimited	19. SECURITY CLASS (THIS REPORT)	21. NO. OF PAGES
☐ For Official Distribution. Do Not Release to NTIS	UNCLASSIFIED	221
☒ Order From Sup. of Doc., U.S. Government Printing Office Washington, D.C. 20402, SD Cat. No. C13.10:399/V.2	20. SECURITY CLASS (THIS PAGE)	22. Price
☐ Order From National Technical Information Service (NTIS) Springfield, Virginia 22151	UNCLASSIFIED	$2.85

USCOMM-DC 29042-P74

NBS TECHNICAL PUBLICATIONS

PERIODICALS

JOURNAL OF RESEARCH reports National Bureau of Standards research and development in physics, mathematics, and chemistry. Comprehensive scientific papers give complete details of the work, including laboratory data, experimental procedures, and theoretical and mathematical analyses. Illustrated with photographs. drawings, and charts. Includes listings of other NBS papers as issued.

Published in two sections, available separately:

● Physics and Chemistry (Section A)

Papers of interest primarily to scientists working in these fields. This section covers a broad range of physical and chemical research, with major emphasis on standards of physical measurement, fundamental constants, and properties of matter. Issued six times a year. Annual subscription: Domestic, $17.00; Foreign, $21.25.

● Mathematical Sciences (Section B)

Studies and compilations designed mainly for the mathematician and theoretical physicist. Topics in mathematical statistics, theory of experiment design, numerical analysis, theoretical physics and chemistry, logical design and programming of computers and computer systems. Short numerical tables. Issued quarterly. Annual subscription: Domestic, $9.00; Foreign, $11.25.

DIMENSIONS/NBS (formerly Technical News Bulletin)—This monthly magazine is published to inform scientists, engineers, businessmen, industry, teachers, students, and consumers of the latest advances in science and technology, with primary emphasis on the work at NBS.

DIMENSIONS/NBS highlights and reviews such issues as energy research, fire protection, building technology, metric conversion, pollution abatement, health and safety, and consumer product performance. In addition, DIMENSIONS/NBS reports the results of Bureau programs in measurement standards and techniques, properties of matter and materials, engineering standards and services, instrumentation, and automatic data processing.

Annual subscription: Domestic, $6.50; Foreign, $8.25.

NONPERIODICALS

Monographs—Major contributions to the technical literature on various subjects related to the Bureau's scientific and technical activities.

Handbooks—Recommended codes of engineering and industrial practice (including safety codes) developed in cooperation with interested industries, professional organizations, and regulatory bodies.

Special Publications—Include proceedings of high-level national and international conferences sponsored by NBS, precision measurement and calibration volumes, NBS annual reports, and other special publications appropriate to this grouping such as wall charts and bibliographies.

Applied Mathematics Series—Mathematical tables, manuals, and studies of special interest to physicists, engineers, chemists, biologists, mathematicians, computer programmers, and others engaged in scientific and technical work.

National Standard Reference Data Series—Provides quantitative data on the physical and chemical properties of materials, compiled from the world's literature and critically evaluated. Developed under a world-wide program coordinated by NBS. Program under authority of National Standard Data Act (Public Law 90-396). See also Section 1.2.3.

Building Science Series—Disseminates technical information developed at the Bureau on building materials, components, systems, and whole structures. The series presents research results, test methods, and performance criteria related to the structural and environmental functions and the durability and safety characteristics of building elements and systems.

Technical Notes—Studies or reports which are complete in themselves but restrictive in their treatment of a subject. Analogous to monographs but not so comprehensive in scope or definitive in treatment of the subject area. Often serve as a vehicle for final reports of work performed at NBS under the sponsorship of other government agencies.

Voluntary Product Standards—Developed under procedures published by the Department of Commerce in Part 10, Title 15, of the Code of Federal Regulations. The purpose of the standards is to establish nationally recognized requirements for products, and to provide all concerned interests with a basis for common understanding of the characteristics of the products. The National Bureau of Standards administers the Voluntary Product Standards program as a supplement to the activities of the private sector standardizing organizations.

Federal Information Processing Standards Publications (FIPS PUBS)—Publications in this series collectively constitute the Federal Information Processing Standards Register. The purpose of the Register is to serve as the official source of information in the Federal Government regarding standards issued by NBS pursuant to the Federal Property and Administrative Services Act of 1949 as amended, Public Law 89-306 (79 Stat. 1127), and as implemented by Executive Order 11717 (38 FR 12315, dated May 11, 1973) and Part 6 of Title 15 CFR (Code of Federal Regulations). FIPS PUBS will include approved Federal information processing standards information of general interest, and a complete index of relevant standards publications.

Consumer Information Series—Practical information, based on NBS research and experience, covering areas of interest to the consumer. Easily understandable language and illustrations provide useful background knowledge for shopping in today's technological marketplace.

NBS Interagency Reports—A special series of interim or final reports on work performed by NBS for outside sponsors (both government and non-government). In general, initial distribution is handled by the sponsor; public distribution is by the National Technical Information Service (Springfield, Va. 22151) in paper copy or microfiche form.

Order NBS publications (except Bibliographic Subscription Services) from: Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

BIBLIOGRAPHIC SUBSCRIPTION SERVICES

The following current-awareness and literature-survey bibliographies are issued periodically by the Bureau:

Cryogenic Data Center Current Awareness Service (Publications and Reports of Interest in Cryogenics). A literature survey issued weekly. Annual subscription: Domestic, $20.00; foreign, $25.00.

Liquefied Natural Gas. A literature survey issued quarterly. Annual subscription: $20.00.

Superconducting Devices and Materials. A literature survey issued quarterly. Annual subscription: $20.00. Send subscription orders and remittances for the pre-

ceding bibliographic services to the U.S. Department of Commerce, National Technical Information Service, Springfield, Va. 22151.

Electromagnetic Metrology Current Awareness Service (Abstracts of Selected Articles on Measurement Techniques and Standards of Electromagnetic Quantities from D-C to Millimeter-Wave Frequencies). Issued monthly. Annual subscription: $100.00 (Special rates for multi-subscriptions). Send subscription order and remittance to the Electromagnetic Metrology Information Center, Electromagnetics Division, National Bureau of Standards, Boulder, Colo. 80302.