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DEPARTMENT OF COMMERCE
BUREAU OF STANDARDS
WASHINGTON, D.C.

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REPORTS AND PAPERS RELATIVE TO THE INVESTIGATION OF AUTOMOTIVE POWER PLANTS, BUREAU OF STANDARDS.

(The publications not starred may be secured through the National Advisory Committee for Aeronautics, 3341 Navy Bldg., 17th & B Sts., N. W., Washington, D. C. Those marked with a star are publications of the Bureau of Standards and may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the prices stated. In addition, references are given to a number of papers published in various technical journals.)

N. A. C. A. Technical Reports

Number	Title
43	Synopsis of Aeronautic Radiator Investigations for the years 1917 and 1918. (42)
44	The Altitude Laboratory for the Testing of Aircraft Engines. (52)
45	Effect of Compression Ratio, Pressure, Temperature, and Humidity on Power. Part I. Variation of Horsepower with Altitude and Compression Ratio (7); Part II. Value of Supercharging (9); Part III. Variation of Horsepower with Temperature (8); Part IV. Influence of Water Injection on Engine Performance (34); (Out of print. May be consulted at leading libraries.)
46	A Study of Airplane Engine Tests.
47	Power Characteristics of Fuels for Aircraft Engines. Part I. Power Characteristics of Aviation Gasoline (11); Part II. Power Characteristics of Sumatra and Borneo Gasolines (33); Part III. Power Characteristics of 20% Benzol Mixture (32).
48	Carbureting Conditions Characteristic of Aircraft Engines (10).

Number	Title
49	Metering Characteristics of Carburetors: Part I. Description of Carburetor Test Plant (43); Part II. Discharge Characteristics of Fuel Metering Nozzles in Carburetors (44); Part III. Characteristics of Air Flow in Carburetors (45); Part IV. Effects of Pulsating Air Flow in Carburetors (46); Part V. Natural Metering Characteristics of Carburetors (47); Part VI. Control of Carburetor Metering Characteristics for Aircraft Service.
51	Spark Plug Defects and Tests: Part I. Causes of Failure of Spark Plugs (22); Part II. Gas Leakage in Spark Plugs (21); Part III. Methods for Tests of Spark Plugs (17).
52	Temperature in Spark Plugs having Brass and Steel Shells.
53	Properties and Preparation of Ceramic Insulators for Spark Plugs: Part I. Methods of Measuring Resistance of Insulators at High Temperatures (18); Part II. Electrical Resistance of Various Insulating Materials at High Temperatures (19); Part III. Preparation and Composition of Ceramic Bodies for Spark Plug Insulators (23); Part IV. Cements for Spark Plug Electrodes (35).
54	Effect of Pressure and Temperature on the Sparking Voltage (14).
56	Heat Energy of Various Ignition Sparks: Part I. Method of Measuring Heat Energy of Ignition Sparks (15); Part II. Measuring of Heat Energy per Spark of Various Ignition Systems (13).
57	The Subsidiary Gap as a Means for Improving Ignition (31).
58	Characteristics of High-Tension Magnetos: Part I. Operation Cycles of Jump Spark Ignition Systems (20); Part II. Transformation Ratio and Coupling in High Tension Magnetos (16).
59	General Analysis of Airplane Radiator Problems (49).
60	General Discussion of Test Methods for Radiators (37).

Number	Title
61	Head Resistance due to Radiators: Part I. Head Resistance of Radiator Cores (6); Part II. Preliminary Report on Resistance due to Nose Radiator (24); Part III. Effect of Streamline Casing for Free-Air Radiators (27).
62	Effect of Altitude on Radiator Performance. (29)
63	Results of Tests on Radiators for Aircraft Engines; Part I. Heat Dissipation of Radiators (50); Part II. Water Flow Through Radiators. (33).
87	Effect of Nature of Cooling Surface on Radiator Performance. (51)
88	Pressure Drop in Radiator Tubes. (59)
89	Comparison of Alcogas Aviation Fuel with Export Aviation Fuel. (68)
90	Comparison of Hecter Fuel with Export Aviation Gasoline. (67)
102	Performance of a Liberty 12 Airplane Engine (71)
103	Performance of a 300 Horsepower Hispano Suiza Airplane Engine. (72)
106	Turbulence in the Air Tubes of Radiators for Aircraft Engines. (90)
107	A High Speed Engine Pressure Indicator of the Balanced Diaphragm Type. (69)
108	Some Factors of Airplane Engine Performance. (83)
123	Simplified Magneto Mathematics. (97)
134	Performance of Maybach 300 Horsepower Airplane Engine.
135	Performance of B. M. W. 185 Horsepower Airplane Engine.
168	A Constant Pressure Bomb.

Number	Title
179	Notes on the Effect of Electrode Temperature on the Sparking Voltage of Short Spark Gaps.
	Correcting Engine Horsepower Measurements to a Standard Temperature. (In Press)
	Effect of Spark Character on Flame Velocity (In Press)
	Relation of Air-Fuel Ratio to Engine Performance (In Press)

N. A. C. A. Technical Notes

Number	Title
14	Increase in Maximum Pressures Produced by Preignition in Internal Combustion Engines.
26	A Variable Speed Fan Dynamometer
27	Instrument for Measuring Engine Clearance Volumes.
32	Causes of Cracking of Ignition Cable.
39	High-Thermal Efficiency in Airplane Service.
55	"Airplane Crashes: Engine Troubles". A Possible Explanation.
93	Background of Detonation.
108	Use of Multiplied Pressures for Automatic Altitude Adjustment.
162	Arithmetic of Distribution.

Bureau of Standards Publications

Number	Title	Price
*C 92	Operation and Care of Batteries.....	30¢
*T 143	A Study of the Deterioration of Nickel Spark Plug Electrodes in Service.....	10¢

Number	Title	Price
*T 146	Cadimum Electrode for Storage Battery Testing.....	5¢
**T 149	Estimation of Nitrates and Nitrites in Battery Acid.....	5¢
*T 155	Cements for Spark Plug Electrodes. (Same as N.A.C.A. Technologic Report 53, Part IV).....	5¢
*T 186	Oscillograph Measurements of the Instantaneous Values of Current and Voltage in the Battery Circuit of Automobiles. (Similar to Society of Automotive Engineers Journal, Paper, April 1921).....	10¢
*T 211	Radiators for Aircraft Engines.....	60¢
*S 424	The Mathematical Theory of Induced Voltage in the High Tension Magneto.....	15¢
*S	A Method of Determining the Dew Points of Air-Fuel Mixtures. (In Press).....	

Journal References

Title	Journal	Date
Methods of Measuring Conductivity of Insulating Materials at High Temperatures	Journal of Washington Academy of Sciences	May 4, 1919.
Ignition Work at the Bureau of Standards	Automotive Industries	June 12, 1919.
Deterioration of Nickel Spark Plug Terminals in Service	Bulletin 152, Am.Inst. Mining & Metallurgical Engineers. (Same as B. of S. T 143, above).	August 1919.
The Design of Cooling Surface for Air-Cooled Engines	Automotive Industries	June 10, 1920
Flying an Airplane Engine on the Ground	S. A. E. Journal	April 1920

Title	Journal	Date
The Velocity of Flame Propagation in Engine Cylinders	S. A. E. Journal	February 1920
Fuel Economy of Automotive Engines	S. A. E. Journal	April 1919
Dilution of Engine Lubricants by Fuel	S. A. E. Journal	February 1920
Monel Metal For Engine Valves	Automotive Industries Aerial Age	April 15, 1920 May 17, 1920
Preignition and Spark Plugs	S. A. E. Journal	February 1920
Motor Transport Corps Spark Plug Specifications	S. A. E. Journal	May, 1920
Intake Manifold Temperatures and Fuel Economy	S. A. E. Journal	August 1920
Design Factors for Airplane Radiators	S. A. E. Journal	June 1920
Possible Fuel Savings in Automotive Engines	S. A. E. Journal Sci. Monthly	January 1921 February 1921
Instantaneous Current and Voltage Values in a Battery	S. A. E. Journal	April 1921
Resume of Bureau of Standards Fuel Study	S. A. E. Journal	May 1921
Compression Ratio and Thermal Efficiency of Airplane Engines	S. A. E. Journal	May 1921
Elements of Automobile Fuel Economy	S. A. E. Journal Automotive Industries	June 1921 June 9 & 30, 1921.
Radiators for Aircraft Engines	Journal Washington Academy of Sciences S. A. E. Journal	Vol.II-No. 17 Oct. 19, 1921 Oct. 19, 1921

Viscosity of Film Propagation in Straight Cylinders	[illegible] J. [illegible] Journal	February [illegible]
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Developing a Method for Testing Brake Linings	S.A.E. Journal	March 1922
Relative Performance of Motor Transportation	S.A.E. Journal	Nov. 16, 1922
Testing Fuels for High Compression Engines	S.A.E. Journal	January 1923
Economic Motor Fuel Volatility	S.A.E. Journal	(February & July 1923 and March 1924.
Glucose as an Anti-Freeze Solution	Automotive Industries	Apr. 12, 1923
Automobile Headlighting Equipment	Automotive Industries	July 12, 1923
Fuel Requirements of Internal Combustion Engines	Jour.Ind.Eng.Chem.	May 1923
An Investigation of Some Heavy-Duty Truck Drive Axles	S.A.E. Journal	June 1923
A Note on the Relation Between the Traffic Capacity of Highways and the Effectiveness of Vehicle Brakes	Automotive Industries	Aug. 30, 1923
Decelerometer for Testing Brakes	S.A.E. Journal	December 1923
A Description of Decelerometer	Automotive Industries	(Nov. 29, 1923 (page 1091 (Dec.13, 1923 (page 1196 (Jan.31, 1924 (page 213
Test of Brake Performance	S.A.E. Journal Automotive Industries	January 1924 March 13, 1924
Bureau of Standards Improves Brake Lining Test Apparatus	Automotive Industries	Jan. 17, 1924
Service Tests of Lubricants in Automobile Engines	American Petroleum Institute Bulletin 73	

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LC 3 Reclamation of Used Lubricating Oils

LC 28 Preliminary Report on Anti-Freeze Solutions for Automobile radiators.

LC 35 Publications Relating to Petroleum Products.

Carburetor Adjustment for Alcohol and Alcohol-Gasoline Blends.

Notes on Benzol-Gasoline Mixtures for Automobile Fuels

Fire and Explosion Hazard in Filtering Gasoline.

Gasoline Improvers.