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NATIONAL BUREAU OF STANDARDS
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Letter
Circular
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(Supersedes
LC-325)

(May 25, 1938)

AERONAUTICAL PUBLICATIONS

By Members of the Staff of the National Bureau of Standards.

C o n t e n t s

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GENERAL INFORMATION

This Letter Circular is a list of papers on aeronautics and closely related subjects by members of the staff of the National Bureau of Standards. Some of these have been published in the regular series of publications of the Bureau, others in the publications of the National Advisory Committee for Aeronautics, and still others in various scientific and technical journals.

Unless specifically stated, the papers herein listed are not obtainable from the National Bureau of Standards. Those marked "OP" are out of print, but, in general, may be consulted at the libraries in large cities.

Where the price of a publication is given, it can be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C. The prices quoted are for delivery to addresses in the United States and its territories and possessions and in Canada, Colombia, Cuba, Dominican Republic, Ecuador, Guatemala, Honduras, Mexico, Newfoundland (including Laborador), the Republic of Panama, and Venezuela. When remitting for delivery to other countries, one-third of the total cost of publications should be added to cover postage. Remittances should be made payable to the "Superintendent of Documents, Government Printing Office, Washington, D.C." (in United States currency) and sent to him with order.

The publications of the National Bureau of Standards and of the National Advisory Committee for Aeronautics are designated by a series letter followed by a number. The meanings of the letters are as follows:

RP = "Research Paper." These are reprints of articles appearing in the "Journal of Research of the National Bureau of Standards." When applying at a library, the Journal should be asked for, using the volume number as given in the references.

S = "Scientific Paper" of the National Bureau of Standards. This series has been superseded by the "Journal of Research."

T = "Technologic Paper" of the National Bureau of Standards. This series has likewise been superseded by the "Journal of Research."

C = "Circular" of the National Bureau of Standards.

M = "Miscellaneous Publication" of the National Bureau of Standards.

TM = "Technical Memorandum" of the National Advisory Committee for Aeronautics, Washington, D. C. (Mimeographed.)

TN = "Technical Note" of the National Advisory Committee for Aeronautics, Washington, D. C. (Mimeographed.) Obtainable without charge from the Committee.

TR = "Technical Report" of the National Advisory Committee for Aeronautics. Reports which are out of print will be found in the annual volumes of the Committee. These volumes are available for reference or loan in the libraries of large cities and in the Office of Aeronautical Intelligence, National Advisory Committee for Aeronautics, Washington, D. C. A table showing the Technical Reports included in each annual volume will be found on the next page.

Annual volume	Fiscal year	Containing Technical Reports Nos.	Price	Annual volume	Fiscal year	Containing Technical Reports Nos.	Price
1st	1915	1-7	OP	13th	1927	257-282	OP
2nd	1916	8-12	OP	14th	1928	283-308	$1.25
3rd	1917	13-23	OP	15th	1929	309-336	2.35
4th	1918	24-50	OP	16th	1930	337-364	3.00
5th	1919	51-82	OP	17th	1931	365-400	3.00
6th	1920	83-110	OP	18th	1932	401-440	2.50
7th	1921	111-132	OP	19th	1933	441-474	2.50
8th	1922	133-158	OP	20th	1934	475-507	2.75
9th	1923	159-185	OP	21st	1935	508-541	2.75
10th	1924	186-209	OP	22nd	1936	542-576	2.50
11th	1925	210-232	OP	23rd	1937	577-611	(In press)
12th	1926	233-256	OP	24th	1938	612-	

For papers in other scientific or technical journals, the name of the journal or of the organization publishing the article is given in abbreviated form, with address in parentheses, together with the volume number (underscored), page, and year of publication, in the order named. These journals are, in general, available at libraries in large cities or may be obtained from the publishers direct. The Bureau can not supply copies of these journals, or reprints from them, and it is unable to furnish information as to their availability or price.

AERODYNAMICS - Aircraft Structures, Models, Etc.

Series	Price	Title
TR207	10¢	Aerodynamic characteristics of airfoils at high speeds. L. J. Briggs. G. F. Hull, and H. L. Dryden. (1924).
TR255	15¢	Pressure distribution over airfoils at high speeds. L. J. Briggs and H. L. Dryden. (1927)
TR298	10¢	Effect of variation of chord and span of ailerons on rolling and yawing moments in level flight. R. H. Heald and D. H. Strother. (1928)
TR319	15¢	Aerodynamic characteristics of twenty-four airfoils at high speeds. L. J. Briggs and H. L. Dryden. (1929)
TR343	15¢	Effect of variation of chord and span of ailerons in rolling and yawing moments at several angles of pitch. R. H. Heald, D. H. Strother, and B. H. Monish. (1930)

Series	Price	Title
TR365	10¢	Aerodynamic characteristics of circular-arc airfoils at high speeds. L. J. Briggs and H. L. Dryden. (1930)
TR370	10¢	Effect of variation of chord and span of ailerons on hinge moments at several angles of pitch. B. H. Monish. (1930)
TR437	5¢	The effect of area and aspect ratio on the yawing moments of rudders at large angles of pitch on three fuselages. H. L. Dryden and B. H. Monish (1932)
TN129	OP	Notes on aerodynamic forces on airship hulls. L. B. Tuckerman. (1923)
TN441	Free, NACA	Rolling, yawing, and hinge moments produced by rectangular ailerons. R. H. Heald. (1933)
TN442	Free, NACA	Jet propulsion with special reference to thrust augmentors. G. B. Schubauer. (1933)
TN448	Free, NACA	Effect of aileron displacement on wing characteristics. R. H. Heald. (1933)
		Section on "Aerodynamics". L. J. Briggs and H. L. Dryden. International Critical Tables, 1, 402 (1926) Book published by McGraw-Hill Pub. Co., New York, N.Y.
		Control of airplanes at low speeds by means of conventional ailerons. Anonymous. Aeronautics Branch, Department of Commerce, Aero. Bul. no.15 (July 1, 1931).
		The effect of compressibility on the characteristics of airfoils. L. J. Briggs and H. L. Dryden. Proc. Int. Cong. Applied Mech., Stockholm, Sweden, 1930. (1931)

AERODYNAMICS - General

Series	Price	Title
S394	OP	Air forces on circular cylinders, axes normal to the wind, with special reference to dynamical similarity. H. L. Dryden. Sci. Pap. BS, 16, 489 (1920).
S523	20¢	Wind pressure on structures. H. L. Dryden and G. C. Hill. Sci. Pap. BS, 20, 697 (1926).
RP193	10¢	The characteristics of two-blade propeller fans. H. L. Dryden and P. S. Ballif. BS J. Research, 5, 185 (1930).

Series	Price	Title
RP221	15¢	Wind pressure on circular cylinders and chimneys. H. L. Dryden and G. C. Hill. BS J. Research, 5, 653 (1930).
RP283	10¢	Further measurements of propeller fan characteristics. H. L. Dryden and P. S. Ballif. BS J. Research, 6 387 (1931).
RP301	10¢	Wind pressure on a model of a mill building. H. L. Dryden and G. C. Hill. BS J. Research, 6, 735 (1931).
RP545	5¢	Wind pressure on a model of the Empire State Building. H. L. Dryden and G. C. Hill. BS J. Research, 10, 493 (1933).
RP591	5¢	Aerodynamic characteristics of automobile models. R. H. Heald. BS J. Research, 11, 285 (1933).
RP637	5¢	Influence of neighboring structures on the wind pressure on tall buildings. C. L. Harris. BS J. Research, 12, 103 (1934).
RP748	5¢	Comparison of the ground-plane and image methods for representing ground effect in tests on vehicle models. R. H. Heald. J. Research NBS, 13, 863 (1934).
RP749	5¢	Air forces and yawing moments for three automobile models. R. H. Heald. J. Research NBS, 13, 871 (1934).
RP850	5¢	Effect of humidity in hot-wire anemometry. G. B. Schubauer. J. Research NBS, 15, 575 (1935).
RP981	5¢	Performance characteristics of a water current meter in water and in air. G. B. Schubauer and M. A. Mason. J. Research NBS, 18, 351 (1937).
RP1056	10¢	Effect of yaw on vane anemometers. R. H. Heald and P. S. Ballif. J. Research NBS, 19, 685 (1937).
TR231	OP	Investigation of turbulence in wind tunnels by a study of the flow about cylinders. H. L. Dryden and R. H. Heald. (1926).
TR320	15¢	The measurement of fluctuations of air speed by the hot wire anemometer. H. L. Dryden and A. M. Kuethe. (1929).
TR342	10¢	Effect of turbulence in wind tunnel measurements. H. L. Dryden and A. M. Kuethe. (1930)
TR392	10¢	Reduction of turbulence in wind tunnels. H. L. Dryden. (1931)

Series	Price	Title
TR448	10¢	Improved apparatus for the measurement of fluctuations of air speed in turbulent flow. W. J. Mock, Jr. and H. L. Dryden. (1932)
TR497	5¢	Computation of the two-dimensional flow in a laminar boundary layer. H. L. Dyrden. (1934)
TR524	5¢	A turbulence indicator utilizing the diffusion of heat. G. B. Schubauer. (1935)
TR527	5¢	Air flow in a separating laminar boundary layer. G. B. Schubauer. (1935)
TR546	5¢	The effect of turbulence on the drag of flat plates. G. B. Schubauer and H. L. Dryden. (1936)
TR562	10¢	Air flow in the boundary layer near a plate. H. L. Dryden. (1936)
TR581	15¢	Measurements of intensity and scale of wind tunnel turbulence and their relation to the critical Reynolds number of spheres. H. L. Dryden, G. B. Schubauer, W. C. Mock, Jr., and H.K. Skramstad. (1937)
TR598	10¢	Alternating-current equipment for the measurement of fluctuations of air speed in turbulent flow. W. C. Mock, Jr. (1937)

The pressure of the wind on large chimneys. H. L. Dryden and G. C. Hill. Proc. Nat. Acad. Sci. (Washington, D. C.) (November, 1930).

Side winds abate performance gains hoped for from streamlining. R. H. Heald. S. A. E. Journal (29 West 39th St., New York, N. Y.), 33, 18 (1933).

Turbulence, companion of Reynolds number. H. L. Dryden. J. Aero. Sciences (5431 RCA Bldg., New York, N. Y.), 1, 67 (1934). (Reprints available on application to the National Bureau of Standards)

Frontiers of aerodynamics. H. L. Dryden. J. Wash. Acad. Sci. (c/o H. G. Avers, Coast & Geodetic Survey, Washington, D. C.), 25, 101 (1935). (Reprints available on application to the Nat. Bu. Standards)

Aerodynamics of cooling. H. L. Dryden. Division T, vol. VI of Aerodynamic Theory, published by J. Springer, Berlin, Germany (1936).

The theory of isotropic turbulence. H. L. Dryden. J. Aero. Sciences (5431 RCA Bldg., New York, N. Y.), 4, 273 (1937).

Recent developments of the theory of turbulence. H. L. Dryden. J. Applied Mech. (29 West 39th St., New York, N. Y.), 4, A-105 (1937).

AIRCRAFT MATERIALS AND CONSTRUCTION - Design and Strength of Structures

Series	Price	Title
T152	OP	Investigation of the compressive strength of spruce struts of rectangular cross section and the derivation of formulas suitable for use in airplane design. J. E. Boyd. Tech. Pap. BS, T152 (1920).
T258	15¢	Strength of steel tubing under combined column and transverse loading, including tests of columns and beams. Tom W. Greene. Tech. Pap. BS, 18, 243 (1924).
T270	10¢	An analysis of the deformation of the mooring spindle of the SHENANDOAH. L. B. Tuckerman and C. S. Aitchison. Tech. Pap. BS, 18, 609 (1925).
T275	5¢	Design of specimens for short-time "fatigue" tests. L. B. Tuckerman and C. S. Aitchison. Tech. Pap. BS, 19, 47 (1924).
RP161	OP	Physical properties of electrically welded steel tubing. H. L. Whittemore, J. S. Adelson, and E. O. Seaquist. BS J. Research, 4, 475 (1930).
RP386	30¢	The relation of torque to tension for threadlocking devices. H. L. Whittemore, G. W. Nusbaum, and E. O. Seaquist. BS J. Research, 7, 945 (1931).
RP556	5¢	A method of exciting resonant vibrations in mechanical systems. L. B. Tuckerman, H. L. Dryden, and H. B. Brooks. BS J. Research, 10, 659 (1933).
RP559	5¢	The determination of stresses from strains on three intersecting gage lines and its application to actual tests. W. R. Osgood and R. G. Sturm. BS J. Research, 10, 685 (1933).
RP678	5¢	A propeller vibration indicator. H. L. Dryden and L. B. Tuckerman. BS J. Research, 12, 537 (1934).
RP698	5¢	Contribution to the design of compression members in aircraft. W. R. Osgood. J. Research NBS, 13, 157 (1934).

Series	Price	Title
RP763	10¢	Impact and static tensile properties of bolts. H. L. Whittemore, G. W. Nusbaum, and E. O. Seaquist. J. Research NBS. 14, 139 (1935).
RP764	5¢	A method for determining stresses in a nonrotating propeller blade vibrating with a natural frequency W. Ramberg, P. S. Ballif, and M. J. West. J. Research NBS, 14, 189 (1935).
RP822	5¢	An extensometer comparator. A. H. Stang and L. R. Sweetman. J. Research NBS, 15, 199 (1935).
RP851	5¢	Determination of principal stresses from strains on four intersecting gage lines 45° apart. W. R. Osgood. J. Research NBS, 15, 579 (1935).
RP1005	5¢	Compensation of strain gages for vibration and impact. W. M. Bleakney. J. Research NBS, 18, 723 (1937).
RP1009	10¢	Calibration of testing machines under dynamic loading. B. Wilson and C. Johnson. J. Research NBS, 19, 41 (1937).
RP1034	10¢	Graphical computation of stresses from strain data. A. H. Stang and M. Greenspan. J. Research NBS, 19 437 (1937).
TR35	OP	The strength of one-piece, solid, built-up, and laminated wood airplane wing beams. J. H. Nelson. (1918).
TR77	OP	Parker variable camber wing. H. F. Parker. (1919)
TR210	5¢	Inertia factors of ellipsoids for use in airship design. L. B. Tuckerman. (1925)
TR211	5¢	Water model tests for semirigid airships. L. B. Tuckerman. (1925)
TR348	30¢	Strength of welded joints in tubular members for aircraft. H. L. Whittemore and W. C. Brueggeman. (1930)
TR356	15¢	Strength of rectangular flat plates under edge compression. L. Schuman and G. Back. (1930).
TR584	15¢	Strength of welded aircraft joints. W. C. Brueggeman (1937).
TR601	10¢	Torsion tests of tubes. A. H. Stang, W. Ramberg, and G. Back. (1937)
TR615	15¢	Column strength of tubes elastically restrained against rotation at the ends. W. R. Osgood. (1938)

eries Price Title

TN307 OP Strength of tubing under combined axial and transverse loading. L. B. Tuckerman, S. N. Petrenko, and C. D. Johnson. (1929)

TM129 OP Test of specimen of wood of longerons of the S.E.5 Airplane after seven years' service. By Bureau of Standards. (1922)

Report on dirigible design. Eng. News-Record (330 W.42nd St., New York, N. Y.), 89, 1137 (1922).

Tests of ball bearings for rotating beam fatigue machines. L. B. Tuckerman and C. S. Aitchison. Am. Machinist (330 W. 42nd St., New York, N. Y.), 61, 369 (1924).

Metal airplane wing patent. H. L. Whittemore. Patent No. 1,516,480. (1924). Patent Office, Department of Commerce, Washington, D. C. 10 cents.

The investigation of welded joints for aircraft by the Bureau of Standards. I. W. Gaston. Aviation Eng. (Lyon Block, Albany, N. Y.), 1, 9 (1928).

Testing joints for aircraft structures welded under procedure specifications. H. L. Whittemore. J. Am. Welding Soc. (33 W. 39th St., New York, N. Y.), 7, 31 (1928).

Testing welded joints for aircraft structures. H. L. Whittemore. Airway Age (34 N. Crystal St., E. Stroudsburg, Pa.), 10, 161 (1929).

Physical properties of electrically welded steel tubing. H. L. Whittemore, J. S. Adelson, and E. O. Seaquist. J. Am. Welding Soc. (33 W. 39th St., New York, N. Y.), 9, 17 (1930).

Strength of welded joints in tubular members for aircraft. H. L. Whittemore and W. C. Brueggeman. J. Am. Welding Soc., 9, 107 (1930).

Strength of welded joints in tubular members for aircraft. Air Commerce Bul. (Dept. of Commerce, Washington, D. C.), 3,381(1932).

Tests of cellular sheet-steel flooring. H. L. Whittemore and J. M. Frankland. J. Am. Welding Soc., 12, 4 (1933).

From material to structure. L. B. Tuckerman. J. Wash. Acam. Sci. (c/o H. G. Avers, Coast & Geodetic Survey, Washington, D. C.), 23, no. 5 (May 15, 1933).

The double modulus theory of column action. W. R. Osgood. Civil Engineering (Amer. Soc. Civil Engrg., 33 West 39th St., New York, N. Y.), 5, 173 (1935).

An interesting case of submultiple resonance. L. B. Tuckerman and W. Ramberg. Phys. Rev. (11 East 38th St., New York, N. Y.), 49, 862 (1936).

Speed control for screw-power testing machines driven by direct current motors. A. H. Stang and L. R. Sweetman. ASTM Bul. No. 87 (Aug. 1937), p. 15 (Amer. Soc. Test. Mtrls., 260 S. Broad St., Philadelphia, Pa.).

AIRCRAFT MATERIALS AND CONSTRUCTION - Metals

Series	Price	Title
S337	OP	Constitution and metallography of aluminum and its light alloys with copper and with magnesium. P. D. Merica, R. G. Waltenberg, and J. R. Freeman, Jr. Sci. Pap. BS, 15, 105 (1919).
S347	OP	The heat treatment of duralumin. P. D. Merica, R. G. Waltenberg, and H. Scott. Sci. Pap. BS, 15, 271 (1919).
S426	10¢	Thermal expansion of nickel, monel metal, stellite, stainless steel, and aluminum. W. H. Souder and P. Hidnert. Sci. Pap. BS, 17, 497 (1922).
S497	OP	Thermal expansion of aluminum and various important aluminum alloys. P. Hidnert. Sci. Pap. BS, 19, 697 (1925).
S565	10¢	Thermal expansion of beryllium and aluminum-beryllium alloys. P. Hidnert and W. T. Sweeney. Sci. Pap. BS, 22, 533 (1927).
T139	OP	Some tests of light aluminum casting alloys - The effect of heat treatment. P. D. Merica and C. P. Karr. Tech. Pap. BS, T139 (1919).
T346	15¢	Electrodeposition of chromium from chromic acid baths. H. E. Haring and W. P. Barrows. Tech. Pap. BS, 21, 413 (1927).
RP29	OP	Thermal expansion of magnesium and some of its alloys. P. Hidnert and W. T. Sweeney. BS J. Research, 1, 771 (1928).
RP890	5¢	Thermal expansion of copper-beryllium alloys. P. Hidnert. J. Research NBS, 16, 529 (1936).
RP961	5¢	Deterioration of chromic acid baths used for anodic oxidation of aluminum alloys. R. W. Buzzard and J. H. Wilson. J. Research NBS, 18, 53 (1937).

Series	Price	Title
RP964	5¢	Anodic coating of magnesium alloys. R. W. Buzzard and J. H. Wilson. J. Research NBS, 18, 83 (1937).
RP975	5¢	Anodizing of aluminum alloys in chromic acid solutions of different concentrations. R. W. Buzzard. J. Research NBS, 18, 251 (1937).
C78	OP	Solders for aluminum. Cir. BS, C78 (2d ed.) (1923).
C113	OP	The structure and related properties of metals. Cir. BS, C113 (1922).
C346	$1.10	Light metals and alloys; aluminum; magnesium. Cir. BS, C346 (1927).
TR34	OP	Aluminum and its light alloys. P. D. Merica. (1918)
TR490	15¢	The weathering of sheet aluminum alloys used in aircraft. W. H. Mutchler. (1934).
TN282	Free, NACA	Corrosion embrittlement of duralumin. I. Practical aspects of the problem. H. S. Rawdon. (1928).
TN283	Free, NACA	Corrosion embrittlement of duralumin. II. Accelerated corrosion tests and the behavior of high-strength aluminum alloys of different compositions. H. S. Rawdon. (1928).
TN284	Free, NACA	Corrosion embrittlement of duralumin. III. Effect of the previous treatment of sheet materials on the susceptibility to this type of corrosion. H. S. Rawdon. (1928).
TN285	Free, NACA	Corrosion embrittlement of duralumin. IV. The use of protective coatings. H. S. Rawdon. (1928).
TN304	Free, NACA	Corrosion embrittlement of duralumin. V. Results of weather-exposure tests. H. S. Rawdon. (1929) (Also appeared as Technical Publication no. 173, American Institute of Mining & Metallurgical Engineers, 29 West 39th St,, New York, N. Y., Feb. 1929 meeting.)
TN305	OP	Corrosion embrittlement of duralumin. VI. The effect of corrosion accompanied by stress on the tensile properties of sheet duralumin. H. S. Rawdon. (1929). (Also appeared as Preprint 42, Amer. Soc. Test. Mtrls., 260 So. Broad St., Philadelphia, Pa., June, 1929 meeting.)
TN350	Free, NACA	Methods for the identification of aircraft tubing of plain steel and chromium molybdenum steel. W. H. Mutchler and R. W. Buzzard. (1930).

Series	Price	Title
TN400	Free, NACA	Advantages of oxide films as bases for aluminum-pigmented surface coatings for aluminum alloys. R. W. Buzzard and W. H. Mutchler. (1931).
TN411	Free, NACA	Rapid chemical test for the identification of chromium-molybdenum steel aircraft tubing. J. C. Redmond. (1932).
TN585	Free, NACA	Mechanical properties of aluminum-alloy rivets. W. C. Brueggeman. (1936).
TM3	OP	Recent development in light alloys. R. W. Woodward (1920).

Discussion on tests of thin gage metals. H. L. Whittemore. Proc. Am. Soc. Test. Mat. (260 So. Broad St., Philadelphia, Pa.), 24, 1006 (1924).

Duralumin as a structural material. G. K. Burgess. Sci. Am. (24 W. 40th St., New York, N. Y.), 132, 51 (1925).

Properties of duralumin (corrosion). Eng. News-Record (330 W. 42nd St., New York, N. Y.), 95, 862 & 979 (1925); 96, 1 (1926).

Discussion of Templin's paper "Effect of size and shape of test specimen on tensile properties of thin sheet metal." H. L. Whittemore. Proc. Am. Soc. Testing Materials, 26, 401 (1926).

Discussion: Tensile testing of thin sheet metal, by Templin. H. L. Whittemore. Proc. Am. Soc. Testing Materials, 27, 256 (1927).

Steel requirements of the aircraft industry. H. J. French. Am. Iron & Steel Inst. (40 Rector St., New York, N. Y.) Yearbook, 1928, p. 350.

Effect of corrosion accompanied by stress on the tensile properties of sheet duralumin. H. S. Rawdon. Am. Soc. Testing Materials, 29, 314 (1929).

Discussion of fatigue resistance of some aluminum alloys. L. B. Tuckerman. Am. Soc. Testing Materials, 29, 344 (1929).

Discussion of fatigue studies of non-ferrous sheet metals. L. B. Tuckerman. Am. Soc. Testing Materials, 29 365 (1929).

Corrosion-prevention methods as applied to aircraft construction. H. S. Rawdon. Am. Soc. Testing Materials, 30, 61 (1930).

Surface coatings for aluminum alloys. W. H. Mutchler. Metals and Alloys (Chem. Catalog Co., New York, N. Y.), 2, 324 (1931).

AIRCRAFT MATERIALS AND CONSTRUCTION - Fabrics (including balloon) and dopes for same.

Series	Price	Title
S387	10¢	Permeability of rubber to gases. J. D. Edwards and S. F. Pickering. Sci. Pap. BS, 16, 327 (1920).
T113	OP	Determination of permeability of balloon fabrics. J. D. Edwards. Tech. Pap. BS, T113 (1918).
RP261	10¢	A portable instrument for measuring air permeability of fabrics. H. F. Schiefer and A. S. Best. BS J. Research, 6, 51 (1931).
RP600	OP	Effect of weave on the properties of cloth. H. F. Schiefer, R. S. Cleveland, J. W. Porter, and J. Miller. BS J. Research, 11, 441 (1933). Textile Weekly (49 Deansgate, Manchester 3, England), 12, 498 and 524 (1934).
RP681	5¢	A sensitive instrument for measuring the air permeability of paper and other sheet materials. F. T. Carson. BS J. Research, 12, 567 (1934).
RP750	5¢	Permeability of synthetic film-forming materials to hydrogen. T. P. Sager. J. Research NBS, 13, 879 (1934).
RP758	5¢	Moisture relations of aircraft fabrics. G. M. Kline. J. Research NBS, 14, 67 (1935).
RP788	5¢	Fire-resistant doped fabric for aircraft. G. M. Kline. J. Research NBS, 14, 575 (1935). Ind. Eng. Chem. (Mills Bldg., Washington, D. C.), 27, 556 (1935).
RP818	5¢	Effect of protective coatings on the absorption of moisture by gelatin-latex gas-cell fabrics. D. F. Houston. J. Research NBS, 15, 163 (1935).
RP862	5¢	Effect of number of warp and filling yarns per inch and some other elements of construction on the properties of cloth. H. F. Schiefer, D. H. Taft, and J. W. Porter. J. Research NBS, 16, 139 (1936).
RP974	5¢	Permeability to moisture of synthetic resin finishes for aircraft. G. M. Kline. J. Research NBS, 18, 235 (1937).
RP993	5¢	Effect of sizing, weaving, and abrasion on the physical properties of cotton yarn. W. T. Schreiber, M. N. V. Geib, and O. C. Moore. J. Research NBS, 18, 559 (1937).

Series	Price	Title
RP1020	5¢	Permeability of organic polysulphide resins to hydrogen. T. P. Sager. J. Research NBS, 19, 181 (1937).
Letter Circular VII-1-12		Fire-proof and transparent airplane wing coverings. (1919) Free on application to the National Bureau of Standards.
TR22	OP	Fabrics for aeronautic construction. Part 1. Cotton airplane fabrics. E. D. Walen. (1917) Part 2. Balloon fabrics. Bureau of Standards Balloon Fabrics Committee. (1917).
TR36	OP	The structure of airplane fabrics. E. D. Walen. (1918).
TR37	OP	Fabric fastenings. E. D. Walen and R. T. Fisher.(1918).
TR38	OP	Airplane dopes and doping. W. H. Smith. (1918).
TR39	5¢	The testing of balloon fabrics. J. D. Edwards and I. L. Moore. (1918) Part 1. Characteristic exposure tests of balloon fabrics. Part 2. Use of ultraviolet light for testing balloon fabrics.
TN335	Free, NACA	The structure and properties of parachute cloth. H. J. McNicholas and A. F. Hedrick. (1930).
TN393	Free, NACA	An investigation of cotton for parachute cloth. W. D. Appel. and R. K. Worner. (1931).
TN450	Free, NACA	Mercerization of cotton for strength with special reference to aircraft cloth. J. B. Wilkie. (1933).

Properties of airplane fabrics. E. D. Walen. Trans. Am. Soc. Mech. Eng. (29 W. 39th St., New York, N. Y.), 40, 509 (1919).

Textile war work of the Bureau of Standards. E. D. Walen. Textile World J. (334 Fourth Ave., New York, N.Y.), 55, 124 (1919).

Balloon fabrics and their testing. J. D. Edwards. Textile World J. 55, 31 (1919).

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Permeability of organic polysulohide resins to hydrogen. T. P.Sager. (Same as RP1020) India Rubber J. (London, England), 94, 512 (1937). India Rubber World (New York, N. Y.), 97, 41 (1937). Rubber Chem. Tech. (Easton, Pa.), 11, 163 (1938).

AIRCRAFT MATERIALS AND CONSTRUCTION - General

Series	Price	Title
T254	OP	Emissive tests of paints for decreasing or increasing heat radiation from surfaces. W. W. Coblentz and C. W. Hughes. Tech. Pap. BS, 18, 171 (1924-25).
RP63	5¢	Soundproofing of airplane cabins. V. L. Chrisler and W. F. Snyder. BS J. Research, 2, 897 (1929).
RP1031	15¢	Study of transparent plastics for use on aircraft. B. M. Axilrod and G. M. Kline. J. Research NBS, 19, 367 (1937).
RP1098	10¢	Suitability of various plastics for use in airplane dopes. G. M. Kline and C. G. Malmberg. J. Research NBS, 20, 651 (1938).
C101	40¢	Physical properties of materials. I. Strengths and related properties of metals and wood (with list of references. Cir. BS, C101, 2d ed. (1924).
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C411	5¢	Organic plastics. G. M. Kline. Cir. NBS, C411 (1936).

Series	Price	Title
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TR33	OP	Self-luminous materials. N. E. Dorsey. (1918)
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AERONAUTIC POWER PLANTS - Engine Tests

Series	Price	Title
RP118	10¢	Correcting engine tests for humidity. D. B. Brooks. BS J. Research, 3, 795 (1929).
TR23	OP	Aeronautic power-plant investigations. By the sub-committee on power plants. H. C. Dickinson. (1917) Part 1. Performance of aeronautic engines at high altitudes.

Series	Price	Title
TR44	OP	The altitude laboratory for the testing of aircraft engines. H. C. Dickinson and H. G. Boutell. (1918).
TR45	OP	Effect of compression ratio, pressure, temperature, and humidity on power. (1918) Part 1. Variation of horsepower with altitude and compression ratio. H. C. Dickinson, W. S. James, and G. V. Anderson. Part 2. Value of supercharging. H. C. Dickinson and G. V. Anderson. Part 3. Variation of horsepower with temperature. H. C. Dickinson, W. S. James, and G.V.Anderson. Part 4. Influence of water injection on engine performance. V. W. Brinkerhoff.
TR46	OP	A study of airplane engine tests. V. R. Gage. (1918).
TR102	OP	Performance of a Liberty 12 airplane engine. S. W. Sparrow and H. S. White. (1920).
TR103	OP	Performance of a 300-horsepower Hispano-Suiza airplane engine. S. W. Sparrow and H. S. White. (1920).
TR107	OP	A high-speed engine pressure indicator of the balanced diaphragm type. H. C. Dickinson and F. B. Newell. (1920).
TR108	OP	Some factors of airplane engine performance. V. R. Gage. (1920).
TR134	OP	Performance of Maybach 300-horsepower airplane engine. S. W. Sparrow. (1922).
TR135	OP	Performance of B.M.W. 185-horsepower airplane engine. S. W. Sparrow. (1922).
TR189	OP	Relation of fuel-air ratio to engine performance. S. W. Sparrow. (1924).
TR190	OP	Correcting horsepower measurements to a standard temperature. S. W. Sparrow. (1924).
TR205	10¢	The effect of changes in compression ratioupon engine performance. S. W. Sparrow. (1924)
TR426	5¢	The effect of humidity on engine power at altitude. D. B. Brooks and E. A. Garlock. (1932).
TN26	OP	A variable speed fan dynamometer. K. D. Wood. (1920).

Series	Price	Title
TN27	OP	Instrument for measuring engine clearance volumes. S. W. Sparrow. (1920)
TN210	OP	The testing of aviation engines under approximate altitude conditions. R. W. DuBois. (1924).
TN309	Free, NACA	Correcting engine tests for humidity. D. B. Brooks. (1929)
TN476	Free NACA	The effect on engine performance of change in jacket-water outlet temoerature. E. A. Garlock and G. Ellis (1933)

Flying an airolane engine on the ground. S. W. Sparrow. S.A.E. Journal (29 W. 39th St., New York, N. Y.), 6, 239 (1920).

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Type testing of commercial airplane engines of medium power. H. K. Cummings. Aeronautical Engineering (Trans., Am. Soc. Mech. Eng 29 W. 39th St., New York, N. Y.), 1, (No.2), 45 (1929).

Altitude laboratory tests of aircraft engines. H. K. Cummings and E. A.Garlock. Aeronautical Engineering, 4, 53 (1932).

Altitude tests of liquid-cooled aircraft engines (discussion of Gagg-Farrar paper). H. K. Cummings. S.A.E. Journal, 34, 223 (1934).

AERONAUTIC POWER PLANTS - Ignition Systems

Series	Price	Title
S352	10¢	Thermal expansion of (electrical) insulating materials. W. H. Souder and P. Hidnert. Sci. Pap. BS, 15, 387 (1919-20).
S424	15¢	Mathematical theory of induced voltage in the high-tension magneto. F. B. Silsbee. Sci. Pap. BS, 17, 407 (1921).
T143	10¢	A study of the deterioration of nickel spark-plug electrodes in service. H. S. Rawdon and A. I. Krynitsky. Tech. Pap. BS, T143 (1920).
T155	OP	Cements for spark-plug electrodes. H. F. Staley. Tech. Pap. BS, T155 (1920).

Series	Price	Title
RP1032	10¢	Electrical character of the spark discharge of automotive ignition systems. M. F. Peters, G. F. Blackburn, and P. T. Hannen. J. Research NBS, 19, 401 (1937).
TR23	OP	Aeronautic power-plant investigations. By the subcommittee on power plants. H. C. Dickinson. (1917) Part 3. Spark plugs.
TR51	OP	Spark plug defects and tests. (1919) Part 1. Causes of failure of spark plugs. F. B. Silsbee. Part 2. Gas leakage in spark plugs. L. B. Loeb, L. G. Sawyer, and E. L. Fonseca. Part 3. Methods for testing spark plugs. H. C. Dickinson, F. B. Silsbee, and P. G. Agnew.
TR52	5¢	Temperatures in spark plugs having steel and brass shells. C. S. Cragoe. (1919)
TR53	OP	Properties and preparation of ceramic insulators for spark plugs. (1919) Part 1. Methods of measuring resistance of insulators at high temperatures. F. B. Silsbee and R. K. Honoman. Part 2. Electrical resistance of various insulating materials at high temperatures. R. K. Honoman and E. L. Fonseca. Part 3. Preparation and composition of ceramic bodies for spark-plug insulators. A.V. Bleininger. Part 4. Cements for spark-plug electrodes. H. F. Staley.
TR54	OP	Effect of temperature and pressure on the sparking voltage. L. B. Loeb and F. B. Silsbee. (1919)
TR56	OP	Heat energy of various ignition sparks. (1919) Part 1. Method of measuring heat energy of ignition sparks. F. B. Silsbee, L. B. Loeb, and E. L. Fonseca. Part 2. Measurement of heat energy per spark of various ignition systems. F. B. Silsbee and E. L. Fonseca.
TR58	OP	Characteristics of high-tension magnetos. F. B. Silsbee. (1919) Part 1. Cycle of operation of jump-spark ignition systems. Part 2. Transformation ratio and coupling in high-tension magnetos.
TR123	OP	Simplified theory of the magneto. F. B. Silsbee. (1921)

Series	Price	Title
TR179	OP	The effect of electrode temperature on the sparking voltage of short spark gaps. F. B. Silsbee. (1923)
TR187	OP	Flame speed and spark intensity. D. W. Randolph and F. B. Silsbee. (1924)
TR202	5¢	The sparking voltage of spark plugs. F. B. Silsbee. (1924)
TR241	15¢	Electrical characteristics of spark generators for automotive ignition. R. B. Brode, D. W. Randolph, and F. B. Silsbee. (1926)
TR359	10¢	An investigation of the effectiveness of ignition sparks. M. F. Peters, W. L. Summerville, and M. Davis. (1930)
TR374	25¢	The automotive ignition coil. T. H. Darnell. Note by F. B. Silsbee. (1931)
TN32	OP	Causes of cracking of ignition cable. F.B. Silsbee. (1921)

Deterioration of nickel spark plug terminals in service. H. S. Rawdon and A. I. Krynitsky. Bulletin 152, Am. Inst. Mining & Metallurgical Engineers (29 W. 39th St., New York, N. Y.) (Aug. 1919) (Same as Tech. Pap. BS, T143).

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T211	50¢	Radiators for aircraft engines. S. R. Parsons and D. R. Harper 3d. Tech. Pap. BS, 16, 431 (1922).
T287	OP	A hot-wire anemometer for measuring air flow through engine radiators. C. G. F. Zobel and L. B. Carroll. Tech. Pap. BS, 19, 287 (1925).
T293	OP	Condensation of water from engine exhaust for airship ballasting. R. F. Kohr. Tech. Pap. BS, 19, 537 (1925).
TR23	OP	Aeronautic power-plant investigations. By the subcommittee on power plants. H. C. Dickinson. (1917) Part 2. Radiator design.

Series	Price	Title
TR43	OP	Synopsis of aeronautic radiator investigations for the years 1917 and 1918. R. V. Kleinschmidt. (1918).
TR59	5¢	General analysis of airplane radiator problems. H. C. Dickinson, W. S. James, and R. V. Kleinschmidt. (1919)
TR60	10¢	General discussion of test methods for radiators. H. C. Dickinson, W. S. James, and W. B. Brown. (1919)
TR61	10¢	Head resistance due to radiators. (1919) Part 1. Head resistance of radiator cores. R. V. Kleinschmidt and S. R. Parsons. Part 2. Preliminary report on resistance due to nose radiator. R. V. Kleinschmidt. Part 3. Effect of streamline casing for free-air radiators. S. R. Parsons.
TR62	10¢	Effect of altitude on radiator performance. W. S. James and S. R. Parsons. (1919)
TR63	10¢	Results of tests on radiators for aircraft engines. (1919) Part 1. Heat dissipation of radiators. H. C. Dickinson, W. S. James, and R. V. Kleinschmidt. Part 2. Water flow through radiator cores. W. S. James.
TR86	OP	Properties of special types of radiators. S. R.Parsons. (1920)
TR87	OP	Effects of nature of cooling surface on radiator performance. R. V. Kleinschmidt and S. R. Parsons. (1920)
TR88	5¢	Pressure drop in radiator air tubes. S. R. Parsons. (1920)
TR106	5¢	Turbulence in the air tubes of radiators for aircraft engines. S. W. Sparrow. (1920)
TR158	OP	Mathematical equations for heat conduction in the fins of air-cooled engines. D. R. Harper and W. B. Brown. (1922)

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RP1027	5¢	Paraffin hydrocarbons isolated from crude synthetic isooctane (2,2,4-trimethylpentane). D. B. Brooks, R. B. Cleaton, and F. R. Carter. J. Research NBS, 19, 319 (1937).
C99	OP	The carbonization of lubricating oils. Cir. BS. C99 (1920).
M97	10¢	Thermal properties of petroleum products. C. S. Cragoe. Misc. Pub. BS, M97 (1929).
TR47	OP	Power characteristics of fuels for aircraft engines. (1918) Part 1. Power characteristics of aviation gasoline. E. W. Roberts. Part 2. Power characteristics of Sumatra and Borneo gasolines. E. W. Roberts. Part 3. Power characteristics of 20 per cent benzol mixtures. E. W. Roberts.
TR48	OP	Carbureting conditions characteristic of aircraft engines. P. S. Tice. (1918)
TR49	OP	Metering characteristics of carbureters. P. S. Tice. (1918)
TR89	5¢	Comparison of Alcogas aviation fuel with export aviation gasoline. V. R. Gage, S. W. Sparrow, and D. R. Harper. (1920).
TR90	5¢	Comparison of Hector fuel with export aviation gasoline. H. C. Dickinson, V. R. Gage, and S. W. Sparrow.(1920).
TR176	5¢	A constant-pressure bomb. F. W. Stevens. (1923)
TR232	10¢	Fuels for high-compression engines. S.W.Sparrow.(1925).
TR280	10¢	The gaseous explosive reaction--The effect of inert gases. F. W. Stevens. (1927)

Series	Price	Title
TR305	15¢	The gaseous explosive reaction--A study of the kinetics of composite fuels. F. W. Stevens. (1928)
TR337	10¢	The gaseous explosive reaction at constant pressure -- The reaction order and reaction rate. F. W. Stevens. (1930)
TR372	15¢	The gaseous explosive reaction--The effect of pressure on the rate of propagation of the reaction zone and upon the rate of molecular transformation. F. W. Stevens. (1931)
TR399	10¢	Flame movement and pressure development in an engine cylinder. C. F. Marvin, Jr. and R. D. Best. (1931)
TR440	5¢	The mechanism of atomization accompanying solid injection. R. A. Castleman, Jr. (1932)
TR486	10¢	Infrared radiation from explosions in a spark-ignition engine. C. F. Marvin, Jr., F. R. Caldwell, and S. Steele. (1934)
TR531	5¢	The effect of water vapor on flame velocity in equivalent CO-O_2 mixtures. E. F. Fiock and H. K. King. (1935)
TR532	5¢	The soap-bubble method of studying the combustion of mixtures of CO and O_2. E. F. Fiock and C. H. Roeder. (1935)
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TR556	10¢	Further studies of flame movement and pressure development in an engine cylinder. C. F. Marvin, Jr., A. Wharton, and C. H. Roeder. (1936).
TN14	OP	Increase in maximum pressures produced by pre-ignition in internal combustion engines. S. W. Sparrow. (1920).
TN39	OP	High thermal efficiency in airplane service. S. W. Sparrow. (1920)
TN93	OP	The background of detonation. S. W. Sparrow. (1922)
TN101	OP	Comparing maximum pressures in internal combustion engines. S. W. Sparrow and S. M. Lee. (1922).
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Appendix I.- Fuel testing by the U. S. Army Air Corps. S. D. Heron. (p. 196).
Appendix II.- Report of comparative tests of 50 octane fuels of several types. R. F. Gagg and W. L. Losson. (p. 198)
Appendix III.- Detonation tests on aviation fuels. H. K. Cummings and D. B. Brooks. (p. 200)
Appendix IV.- Recommendation covering use of CFR motor method for determining anti-knock characteristics of aviation gasoline. (Committee) (p. 204)
Appendix V.- Suggested engine test procedure. (Committee)(p.204)

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TR262	10¢	Friction of aviation engines. S. W. Sparrow and M. A. Thorne. (1927)
TR276	10¢	Combustion time in the engine cylinder and its effect on engine performance. C. F. Marvin, Jr. (1927)
TN55	OP	Airplane crashes - engine troubles. A possible explanation. S. W. Sparrow. (1921)
TN108	OP	The use of multiplied pressures for automatic altitude adjustments. S. W. Sparrow. (1922)
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T237	OP	Aeronautic instruments. F. L. Hunt. Tech. Pap BS, 17, 447 (1922-1924).
T247	15¢	A new electrical telemeter. B. McCollum and O. S. Peters. Tech. Pap. BS, 17, 737 (1922-1924).
T287	OP	A hot-wire anemometer for measuring air flow through engine radiators. C.G.F. Zobel and L. B. Carroll. Tech. Pap. BS, 19, 287 (1925).
T320	10¢	A fabric tension meter for use on aircraft. L. B. Tuckerman, G. H. Keulegan, and H. N. Eaton. Tech. Pap. BS, 20, 581 (1925-1926).
T332	10¢	Statical hysteresis in the flexure of bars. G. H. Keulegan. Tech. Pap. BS, 21, 145 (1926-1927).
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RP78	OP	Relative visibility of luminous flashes from neon lamps and from incandescent lamps with and without red filters. F. C. Breckenridge and J. E. Nolan. BS J. Research, 3, 11 (1929).
RP222	10¢	Thermometric lag of aircraft thermometers, thermographs, and barographs. H. B. Hendrickson. BS J. Research, 5, 695 (1930).
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TR32	5¢	The airplane tensiometer. L. J. Larson. (1918)
TR110	OP	The altitude effect on air speed indicators. M. D. Hersey, F. L. Hunt, and H. N. Eaton. (1921)

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Series	Price	Title
TR125	5¢	General classification of instruments and problems, including bibliography. M. D. Hersey. (1922)
TR126	25¢	Altitude instruments. (1922) Part 1. Altimeters and barographs. A. H. Mears, H. B. Henrickson, and W. G. Brombacher. Part 2. Precision altimeter design. J. B. Peterson and J. R. Freeman, Jr. Part 3. Statoscopes and rate-of-climb indicators. A. H. Mears. Part 4. Aerographs and strut thermometers. J. A. C. Warner.
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