

FILM STUDY GROUP

REPORT

T.O.M. REEL NO. 92

Prepared by

THE ATLANTIC REFINING COMPANY

SCANNING OF REEL #92  
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U. S. Government Technical Oil Mission  
Technische Hochschule, Stuttgart  
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*The Atlantic Ref. Co.  
F.S.G.*

GROUP 1

Documents on Automotive Research and Engineering

Item L-4 High Strength Aircraft Steels. Report 11C25 by K. Matthes,  
May 15, 1940. Frames 1-14.

This report and others of the same series are portions of formal reports prepared by or for the Ministry for Aviation. In most instances the subject matter is of prime importance to automotive engineers and of secondary interest to refiners in the field of fuels and lubricants. Most of the papers will be enumerated by title only.

" L-5 Instructions for Testing of Component Parts and Equipment of Power Unit Housing of Airplanes. Report 11B17 by G. Telto, May 13, 1940. Frames 15-21.

" L-6 Shoat Testing in Aviation and Engine Construction without Damage to the Material. Report by H. Studel. Frames 22-42.

Describes techniques for examining metals and fabricated components through X-ray, magnetic flux, etc., in such a manner that the material is unaltered and yet is shown to be sound in structure.

" L-7 Synthetics and their Use in Aircraft Construction. Report 11C21 by W. Kueh and K. Niechers. Frames 43-55.

" L-8 Piston Rings. Report 11A21 by C. Englisch. Frames 56-67.

" L-9 The Basic Form and Working Principles of Injection Pumps and Jets for Diesel and Otto Aero Engines. Report 11A22 by H. Heinrich. Frames 68-74.

" L-10 Aerodynamic Jet Cooling of Liquid-cooled Aero Motor with Radiators. Report 11A24 by W. Schlupp. Frames 75-81.

" L-11 Design of Combustion Chambers in Aero Engines. Report 11A26 by H. Ceroselli. Frames 82-96.

" L-12 Supplement to the Construction of Exhaust Manifold and Exhaust Ducts on Aero Engines. Report 11A27 by H. Martin. Frames 97-102.

" L-13 Calculation and Design of Valve Springs for Aero Engines. Report by A. Hussmann. Frames 103-112.

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Item L-14 Aero Carburetor. Report 111A29 by A. Kemper. Frames 113-123.

- L-15 The Principles of Design and Construction of In-line Aviation Engines. Report 111A30 by O. Kurts. Frames 124-138.
- L-17 Fuel Supply Pumps. Report 111A32 by H. Buschmann and Basilico. Frames 139-145.
- U-6 Research Work on Pistons. Report by E. Koch. Frames 146-154.

This is probably a reprint from the "Jahrbuch 1940 Der Deutschen Luftfahrtforschung".

- U-22 Coolant temperature control Shutter for Airplane Engines.

The author and date of issue of this report upon an automatic device of the D.V.K. is not shown on the film. Frames 155-165.

## GROUP 2

F.Z.F. Documents collected from Kirchheim and Dr. Widmaier

Item SA-1 The effect of Peroxides in the Engine and their Determination. Report 1697 by O. Widmaier and P. Rieker, Dec. 16, 1942. Frames 166-163.

Peroxides can effect an appreciable lessening of the octane number of motor fuels and are responsible for gum formation. In diesel fuels peroxides are responsible for an increase in ignitability. Experiment showed that aliphatic peroxides are particularly objectionable because of the effect on octane number. This reduction is not confined in proportion to the amount of oxygen contained in the peroxide but because of its effect on the molecular construction itself. The determination of peroxides according to Joule and Wilson (Industrial Engineering Chemistry, Vol. 35, page 1254 (1931) was considered satisfactory. The method was modified to the extent that in place of the acetone containing ferrioxalate solution an alcoholic solution was used. The five minute shaking period may be replaced by a one minute heating to 95° with reflux.

SA-2 The effect of Peroxides in the Engine and their Quantitative Determination. Report 1742 by O. Widmaier and P. Rieker, Feb. 5, 1943. Frames 184-201.

This report is an extension of material reported in SA-1 and is largely concerned with the chemistry and development of quantitative test methods for the determination of aldehydes alone and in the presence of peroxides and acids.

Item SA-3 The Evaluation of Fuel Tendency to Vaporlock. Report 1905 by O. Widmaier and P. Riekert, Feb. 10, 1944. Frames 202-216.

- SA-4 Determination of Bromine Content of Aviation Fuels. Report 1815 by O. Widmaier and P. Riekert, June 19, 1943. Frames 217-230.

This is described as an S.K.F.S. method in which potassium ethylate is used to precipitate ethylene bromide in a bomb. Determination is said to be capable of completion in 40 minutes.

- SA-5 Load and Lubrication ratios in modern German and foreign 12-cylinder in-line aviation engines. Report 5011 by W. Hampf, J. Dörflinger and P. Riekert, Jan. 10, 1944. Frames 231-312.
- SA-6 Test of an Aero Engine main big end bearing on the bearing test stand. Report 5013 by W. Hampf and Riekert, Mar. 10, 1944. Frames 313-334.
- SA-7 Testing of Lubricant Additives in a single cylinder Engine. Report 5018 by M. Rossenbeck, A. Handschuh and P. Riekert, May 24, 1944. Frames 335-349.
- SA-8 Measuring temperature distribution of a main big end bearing on the bearing test stand. Report 5019 by W. Hampf, Riekert and others, May 19, 1944. Frames 350-368.
- SA-9 Tests on the running-in behavior of Piston Rings with Protective Coatings in Pearlite Iron Cylinders. Report 5025 by M. Rossenbeck and P. Riekert, June 20, 1944. Frames 369-390.

Reviewer's Note: The Table of Contents of the reel (page 42) lists the remaining material on this film as though it were a part of Reel #93. Actually, Reel #93 begins with the material on page 43, Report SC-12, Pressure and Temperature measurement in the lubrication system and in the Main Bearings of a DB 605 Engine.

The next seven items are said to be Z.W.B. reports from F.K.F., Technical School, Stuttgart.

- SB-1 Flight Mechanics of Jet Motors, second interim report. Method of Working of a Jet Motor consisting of a Compressor and a Turbine. Written by F. Weing and P. Riekert, May 15, 1943. Frames 391-428.
- SB-2 Widening (the scope) of the F.K.F.S. Quick Method of Estimating the TEL content of Fuels. Written by O. Widmaier, Aug. 15, 1943. Frames 429-444.
- SB-3 Test on the running behavior of Electro-plated Silver Bearings in an Engine. Written by M. Rossenbeck and K. Stark, Aug. 16, 1943. Frames 445-478.

- Item SB-4 Controlling an Aero Engine Blower by a Tap. Written by F. Weinig, Oct. 15, 1943. Frames 479-518.
- " SB-5 Axial Flow Compressor. Written by B. Eckert and F. Weinig, Apr. 3, 1944. Frames 519-574.
- " SB-6 The Economic Limit of High Loading of the 2-stroke Engine without Utilising Exhaust Gas. Written by E. Feser and A. Schmitz, Apr. 11, 1944. Frames 575-595.
- " SB-7 Power Increase of Combustion Engines by Swept Volume Subdivision. Written by W. v. Dorrer, Sept. 4, 1944. Frames 596-617.
- " SC-1 The 2-stroke Ball Valve Engine with Uniflow Scavenging. Power and Characteristics. Written by M. Kuhn, Sept. 6, 1938, Report 274. Frames 618-665.
- " SC-2 Status of Development of the Rieseler method. Written by H. Rieseler and W. Durr, Dec. 18, 1940, Report 382. Frames 666-686.
- " SC-3 Tests on a 1.09 L High load single cylinder Engine (1st report). Written by M. Berndorfer and R. Gussmann, Dec. 14, 1940, Report 383. Frames 687-710.
- " SC-4 Investigation of the Performance of self-ignition operation in a mixture-compression Engine. Written by H. Ernst and E. Dorr, Mar. 29, 1941, Report 392. Frames 711-748.
- " SC-5 Calculation of a Seven-stage Axial Compressor. Written by B. Eckert and F. Weinig, Apr. 3, 1941, Report 395. Frames 749-788.
- " SC-6 Rapid Starting Tests on a Piston with Various Protective Coatings on the Running Surfaces. Written by M. Rossenbeck and H. Platz, Nov. 12, 1941, Report 405. Frames 789-811.
- " SC-7 Testing Protective Coatings on Piston running surface in the Quick starting Test. Written by M. Rossenbeck and H. Platz, Mar. 3, 1942, Report 412. Frames 812-855.
- " SC-8 Engine investigation on the Thermal Relation of Aero Engine Piston Crowns with various running surface protective coatings. Report 423. Written by M. Rossenbeck and O. Speer, May 18, 1942. Frames 856-873.
- " SC-9 Tests on a 1.09 L high load single cylinder Engine (2nd report). Written by H. Berndorfer and R. Gussmann, June 10, 1942, Report 424. Frames 874-891.

Item SC-10 Clarification of the Rieseler working method in a single cylinder test Engine. Written by W. Karm (?) July 14, 1942, Report 427. Frames 892-925.

" SC-11 Quick starting tests with a BMW 132 Piston with various running face protective coatings. Written by M. Rossenbeck and O. Speer, Aug. 28, 1942, Report 429. Frames 926-943.

(This ends scanning of Reel #92)