FILM STUDY GROUP

REPORT

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Prepared by

THE ATLANTIC REFINING COMPANY

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Item SH-3. 1941 Yearbook of German Aviation Research

This formal report (frames 1-274) is interesting as showing the various organizations and principal personnel engaged in contributory research to the Ministry of Aviation. The greater part of the papers deal with mechanical engineering subjects, and the reviewer has confined scanning largely to the statement of the title, author and location of the individual papers.

Calculation of aviation engine performance. By H. Caroselli and W. Hager. Frames 22-30.

Relation of apparent depth of light zone of a flame cone to actual light density distribution. By H. J. Hübner and H. Kläukens. Frames 31-33.

The physico-chemical problem of ignition of mixtures in motors. Self-ignition and detonation. By H. Zeise. Frames 33-38.

Diagrams for calculation of ram compression. By E. Strauss and E. Voigt. Frames 39-43.

Exhaust gas drive. By A. Frans. Frame 43.

Investigation of exhaust gas drive (turbo jet). By F. Gosslau. Frames 48-51.

Test stand investigation of exhaust gas thrust at high altitude conditions. By H. Oestrich. Frames 51-53.

The question of most favorable back pressure of aero engine with exhaust gas muffler. By M. Sack. Frames 53-57.

Torsion of the first and second order in crankshafts. By A. Kimmel. Frames 57-63.

Motion relationship and the free forces of crankshaft drive with indirectly linked connecting rods. By I. Lutzweiler. Frames 63-67.

Investigation on rotation oscillations in radial aero engines. By A. Buske. Frames 68-71.

Measurements of rotary motion vibration in auxiliary drive of aero motors. By G. Schmidt and J. Schneider. Frames 71-75.

Groove formation in bearings. By W. Hampp. Frames 75-77.

Wear testing of light metal for roller bearings. By M. Rossenbeck. Frames 78-83.

Testing of wear-resistant protecting layers on light metal cylinders and pistons. By M. Rossenbeck. Frames 83-87.

Contribution to the question of mixture formation in aviation engine carburetors. By W. Zarnack. Frames 87-90.

Calculation of three part pressed fit joints. By H. Ristau. Frames 91-93.

Gas turbine with air cooling. By K. Leist. Frame 94.

Comparison between direct drive and exhaust gas turbo drive chargers. By V. Speiser. Frames 99-100.

Influence of blade resistance on the angular overdrive of axially flowing turbo engines. By F. Weinig. Frames 101-104.

Vibration research on turbine wheels of aviation engine supercharger. By A. Buske. Frames 104-108.

Production of the blades for axial blowers. By B. Eckert and S. Mlaker. Frames 108-111.

Temperature range in turbine runners and its influence on requirements and wheel shape. By E. Knörnschild. Frames 111-119.

Investigation of turbine blade surfaces with the aid of a blade balance. By E. Knörnschild. Frames 119-128.

The temperature of uncooled turbine blades in high speed gas stream by E. Eckert and W. Weise. Frames 128-132.

Investigation of reaction wave in exhaust gas duct on turbo jet drive. By W. Binder. Frames 132-133.

Charger control operation. By Müll and Pfau. Frames 134-137.

Control of aviation engine chargers by adjustable rifled inlet. By H. Pfau. Frames 138-140.

A new automatic device for jet turbines in high altitude flights. By C. Himmler. Frames 141-145.

Improved cooling in air cooled motors by highly turbulent air induction. By H. Berndorfer. Frames 145-148.

Control of cooling in air cooled aviation engines. By P. Seifferlein. Frames 148-149.

Investigation of radiator channels. By W. Linke and W. Dahmen. Frames 149-155.

Knock-rating investigations of highly aromatic fuels. By K. Mayer-Bugström and F. Seeber. Frames 239-243.

Effect of sulphur compounds on knock values and residue formation in leaded fuels. By O. Widmaier. Frames 243-246.

Detonation, its origin and prevention. By M. Kuhn and A. Zimmer. Frames 247-249.

FKFS rapid method for determination of TEL in aviation fuel. By O. Widmaier. Frames 249-250.

An exact rapid method for determination of lead in fuel. By I. Morghen. Frames 251-252.

Investigations on relationship between boiling point and instability of lubricants. By O. Widmaier and L. Nenninger. Frames 253-257.

Measuring problems in exhaust gas drive. By S. Decher. Frames 258-259.

An electrical measuring device and method for vibration, with examples of application. By R. Schmidt and H. Klein. Frames 259-268.

Direct recording electrical vibration indicator. By K. Staiger. Frames 268-271.

Investigation of vibration conditions with carbon contact strips. By O. Hoffmeister. Frames 271-272.

Development of a pneumatic twisting-moment gauge. By W. Sellschopp. Frames 272-273.

An electrodynamic vibration gauge for measurement of resonance in solids. By W. von Wittern. Frame 273.

Item SH-4. Yearbook 1942 of German Aviation Research

Like the 1941 report, the yearbook for 1942 indicates many of the personages and research organizations associated with the Air Ministry. It then proceeds to give the formal presentation of a number of technical papers:

Development work on air cooled cylinder. By T. Helmbold. Frames 295-299.

Thermodynamic characteristics of small air cooled cylinders. By W. Flössel. Frames 300-304.

Dependence of bearing capacity on the bearing design. By A. Buske. Frames 304-308.

On the coupling of the torsional vibration of crankshaft and the motor forward housing of aviation engines having superchargers. By A. Kimmel and G. Buckmiller. Frames 309-311.

Effect of lead content of motor fuel upon the exhaust valves and combustion space. By H. Denkweier and A. Kerwien. Frames 311-316.

Measurements and testing of aircraft pendulum in rotating, vibrating systems. By H. Kammerer. Frames 317-323.

A new mixture regulator for aviation engines. By W. Sanner. Frames 324-330.

Upon the influence of gasoline vaper upon the pressure relationship in an aviation engine charger and the temperature in the charge line. By W. Flössel. Frames 330-333.

Junkers diesel aviation engine and jet turbine. By M. Gerlach. Frames 334-338.

Improvement to jet turbine regulation. By H. Linde. Frames 338-340.

Regulation of high altitude engine with turbo gas supercharger. By E. Knornschild. Frames 341-343.

Wind tunnel experiments on full size air cooled engines. By E. Müller. Frames 344-345.

On ring-forming lining (stream photography). By F. Riegels. Frame 346.

Development work for the oil cooling system of the BMW-801 motor. By P. Helmbold. Frames 347-352.

A simple theory of supercharger cooling. By A. Weise. Frames 353-360.

The effect of nitrogen in heat resistant austenitic steels. By H. Krainer and K. Swoboda. Frames 360-362.

Production methods for aviation engine lead-bronze bearings. By P. Kötzschke. Frames 362-365.

Testing of laboratory methods for the determination of lead content of fuels. By O. Widmaier. Frames 365-368.

Determination of tetraethyl lead and its decomposition products in aviation fuel. By I. Morghen. Frames 368-372.

Testing of lubricants by friction and wear experiments in engines. By C. Krienke. Frames 373-375.

Progressive cylinder temperature increase during extended service tests. By W. Glaser. Frames 376-379.

Laboratory test methods for lube oil decomposition. By Mayer-Bugstrom. Frames 380-384.

Quantitative determination of the composition of liquids (multi-component mixtures) by means of their selective absorption in the infra-red spectrum. By K. Siebald. Frames 384-388.

Item SH-5. Volume 54, Proceedings of the German Academy for Aviation Research

A series of papers dated Sept. 26, 1941 relating particularly to ignition and combustion of gas mixtures:

(a) New experiments on self-ignition of fuels through adiabatic compression. By W. Jost, H. Rögener and U. von Weber. Frames 394-398.

(b) Application of laboratory research data on self-ignition of fuels to motoring conditions. By H. Rögener. Frames 398-406.

(c) Prereaction in Otto engine with shut-off ignition. By E. Schmidt and E. Mühlner. Frames 407-420.

(d) Investigations in the reaction kinetics during the oxidation of normal and isoparaffins. By L. von Müffling. Frames 421-431.

(e) New experiments on determination of the individual factors in motor preignition. By F. Schmidt. Frames 431-438.

(f) Isentropic residual changes in dissociating gases and the method of echo dispersion for the investigation of very fast homogeneous gas reactions. By G. Damköhler. Frames 438-448.

(g) The physico-chemical problem of engine ignition of gas mixtures. Self-ignition and detonation. By H. Zeise. Frames 449-456.

(h) Measurement of speed of ignition in flowing gas-air mixtures. By W. Unger. Frames 456-468.

Item SH-6. Properties of Rubber at Low Temperatures. DVL report 1369. By W. Kuch and G. Telschow. Frames 474-492.

" SJ-1. Residues in Purifiers of the Recycle Process. FKF report 53. By O. Widmaier. Frames 493-498.

" SJ-2. Ring Movement and Ring Breakage. By M. Kuhm. Frames 499-502

Item SJ-3. Construction of Observation Windows in Engines. By H. Graff. Frames 504-521.

" SJ-4. Experiment with G1-1 in engine DB 601F. FKF report. By Held and Rickert. Frames 522-555.

" SJ-5. Investigation on the Distillation and Aging Behavior of Lubricants. FKF report. By O. Widmaier and L. Nenninger. Frames 557-561.

" SJ-6. Artificial and Engine Aging of Lubricants. FKF report. By O. Widmaier. Frames 562-566.

" SJ-7. Report of Activities of the FKFS (research institute for automotive engineering and automobiles at the technical school, Stuttgart). By Prof. W. Kamm. Frames 567-570.

" SJ-8. Instructions for Testing Diesel Fuels. Frames 579-588.

" SJ-9. Draft of Paper on Additives for Lubricating Oils. By W. Kamm, Sept. 22, 1943. Frames 589-605.

" SK-1. Technical Reports of the ZWB. Volume 9 (1942) pages 101-132. A series of papers listed by name and author as follows:

Cable stress and angular measurement in the field of towing plane wing end. By E. Eujen. Frames 607-610.

Determination and significance of tetraethyl lead as anti-knock material. By O. Widmaier and L. Nenninger. Frames 611-617.

Changes to the gradients in power plant in consequence of acceleration and two means to equalize them. By F. Kramer. Frames 618-620.

The disturbed field of flow in air propellers as a source of propeller vibration. By J. Meyer. Frames 620-621.

Item SK-2. Influence of Residual Gas Scavenging and Mixture Stratification on the Performance and Fuel Requirements of a 4-cycle Otto Engine.

A thesis by U. Siegel, Oct. 1942. Frames 624-716.

" SK-3. Test instructions for aviation engine fuels for use in Diesel engines. RLM report Mar. 1939. Frames 718-752.

Item SK-4. Institute for Chemical Technology. Experiences with the electro accoustic detonation research on aviation engines. Report by P. Funck, May 1943. Frames 753-801.

(This ends scanning of Reel #94)