

FILM STUDY GROUP  
SUBJECT INDEX AND REPORT  
T.O.M. REEL NO. 107

Prepared by  
CALIFORNIA RESEARCH CORPORATION

CALIFORNIA RESEARCH CORPORATION

RICHMOND, CALIFORNIA

INDEX OF TECHNICAL OIL MISSION MICROFILM

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REEL NO. 107

(Prepared by California  
Research Corporation)

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ABSTRACT OF TECHNICAL OIL MISSION MICROFILM

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January 25, 1939      INVESTIGATION OF LIGHT FUELS, 1938      Frame No. 29010-29030

Monthly comparison of the physical properties of various automotive (gasoline and gasoline alcohol) and aviation fuels for the year, 1938.

February 1, 1939      START EXPERIMENTS WITH AUTOMOBILE ENGINES      Frame No. 29031-29043

A study on the influence of the solidification point of lubricating oils on motor starting at low temperatures.

INVESTIGATION OF THE COMBUSTION PROCESS IN THE HESSELMAN MOTOR WITH THE I. G. PIEZO-QUARTZ CATHODE RAY INDICATOR      Frame No. 29044-29061

Pressure studies on combustion of various fuels at several compression ratios.

INVESTIGATION OF AN ATTACHMENT WITH PRECHAMBER DEVELOPED FOR DIESEL FUELS OF LOW CETANE NUMBER      Frame No. 29062-29075

Performance studies on three Diesel fuels of low cetane number utilizing a special attachment in the engine prechamber.

February 20, 1939      THERMAL CONDUCTIVITY OF MULTI-COATED PIPES      Frame No. 29076-29086

Experiments on heat transfer.

INVESTIGATION OF THE CAUSES OF VARIATION IN INDICATOR DIAGRAMS USING THE OTTO MOTOR      Frame No. 29087-29105

Influence of air intake, engine speed and load on the variations in indicator diagrams.

May 31, 1939      STUDIES WITH R-C-H DIESEL OIL      Frame No. 29106-29121

Comparison of the performance of a Fischer-Tropsch and a Standard gas oil Diesel fuel.

THE INFLUENCE OF FLOW RESISTANCE ON THE FLUIDITY OF LIQUIDS OF HIGH VISCOSITY      Frame No. 29127-29134

Experiments on the influence of flow resistance on the fluidity of high viscosity oils.

March 28, 1939      INVESTIGATION OF FOUR FUEL MIXTURES      Frame No. 29135-29151

Performance and fuel consumption studies on four gasoline mixtures containing benzene, alcohol and lead. Although the research octane numbers varied considerably, little difference was found in actual performance.

May 15, 1939      COMPARISON STUDIES ON I. G. TEST DIESELS      Frame No. 29152-29163

Close agreement on cetane number was obtained from correlation tests on five I. G. and two British Diesel engines.

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June 1, 1939 STUDIES OF AVIATION MOTOR OILS IN THE BMW MOTOR  
RESEARCH SERIES VIII a Frame No. 29164-29189

Investigation of the ring sticking properties of various compounded aviation motor oils.

June 1, 1939 INVESTIGATION OF OLEFIN RICH GASOLINES, ESPECIALLY ON  
THEIR AROMATIC CONTENT Frame No. 29190-29213

Analytical procedures for the estimation of gasolines rich in olefins and aromatics.

May 22, 1939 MEASUREMENTS OF THE HEAT OF POLYMERIZATION OF GAS OIL  
Frame No. 29214-29232

Measurement of the heat of catalytic polymerization of C<sub>3</sub> and C<sub>4</sub> paraffins and olefins to gasolines.

June 3, 1939 THE SIGNIFICANCE OF CETANE NUMBER (THE COMBUSTION PROCESS IN CETANE  
NUMBER TESTING) Frame No. 29233-29251

The influence of the cetane number on the performance of various Diesel fuels under various operating conditions.

June 5, 1939 THE INFLUENCE OF INJECTION QUANTITY, COOLING TEMPERATURE, SPEED OF  
REVOLUTION AND CONDITION OF INTAKE AIR ON THE COMBUSTION PROCESS IN  
THE DIESEL ENGINE Frame No. 29252-29281

Tests of several Diesel fuels were carried out to show the influence of injection quantity; cooling temperature, engine speed, temperature and pressure of intake air.

May 12, 1939 COMPARATIVE STUDIES ON KNOCK TEST ENGINES Frame No. 29282-29300

Comparative studies of octane numbers on nine CFR and twelve I. G. test engines showed close agreement.

June 15, 1939 STUDIES OF AN APPARATUS FOR TESTING THE LUBRICATING PROPERTIES  
OF OILS BY DETERMINATION OF WEAR Frame No. 29301-29308

Studies of an apparatus for testing lubricating oils by the determination of wear on a test strip.

June 26, 1939 THE MEASUREMENT OF THERMAL CONDUCTIVITY OF TWO ROLLED TUBES  
Frame No. 29309-29321

Thermal conductivity studies of two rolled tubes made of hoop iron.

July 6, 1939 INVESTIGATION OF A 6 CYLINDER HESSELMAN ENGINE DURING ROAD TESTS  
Frame No. 29322-29343

Road tests of a Hesselman engine with measurement of fuel consumption, lubricating oil dilution, acceleration and starting characteristics.

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July 20, 1939 INVESTIGATION OF A SYNTHETIC MOTOR GASOLINE (DR. MICHAEL) Frame No. 29344-29354

Studies on the consumption, performance and knock resistance of a synthetic gasoline high in olefins.

August 16, 1939 KNOCK BEHAVIOR OF LIGHT FUELS OF LOW OCTANE NUMBER IN EXTERNAL IGNITION ENGINES WITH COMPRESSION STROKE INJECTION (HESSELMAN MOTOR) Frame No. 29355-29363

A fuel of 74 octane number showed an octane number of 42 when operated with external ignition and compression stroke injection. Enrichment of the mixture reduced the knocking tendency.

January 1, 1941 DETERMINATION OF KNOCK RESISTANCE OF OTTO-FUELS (AUTO AND AVIATION FUELS) BY THE IGNITION DELAY METHOD Frame No. 29364-29373

Determination of the knock resistance of automotive and aviation fuels by ignition delay experiments.

September 1, 1939 THE "TIME MARKER" AS AN ATTACHMENT FOR THE I. G. TEST DIESEL Frame No. 29374-29380

Greater accuracy in the cetane number determination was obtained by the addition of a time-marker to the I. G. test Diesel.

September 21, 1939 STUDIES OF LEUNA GASOLINE AS A DIESEL FUEL Frame No. 29381-29384

Leuna-benzine of cetane number 30 was used successfully in a Diesel engine but leaking injection pumps due to low viscosity and vaporization in the hot nozzle caused difficulties.

February 7, 1929 STUDIES OF THE DUMANOIS STEP PISTON Frame No. 29384-29387

Anti knock studies with iron carbonyl using the Dumanois step-piston.

March 11, 1929 STUDIES WITH THE GRAETZIN DOUBLE CARBURETOR AND CATALEX-CARBURETOR ON THE HANOMAG TRACTOR Frame No. 29388-29392

Comparison of the Graetzin double carburetor and the Catalex carburetor for performance and fuel consumption.

February 23, 1944 IGNITION DELAY AND KNOCK BEHAVIOR OF FUELS Frame No. 29393-29411

A series of experiments with charts.

MISC. PARTLY HAND WRITTEN NOTES AND CALCULATIONS Frame No. 29412-29478

~~INCOMPLETE PAPER. TITLE AND FIRST FOUR PAGES MISSING. DEALS WITH DIESEL ENGINES~~ Frame No. 29479-29489

Incomplete paper. Diesel engine research.



NECESSARY AND FAVORABLE QUANTITIES IN RING PRACTICE ON JUMO CYLINDER 211A

March 1, 1941

Frame No. 29490-29504

Performance and fuel consumption studies in Diesel engine.

STUDIES OF THE RING PROCESS AT DIFFERENT COMPRESSION RATIOS

February 13, 1942

Frame No. 29505-29526

Diesel engine studies with the "Ring-Process" at different compression ratios.

COMPARISON OF THE RING-STICKING BEHAVIOR OF 3 AVIATION FUELS

August 4, 1941

Frame No. 29527-29529

Comparative test experiments.

RING-STICKING ACTION OF A GASOLINE BENZENE AVIATION FUEL MIXTURE

August 4, 1941

Frame No. 29530-29531

A series of experiments.

THE VISCOSITY OF SOME GASOLINES AT LOW TEMPERATURES

August 7, 1942

Frame No. 29532-29541

Viscosity measurements of several gasolines studied at temperatures as low as 70°C using an Ubbelohde viscosimeter.

THE UTILIZATION OF I. G. TEST ENGINES IN LUBRICATION RESEARCH

May 7, 1942

Frame No. 29542-29550

An I. G. test engine for knock-rating may be converted with a minimum of changes to lubricating oil studies, in particular to ring sticking evaluation.

INVESTIGATION OF THE KNOCK BEHAVIOR OF AVIATION FUEL MA 1 IN THE 801

February 13, 1945

BMW SINGLE CYLINDER ENGINE

Frame No. 29551-29560

An evaluation of a particular aviation fuel to determine whether or not it may be used in a particular engine. Knocking was investigated.

KNOCKING STUDIES ON THE BMW 801 E ENGINE WITH FUEL B 4

January 19, 1945

Frame No. 29561-29579

Similar experiments as in Frame No. 29551-29560, but using a different fuel (gasoline).

May 23, 1944

FUEL TESTING IN THE REGULAR ENGINE

Frame No. 29580-29590

Comparison of fuel tests in single cylinder engines and in complete engines.

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January 16, 1945 GASOLINE WITH ANILINE ADDITION Frame No. 29591-29592

Aniline, monomethyl- and dimethyl-aniline were studied as gasoline additives. The first two of these increased the knock rating, while the latter had no effect. The mono-methyl aniline caused clogging of the carburetor jets.

January 16, 1945 DIESEL FUELS WITH POUR POINT DEPRESSANTS Frame No. 29593-29594

Discussion of Diesel fuels containing pour point depressants.

REPORT ON THE INAUGURAL MEETING OF THE RESEARCH GROUP FOR  
MEASURING INSTRUMENTS

May 18, 1944 Frame No. 29595-29604

Research group established to collaborate with instrument manufacturers and military forces.

INAUGURAL MEETING OF THE RESEARCH GROUP FOR TEST EQUIPMENT

May 18, 1944 Frame No. 29605-29609

Research group established to coordinate and standardize engine research.

RESEARCH GROUP - TEST INSTALLATIONS

May 18, 1944 Frame No. 29610-29613

List of members of research group.

SPECIAL MEETING FOR THE STANDARDIZATION OF ENGINE TESTING  
OF DIESEL FUELS BY THE D. V. M.

October 19, 1942 Frame No. 29614-29640

Discussion of research methods for Diesel engine testing.

KNOCK BEHAVIOR OF LEADED AND UNLEADED HYDROCARBON MIXTURES  
IN THE BMW 132 ENGINE

May 2, 1942

Studies of knock behavior of a large number of leaded and unleaded hydrocarbon mixtures.

RETAKES OF SEVERAL FRAMES FROM 29017-29273

Miscellaneous retakes from Frame Nos. 29017-29273.