Detroit 2 Stroke Diesel Engines | 931b6ec673f7956d71962011c4b8b06f

REDUCTION OF EMISSIONS FROM A HIGH SPEED FERRY

Modern Diesel Technology

An experimental and analytical investigation was conducted to develop a calibrated torsional model of a three-cylinder, two-stroke diesel engine. A Detroit Diesel 3-53 engine was instrumented for time resolved measurement of cylinder firing pressures and high resolution near instantaneous shaft speed using a 720 and a 3,600 count per revolution optical encoder. Data were taken for three speeds and three torques for a total of nine conditions. A six degree-of-freedom torsional vibration model of the crankshaft, connecting rods, and pistons was developed. The nonlinear inertias, due to the reciprocating pistons, were included along with linear stiffness and damping. The equations of motion were numerically integrated over a cycle to obtain predicted response. The predicted response was compared to the measured response at the free end of the crankshaft.

Diesel Engine Repair

Time Resolved Measurements and Signal Processing

Western Construction

GM Duramax Diesel Engines: How to Rebuild & Modify

Lloyd's Maritime Directory

Marine Inboard Engines

General Power

Modern Diesel Technology

An experimental investigation was conducted to access methods of detecting, and localizing faults in a diesel engine. A three cylinder, two stroke Detroit 3-53 engine was heavily instrumented for time resolved measurements. In particular, a 3,600 count per revolution optical encoder was used along with accelerometers mounted on various engine structures, in-cylinder pressure measurements and a variety of steady state sensors, such as exhaust temperatures. A large number of baseline data were taken to establish the statistical characteristics on the signals from the engine. These runs were followed by a series of experiments where the cylinder head assembly bolt torque were varied parametrically. Standard spectral analysis and Joint Time Frequency Analysis (JTFA) were used to identify the fundamental vibration characteristics of the engine. The vibration frequencies were checked for consistency against first order models of the engine assembly and reasonable agreement was found. In addition, a new technique for accessing engine health using time of arrival of encoder signals was investigated.

S.A.E. Transactions

Pulpwood Production and Saw Mill Logging

Performance Testing of a Dual-fuel Conversion System for a Two-stroke Detroit Diesel 6V-71 Engine

Design, Application, Performance and Emissions of Modern Internal Combustion Engine Systems and Components

Diesel Engine Catalog

Conversion of a Two-stroke Detroit Diesel Allison Model 12V-149T Diesel Engine to a Dual-fuel Diesel Engine Using Natural Gas as the Main Fuel

Diesel Engine and Fuel System Repair

Proceedings

Two-Stroke Engine Technology

The Commercial Motor

Two-Stroke Diesel Engines

Ullmann’s Encyclopedia of Industrial Chemistry

Conversion of a Two-stroke Detroit Diesel Allison Model 12V-149T Diesel Engine to Burn Natural Gas with Pilot Injection of Diesel Fuel for Ignition

Farm Journal

Diesel Engineering & Gas Turbines

The US Automotive Components Industry

Please note that the content of this book primarily consists of articles available from Wikipedia or other free sources online. Pages: 34. Chapters: Brons, Commer TS3, Detroit Diesel 110, Detroit Diesel Series 149, Detroit Diesel Series 51, Detroit Diesel Series 71, Detroit Diesel Series 92, EMD 567, EMD 645, EMD 710, Exhaust pulse pressure charging, Fairbanks-Morse, Junkers Jumo 204, Junkers Jumo 205, Junkers Jumo 223, MAN B&W K108ME-C, Napier Culverin, Napier Deltic, Opposed-piston engine, Roots-type supercharger, Sulzer ZD9, Two-stroke diesel engine, Wartizla-Sulzer RTA96-C.

Marine Diesel Engines

ASME Technical Papers

Emissions from marine vessels are being scrutinized as a major contributor to the total particulate matter (PM), oxides of sulfur (SOx) and oxides of nitrogen (NOx) environmental loading. Fuel sulfur control is the key to SOx reduction. Significant reductions in the emissions from on-road vehicles have been achieved in the last decade and the emissions from these vehicles will be reduced by another order of magnitude in the next five years; these improvements have served to emphasize the need to reduce emissions from other mobile sources, including off road equipment, locomotives, and marine vessels. Diesel-powered vessels of interest include ocean-going vessels with low- and medium-speed engines, as well as ferries with high speed engines, as discussed below. A recent study...
examined the use of intake water injection (WSI) and ultra low sulfur diesel (ULSD) to reduce the emissions from a high-speed passenger ferry in southern California. One of the four Detroit Diesel 12V92 two-stroke high speed engines that power the Waverider (operated by SCx, Inc.) was instrumented to collect intake airflow, fuel flow, shaft torque, and shaft speed. Engine speed and shaft torque were uniquely linked for given vessel draft and prevailing wind and sea conditions. A raw exhaust gas sampling system was utilized to measure the concentration of NOx, carbon dioxide (CO2), and oxygen (O2) and a mini dilution tunnel sampling a slipstream from the raw exhaust was used to collect TPM on 70 mm filters. The emissions data were processed to yield brake-specific mass results. The system that was employed allowed for redundant data to be collected for quality assurance and quality control. To acquire the data, the Waverider was operated at five different steady states. These modes were in the open sea off Oceanside, CA, and idle and the raw exhaust gas. Data have shown that the use of USO along with water injection (WSI) could significantly reduce the emissions of NOx and PM while not affecting fuel consumption or engine performance compared to the baseline marine diesel. The results showed that a nominal 40% reduction in TPM was realized when switching from the marine diesel to the USO. A small reduction in NOx was also shown between the marine fuel and the USO. The implementation of the WSI showed that this was realized significantly by between 11% and 17%, depending upon the operating condition. With the WSI, the TPM was reduced by a few percentage points, which was close to the confidence in measurement.

Gas & Oil Power

Naval Engineers Journal

Highway Safety Literature

Part dictionary, part encyclopedia, this book features: approximately 4,500 keywords, with detailed cross-references; more than 1,700 illustrations; in-depth contributions from industry experts; and current engine development, both theory and practice.

Development of a Combustion Gas Sampling Valve

Modern Engine Technology


Three, Four and Six Cylinder Series 71 Two-Cylinder Diesel Engines

Through a carefully maintained “building block” approach, this text offers an easy-to-understand guide to automotive, truck, and heavy equipment diesel engine technology in a single, comprehensive volume. Text focus is on state-of-the-art technology, as well as on the fundamental principles underlying today’s technological advances in service and repair procedures. Industry accepted practices are featured, and readers are encouraged to formulate a sound understanding of both the “why” and the “how” of modern diesel engines and equipment. Thorough, up-to-date treatment of diesel technology encompasses major advancements in the field, especially recent developments in the use of electronics in heavy-duty trucks, off-highway equipment, and marine applications. The text’s primary focus is on state-of-the-art “electronic fuel injection” systems such as those being used by such manufacturers as Caterpillar, Cummins, Detroit Diesel, Volvo, and Mack. A systematic, structured organization helps readers learn step-by-step, beginning with engine systems, and working logically through intake/exhaust, cooling, lubrication, and fuel injection systems, highlighting major changes in today’s modern engines.

Consulting-covering Engineer

Assessment of Diesel Engine Condition Using Time Resolved Measurements and Signal Processing

Western Construction

GM Duramax Diesel Engines: How to Rebuild & Modify

Written by a practitioner, this comprehensive guide presents all the information and skills needed by the proficient diesel mechanic. Throughout, the material emphasizes the practical, nuts-and-bolts aspects of the trade. Each chapter contains a brief introduction, a list of objectives, and a general treatment of the subject at hand, a treatment of related component parts and nomenclature that familiarizes readers with terms and parts and a detailed discussion of the theory of operation, repair and overhaul, assembly, testing, and adjustment. Procedures are highlighted for easy reference. Also included are practical advice and approaches to troubleshooting as well as summaries, lists of review questions, and numerous illustrations.

Lloyd's Maritime Directory

Marine Inboard Engines

Please note that the content of this book primarily consists of articles available from Wikipedia or other free sources online. Pages: 54. Chapters: Two-stroke diesel engines, Two-stroke petrol engines, Two-stroke engine, Gasoline direct injection, Ernst Degner, Fairbanks-Morse, Expansion chamber, Napier Deltic, Unit construction, Roots type supercharger, Bourke engine, Opposed-piston engine, Split single, Commer T55, Two-stroke power valve system, Rotax, Junkers jumo 205, Maico, Dry sump, EMD 645, Detroit Diesel 110, EMD 710, EMD 567, Wartburg-Sulzer 4TR4-6, Joseph Day, Reed valve, Detroit Diesel Series 71, Junkers jumo 204, Variable compression ratio, Single cylinder engine, Walter Kaaden, Volumetric efficiency, Tuned pipe, Schnuerle porting, Power band, Brons, Orbital Corporation, Detroit Diesel, Detroit Diesel 110, Detroit Diesel 8V92, Detroit Diesel 6V92 two-stroke diesel engines, Six 40-foot buses were tested. Three of the buses had recently rebuilt engines and were equipped with an oxidation catalytic converter. Vehicle emissions measurements were performed using West Virginia university’s unique transportable chassis dynamometer. The emissions were measured over the Central Business District (CBD) driving cycle. The buses performed well on both neat and blended MGO diesel. Three buses without catalytic converters were tested. Compared to their emissions when operating on Federal no.2 diesel fuel, these buses emitted an average of 5% lower oxides of nitrogen (NOx) and 20% lower particulate matter (PM) when operating on neat MGO fuel. Catalytic equipped buses emitted an average of 8% lower NOx and 31% lower PM when operating on MGO than when operating on Federal no.2 diesel fuel.

Diesel Progress

Breathe new life into your GM Duramax Diesel with this rebuild guide from CarTech’s Workbench series. Whether you have an engine that is old and tired, are contemplating picking up a used engine for a swap, looking to hop up your current engine, or simply want to understand the inner workings of a Duramax engine, this guide will be your best companion. Author and diesel expert Jason Gonderman takes you through full step-by-step sequences of the removal, disassembly, evaluation, reconditioning, and reassembly of both the 2001-2010 style of engines and the 2011-2016 style engines. The primary focus is on state-of-the-art technology, as well as on the fundamental principles underlying today’s technological advances in service and repair procedures. Industry accepted practices are featured, and readers are encouraged to formulate a sound understanding of both the “why” and the “how” of modern diesel engines and equipment. Thorough, up-to-date treatment of diesel technology encompasses major advancements in the field, especially recent developments in the use of electronics in heavy-duty trucks, off-highway equipment, and marine applications. The text’s primary focus is on state-of-the-art “electronic fuel injection” systems such as those being used by such manufacturers as Caterpillar, Cummins, Detroit Diesel, Volvo, and Mack. A systematic, structured organization helps readers learn step-by-step, beginning with engine systems, and working logically through intake/exhaust, cooling, lubrication, and fuel injection systems, highlighting major changes in today’s modern engines.

Diesel Engine Reference Book

International Shipping & Shipbuilding Directory

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GM Duramax Diesel: How to Rebuild & Modify

Development of a Combustion Gas Sampling Valve