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30th Aerospace Sciences Meeting and Exhibit: 92-0140 - 92-0169

1992
Department of Defense appropriations for fiscal year 1983 United States. Congress. Senate. Committee on Appropriations. Subcommittee on Department of Defense 1982
Independent Offices Appropriations for 1955 United States. Congress. House. Committee on Appropriations 1954
Engine Testing A. J. Martyr 2011-04-08 This book brings together the large and scattered body of information on the theory and practice of engine testing, to which any engineer responsible for work of this kind must have access. Engine testing is a fundamental part of development of new engine and powertrain systems, as well as of the modification of existing systems. It forms a significant part of the practical work of many automotive and mechanical engineers, in the auto manufacturing companies, their suppliers suppliers, specialist engineering services organisations, the motor sport sector, hybrid vehicles and tuning sector. The eclectic nature of engine, powertrain, chassis and whole vehicle testing makes this comprehensive book a true must-have reference for those in the automotive industry as well as more advanced students of automotive engineering. * The only book dedicated to engine

testing; over 4000 copies sold of the second edition * Covers all key aspects of this large topic, including test-cell set up, data management, dynamometer selection and use, air, thermal, combustion, mechanical, and emissions assessment * Most automotive engineers are involved with many aspects covered by this book, making it a must-have reference

A Collection of Technical Papers 1972

SPRE I Free-Piston Stirling Engine Testing at NASA Lewis Research Center 1994 As part of the NASA funded portion of the SP-100 Advanced Technology Program the Space Power Research Engine (SPRE I) was designed and built to serve as a research tool for evaluation and development of advanced Stirling engine concepts. The SPRE I is designed to produce 12.5 kW electrical power when operated with helium at 15 MPa and with an absolute temperature ratio of two. The engine is now under test in a new test facility which was designed and built at NASA LeRC specifically to test the SPRE I. This paper describes the SPRE I, the NASA test facility, the initial SPRE I test results, and future SPRE I test plans.

Scientific and Technical Aerospace Reports 1992-07

Department of the Interior and Related Agencies Appropriations for 1985: Justification of the budget estimates

United States. Congress. House. Committee on Appropriations. Subcommittee on Dept. of the Interior and Related Agencies 1984

Engine Testing Michael Alexander Plint 1995 The current concern with environmental matters has given a fresh impetus to the development of the internal combustion engine. Test procedures are becoming ever more complex and demanding. This presents a challenge to the test and development engineer, since while mastering these new techniques they must still have at their finger tips all the traditional skills associated with engine testing.

Technical Abstract Bulletin

A Method for Performance Analysis of a Ramjet Engine in a Free-jet Test Facility and Analysis of Performance Uncertainty Contributors Kevin Raymond Holst 2012 Ramjet and scramjet engines are being developed to provide a more fuel efficient means of propulsion at high Mach numbers. Part of the development of these engines involves test and evaluation of an engine in ground facilities as well as in flight. Ground facilities, like Arnold Engineering Development Complex (AEDC) and those at engine manufacturers like General Electric (GE) and Pratt & Whitney (PW), have decades of experience testing traditional turbine engines and much less experience testing full scale

ramjet engines. Testing a supersonic engine in a free-jet mode presents a host of challenges not experienced during traditional direct connect turbine engine tests. Characterizing the performance of an engine in a free-jet test facility is a difficult task due in part to the difficulty in determining how much air the engine is ingesting and the spillage, friction and base drag of the engine installation. As more exotic propulsion systems like DARPA's Falcon Combined Cycle Engine Test (FaCET) article or NASA's X-43 are developed, there is a greater need for effective ground tests to determine engine performance and operability prior to flight testing. This thesis proposes a method for calculating three key performance parameters (airflow, fuel flow, and thrust) and investigates the uncertainty influences for these calculations. A data reduction method was developed for this thesis to calculate the engine airflow, net thrust, and specific impulse (ISP) in a ground test of a generic ramjet engine in a free-jet test facility. It considered typical measurements for an engine test (pressures, temperatures, fuel flow, scale force, and engine and cowl geometry). Once the code was developed, an uncertainty analysis of the calculations was conducted, starting with a simplified analytical assessment. A common industry accepted uncertainty approach was then used in conjunction

with the data reduction code to determine the sensitivity or influence coefficients of the independent measurements on the dependent parameters by the dithering method. These influence coefficients were used to ascertain where measurement improvements could be made to affect the greatest reduction in uncertainty of the predicted engine performance.
Stirling engines and regenerator testing on a free-piston engine Bruno Seeuws 2012
Directory of Federal Laboratory and Technology Resources 1993-01-01 Describes the individual capabilities of each of 1,900 unique resources in the federal laboratory system, and provides the name and phone number of each contact. Includes government laboratories, research centers, testing facilities, and special technology information centers. Also includes a list of all federal laboratory technology transfer offices. Organized into 72 subject areas. Detailed indices.
Engine Coolant Testing, Third Volume Roy E. Beal 1993 Annotation Emerging from a November 1991 symposium in Scottsdale, Arizona, 19 papers report on advances in developing, testing, and applying engine cooling fluids for automobiles and heavy duty engines. Among the topics are carboxylic acids

as corrosion inhibitors in engine coolant, phosphate-molybdate supplements to heavy duty diesel engines, the toxicity and disposal of engine coolants, and the characterization of used engine coolant by statistical analysis. Annotation copyright by Book News, Inc., Portland, OR.

Hearings on H.R. 11833 [H.R. 12384] to Authorize Certain Construction at Military Installations, and for Other Purposes, Before Subcommittee on Military Installations and Facilities of the Committee on Armed Services, House of Representatives, Ninety-fourth Congress, Second Session ... United States. Congress. House. Committee on Armed Services. Subcommittee on Military Installations and Facilities 1976

Military Construction Appropriations for 1977 United States. Congress. House. Committee on Appropriations. Subcommittee on Military Construction Appropriations 1976

Hearings on H.R. 11833 [H.R. 12384]--to authorize certain construction at military installations, and for other purposes United States. Congress. House. Committee on Armed Services. Subcommittee on Military Installations and Facilities 1976

Pistons and engine testing MAHLE International GmbH 2016-03-08 The ever-

increasing demands placed on combustion engines are just as great when it comes to this centerpiece—the piston. Achieving less weight or friction, or even greater wear resistance, requires in-depth knowledge of the processes taking place inside the engine, suitable materials, and appropriate design and manufacturing processes for pistons, including the necessary testing measures. It is no longer possible for professionals in automotive engineering to manage without specific expertise of this kind, whether they work in the field of design, development, testing, or maintenance. This technical book answers these questions in detail and in a very clear and comprehensible way. In this second, revised edition, every chapter has been revised and expanded. The chapter on “Engine testing”, for example, now include extensive results in the area of friction power loss measurement and lube oil consumption measurement.

Engine Coolant Testing : Fourth Volume Roy E. Beal 1999

Fundamentals of Automotive Technology Vangelder 2017-02-24 Resource added for the Automotive Technology program 106023.

Free-Piston Stirling Engine Demonstrator Test Plan 1978 Mechanical Technology Incorporated is developing a 1 KWe Free-Piston Stirling ENgine

(FPSE) Power System. The plan for testing the demonstrator power system is presented. The test hardware is a Free-Piston Stirling Engine prime mover driving a linear alternator. The demonstrator system is basically a modular assembly. The modules are the reciprocating alternator section, engine section, heater head insulation package assembly, and the pressure vessel. The test objective is to demonstrate a system with greater than 30% overall efficiency at 1 KW, 45 hz operating conditions, and to identify and isolate engine losses to provide a basis for future engine improvements.

Single Cylinder Engine Tests American Society for Testing and Materials 1980-08

Testing and Performance Characteristics of a 1-kW Free Piston Stirling Engine 1983

Control and Testing of a Free Piston Engine Martin James Fleming West 2012

The free piston energy converter (FPEC) project aims to develop an efficient energy conversion system for series hybrid vehicles as well as for standalone or distributed power generating application. The principle is based on CI free-piston concept, comprising of a combustion system integrated with a linear tubular electrical machine. The project was funded by the EC (Project No.

GRD2-2001-51813) with a consortium comprised of VTEC/-VOLVO (Sweden), Institut Francais du Per role (France), ABB (Sweden). Chalrners University of Technology (Sweden). Kungliga Tekniska Hogskolan (Sweden) and University of Sheffield (liK). This thesis describes the work undertaken by the author as part of the FPEC project. The principal aim of the work covered by this thesis was to develop and demonstrate novel control strategies required to control the piston motion, and thereby realise optimum combustion conditions. For this purpose, a multi-level control architecture is adopted. The focus of this thesis is, however on the intermediate level of combustion control and the low level of electrical machine control. A computationally efficient. zero-dimensional engine model is established based on the first law of thermodynamics. This is integrated with models of the linear electrical machine and inverter control to form a complete system model which is used as a tool for control law development and performance evaluation. A kinetic energy control strategy is derived for the combustion control and its numeric implement able algorithm for fixed point processing is described together with intake pressure estimation and minimisation of control actions. Robust and reliable position sensing presents a significant challenge for the realisation of the FPEC. A position

triggered time varying Kalman filter is derived and its performance analysed and experimentally demonstrated. A prototype FPEC control system has been constructed novel methods were developed for testing the system, and the experimental results are presented and analysed.

Pistons and engine testing Mahle GmbH 2013-01-26 Die immer weiter steigenden Anforderungen an Verbrennungsmotoren machen auch vor dessen Herzstück – dem Kolben – nicht Halt. Für weniger Gewicht, Reibung oder auch noch mehr Verschleißfestigkeit sind tiefe Kenntnisse über die innermotorischen Prozesse sowie die geeigneten Werkstoffe, Konstruktions- und Bearbeitungsverfahren für Kolben inklusive der erforderlichen Erprobungsmaßnahmen notwendig. Ohne dieses spezifische Know-how kommt kein Fachmann der Kfz-Technik mehr aus, unabhängig ob er in der Konstruktion, der Entwicklung, der Erprobung oder der Instandhaltung tätig ist. Dieses Fachbuch beantwortet alle Fragen ausführlich, anschaulich und verständlich.

Army R, D & A. 1984

Energy Research Abstracts 1985

Langley Aerospace Test Highlights - 1986

1987

Subscale Engine Test Facility, Test Program Terri Lynn Brock 1989

Energy and Water Development Appropriations for 1993: Department of Energy FY 1993 budget justifications United States. Congress. House. Committee on Appropriations. Subcommittee on Energy and Water Development 1992

Air-breathing Engine Test Facilities Register North Atlantic Treaty Organization. Advisory Group for Aerospace Research and Development 1981

In context with its Symposium on 'Turbine Engine Testing' it has been the aim of the Propulsion and Energetics Panel of AGARD to offer to the NATO community a survey on air-breathing engine test facilities which are presently available in NATO countries. It was concluded that the main interest is focussed on test facilities for research and development of aero-engines to be used as prime thrusters. Consequently production and post-overhaul acceptance test facilities are not to be found in this register, even though in some cases they have been used for special investigations. In this book the reader will find a fairly complete survey of organizations which operate altitude and sea level test facilities for turbo-jet (including turbo-fan), ram-jet, and turbo-

shaft engines. Though the book cannot claim comprehensiveness its initial working title was kept but the word register should not be understood in its prime sense and official meaning. Summary information about the test capacity of organizations and more detailed data for a number of individual test cells are offered and may be used for quick comparison and survey or for a preliminary selection of test facilities which the reader may wish to use in his research and development programmes.

An Inventory of Aeronautical Ground Research Facilities: Air breathing engine test facilities, by C.J. Pirrello [et al McDonnell Aircraft Corporation 1971

Multicylinder Test Sequences for Evaluating Automotive Engine Oils 1971

American Aviation 1956 Issues for include Annual air transport progress issue.

Monthly Catalog of United States Government Publications 1991

Danforce, 2. Bataillons 2. Kompagni 1945

ERDA Energy Research Abstracts United States. Energy Research and Development Administration 1976

Free Jet Engine Testing: Wind Tunnel Starting Paul J. Ortwerth 1973 Free jet wind tunnels are used extensively for jet engine testing and development. A facility diffuser is employed for altitude simulation. Diffuser size and

performance must be matched to the exhauster pumping capacity and engine installation drag or diffuser unstarts will occur. The diffuser starting theory of Rudolf Herman was reviewed and extended to determine the allowable drag coefficient of ramjet test installations in free jet wind tunnels. Specific drag limits are calculated for the Air Force free jet test stand located at The Marquardt Corporation, Van Nuys, California. (Author).

U.S. Government Research Reports 1964

Space Shuttle Main Engine Component and Subsystem Testing, Santa Susana 1973