Aircraft Landing Gear Drop Test Simulation And Design Evolution

Lists citations with abstracts for aerospace related reports obtained from world wide sources and announces documents that have recently been entered into the NASA Scientific and Technical Information Database.

Vols. 41, no. 11-v. 42, no. 5 include Space digest, v. 1-2, no. 5, Nov. 1958-May 1959.

This is the only book available today that covers military and commercial aircraft landing gear design. It is a comprehensive text that will lead students and engineers from the initial concepts of landing gear design through final detail design. The book provides a vital link in landing gear design technology from historical practices to modern design trends, and it considers the necessary airfield interface with landing gear design. The text is backed up by calculations, specifications, references, working examples.

This thesis uses empirical similitude to compare the drop test result of an RC plane landing gear to a large oleo strut landing gear. This is useful to help create novel designs for applications onto large aircraft, as it is difficult to run experiments on the larger system. A drop test rig was constructed to collect data from an RC plane tire. The system is built similar to a reverse pendulum with the tire at the end of the arm. The accelerometer at the end of the arm records the acceleration, with the important results being the peak accelerations at the impacts. These were exported to Excel files to be read by MATLAB during analysis. The second order ODE system derived from a mass-spring-damper model is coded into MATLAB and compared to empirical data. The code tracks the system as it falls, bounces on the ground, rises back in the air, and repeats, recording position, velocity, and acceleration predicted. The result was then compared to data from the drop test rig. A unitless matrix is derived relating the peak forces predicted by the ODE system to the peak forces of the actual data. The second order system was then scaled up to a large oleo-pneumatic system, creating a matrix of physical parameters. The unitless matrix was applied to this new prediction plot to convert it to “real” data. The resultant plot is compared to empirical data to determine if force plots are comparable. In conclusion, empirical similitude was able to successfully predict peak amplitudes recorded by past literature, though more research is required to confirm accuracy of the results. Successful modeling of an oleo-strut system using an RC tire paves the way for modeling novel landing gear systems in the future.

This report presents of axial-load fatigue tests on notched specimens of 24S-T3 and 75S-T6 aluminum alloys and normalized SAE 4130 steel with stress-concentration factors of 2.0 (central-circular hole, symmetrical edge notches, and fillets) and 4.0 (symmetrical edge notches and fillets). Fatigue tests were run at several levels of nominal mean stress. Results are compared with previous data for unnotched specimens.

This the fifth volume of five from the 28th IMAC on Structural Dynamics and Renewable Energy, 2010,, brings together 146 chapters on Structural Dynamics. It presents early findings from experimental and computational investigations of on a wide range of area within Structural Dynamics, including studies such as Simulation and Validation of ODS Measurements made Using a Continuous SLDV Method on a Beam Excited by a Pseudo Random Signal, Comparison of Image Based, Laser, and Accelerometer Measurements, Modal Parameter Estimation Using Acoustic Modal Analysis, Mitigation of Vortex-induced Vibrations in Long-span Bridges, and Vibration and Acoustic Analysis of Brake Pads for Quality Control.

Aircraft dynamic loads and vibrations resulting from landing impact and from runway and taxiway unevenness are recognized as significant factors in causing fatigue damage, dynamic stress on the airframe, crew and passenger discomfort, and reduction of the pilot's ability to control the aircraft during ground operations. One potential method for improving operational characteristics of aircraft on the ground is the application of active control technology to the landing gears to reduce ground loads applied to the airframe. An experimental investigation was conducted on series-hydraulic active control nose gear. The experiments involved testing the gear in both passive and active control modes. Results of this investigation show that a series-hydraulic active control gear is feasible and that such a gear is effective in reducing the loads transmitted by the gear to the airframe during ground operations. Howell, William E. and Mcgehee, John R. and Daugherty, Robert H. and Vogler, William A. Langley Research Center NASA-TM-102741, NAS 1.15:102741 RTOP 505-63-10-02...

Special edition of the Federal Register, containing a codification of documents of general applicability and future effect ... with ancillaries.

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A vital resource for pilots, instructors, and students, from the most trusted source of aeronautic information.

This book is a compilation of peer-reviewed papers from the 2018 Asia-Pacific International Symposium on Aerospace Technology (APISAT 2018). The symposium is a common endeavour between the four national aerospace societies in China, Australia, Korea and Japan, namely, the Chinese Society of Aeronautics and Astronautics (CSAA), Royal Aeronautical Society Australian Division (RAeS Australian Division), the Korean Society for Aeronautical and Space Sciences (KSAS) and the Japan Society for Aeronautical and Space Sciences (JSASS). APISAT is an annual event initiated in 2009 to provide an opportunity for researchers and engineers from Asia-Pacific countries to discuss current and future advanced topics in aeronautical and space engineering.

This book offers a collection of original peer-reviewed contributions presented at the 3rd International and 18th National Conference on Machines and Mechanisms (iNaCoMM), organized by Division of Remote Handling & Robotics, Bhabha Atomic Research Centre, Mumbai, India, from December 13th to 15th, 2017 (iNaCoMM 2017). It reports on various theoretical and practical features of machines, mechanisms and robotics; the contributions include carefully selected, novel ideas on and

approaches to design, analysis, prototype development, assessment and surveys. Applications in machine and mechanism engineering, serial and parallel manipulators, power reactor engineering, autonomous vehicles, engineering in medicine, image-based data analytics, compliant mechanisms, and safety mechanisms are covered. Further papers provide in-depth analyses of data preparation, isolation and brain segmentation for focused visualization and robot-based neurosurgery, new approaches to parallel mechanism-based Master-Slave manipulators, solutions to forward kinematic problems, and surveys and optimizations based on historical and contemporary compliant mechanism-based design. The spectrum of contributions on theory and practice reveals central trends and newer branches of research in connection with these topics.