
Full Scale Wind Tunnel Investigation of a Bearingless Main Helicopter Rotor - Marc Sheffler - 1980


The ACEE Program and Basic Composites Research at Langley Research Center (1975 to 1986) - Marvin B. Dow - 1987

Research Center (1975 to 1986) - Marvin B. Dow - 1987


Helicopter Theory - Wayne Johnson - 2012-03-07
Monumental engineering text covers vertical flight, forward flight, performance, mathematics of rotating systems, rotary wing dynamics and aerodynamics, aeroelasticity, stability and control, stall, noise, and more. 189 illustrations. 1980 edition.

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EPA 600/2 - - 1976

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A 450 hp high ratio Self-Aligning Bearingless Planetary (SABP) for a helicopter application was designed, manufactured, and spin tested under NASA contract NAS3-24539. The objective of the program was to conduct research and development work on a high contact ratio helical gear SABP to reduce weight and noise and to improve efficiency. The results accomplished include the design, manufacturing, and no-load spin testing of two prototype helicopter transmissions, rated at 450 hp with an input speed of 35,000 rpm and an output speed of 350 rpm. The weight power density ratio of these gear units is 0.33 lb hp. The measured airborne noise at 35,000 rpm input speed and light load is 94 dB at 5 ft. The high speed, high contact ratio SABP transmission appears to be significantly lighter and quieter than contemporary helicopter transmissions. The concept of the SABP is applicable not only to high ratio helicopter type transmissions but also to other rotorcraft and aircraft propulsion systems. Folenta, Dezi and Lebo, William Glenn Research Center BEARINGLESS ROTORS; ENGINE DESIGN; GEARS; HELICOPTERS; SELF ALIGNMENT; TRANSMISSIONS (MACHINE ELEMENTS); MANUFACTURING; NOISE REDUCTION; PROPULSION SYSTEM CONFIGURATIONS; SPIN TESTS; WEIGHT
complex aerodynamic problems, significant vibrations, high levels of noise, and relatively large power requirements compared to fixed-wing aircraft. This book, written by an internationally recognized expert, provides a thorough, modern treatment of the aerodynamic principles of helicopters and other rotating-wing vertical lift aircraft. Every chapter is extensively illustrated and concludes with a bibliography and homework problems. Advanced undergraduate and graduate students, practising engineers, and researchers will welcome this thorough and up-to-date text on rotating-wing aerodynamics.

**Principles of Helicopter Aerodynamics** - J. Gordon Leishman - 2002-12-23
Helicopters are highly capable and useful rotating-wing aircraft with roles that encompass a variety of civilian and military applications. Their usefulness lies in their unique ability to take off and land vertically, to hover stationary relative to the ground, and to fly forward, backward, or sideways. These unique flying qualities, however, come at a high cost including complex aerodynamic problems, significant vibrations, high levels of noise, and relatively large power requirements compared to fixed-wing aircraft. This book, written by an internationally recognized expert, provides a thorough, modern treatment of the aerodynamic principles of helicopters and other rotating-wing vertical lift aircraft. Every chapter is extensively illustrated and concludes with a bibliography and homework problems. Advanced undergraduate and graduate students, practising engineers, and researchers will welcome this thorough and up-to-date text on rotating-wing aerodynamics.

**NASA's Contributions to Aeronautics: Flight environment, operations, flight testing, and research** - - 2010
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**NASA's Contributions to Aeronautics: Flight environment,**


Petitions for Patent Waiver - United States. National Aeronautics and Space Administration -


NASA's Contributions to Aeronautics, Volume 2, Flight Environment

The Shock and Vibration Digest - - 1986

Written by an internationally recognized teacher and researcher, this book provides a thorough, modern treatment of the aerodynamic principles of helicopters and other rotating-wing vertical lift aircraft such as tilt rotors and autogiros. The text begins with a unique technical history of helicopter flight, and then covers basic methods of rotor aerodynamic analysis, and related issues associated with the performance of the helicopter and its aerodynamic design. It goes on to cover more advanced topics in helicopter aerodynamics, including airfoil flows, unsteady aerodynamics, dynamic stall, and rotor wakes, and rotor-airframe aerodynamic interactions, with final chapters on autogiros and advanced methods of helicopter aerodynamic analysis. Extensively illustrated throughout, each chapter includes a set of homework problems. Advanced undergraduate and graduate students, practising engineers, and researchers will welcome this thoroughly revised and updated text on rotating-wing aerodynamics.

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Survey of Army/NASA Rotorcraft Aeroelastic Stability Research - 1988

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Experimental Investigation of Advanced Hub and Pylon Fairing Configurations to Reduce Helicopter Drag - National Aeronautics and Space Administration (NASA) - 2018-07-08

New hub and pylon fairing designs were tested on a one-fifth scale Bell Helicopter Textron Model 222 helicopter with a bearingless main rotor hub. The blades were not installed for this test. The fairings were designed by NASA and Bell Helicopter Textron under a joint program and tested in the Ames Research Center 7-by 10-Foot Wind Tunnel. All six aircraft forces and moments were measured using the tunnel scales system. Previous research has identified the integrated hub and pylon fairing approach as the most efficient in reducing helicopter drag. Three hub fairings and three pylon fairings were tested (in various combinations) resulting in a total of 16 different configurations, including the baseline helicopter model without fairings. The geometry of the new fairings is described in detail. Test results are presented in the form of plots of the six model forces and moments. The data show that model drag can be reduced by as much as 20 percent by combining a small hub fairing (that has a circular arc upper surface and a flat lower surface) integrated with a nontapered pylon fairing. To minimize drag, the gap between the lower surface of the hub and upper surface of the pylon fairing must be kept to a minimum. Results show that the aerodynamic effects of the fairings on static longitudinal and directional stability can also be important. Martin, D. M. and Mort, R. W. and Young, L. A. and Squires, P. K. Ames Research Center

Integrated Technology Rotor/Flight Research Rotor (ITR/FRR) Concept Definition - 1983

Integrated Technology Rotor/Flight Research Rotor (ITR/FRR) Concept Definition - 1983

Research in Progress - 1985

Research in Progress - 1985

Army Research and Development - 1976

Army Research and Development - 1976

Aeroelastic Analysis for Helicopter Rotor Blades with Time-variable,
Richard L. Bielawa - 1976

**Aeroelastic Analysis for Helicopter Rotor Blades with Time-variable, Nonlinear Structural Twist and Multiple Structural Redundancy** - Richard L. Bielawa - 1976

**Research in Progress Between and** - - 1992

**Research in Progress Between and** - - 1992

**Design Studies of a Composite Bearingless Tail Rotor for a Radio Controlled Helicopter** - Polis G. Vrionides - 1983

**Design Studies of a Composite Bearingless Tail Rotor for a Radio Controlled Helicopter** - Polis G. Vrionides - 1983

**Airplane Flying Handbook (FAA-H-8083-3A)** - Federal Aviation Administration - 2011-09
A vital resource for pilots, instructors, and students, from the most trusted source of aeronautic information.

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**NASA/Army Rotorcraft Technology. Volume 1: Aerodynamics, and Dynamics and Aeroelasticity** - - 1988

**NASA/Army Rotorcraft Technology. Volume 1: Aerodynamics, and Dynamics and Aeroelasticity** - - 1988


**Army R, D & A.** - - 1978

**Army R, D & A.** - - 1978