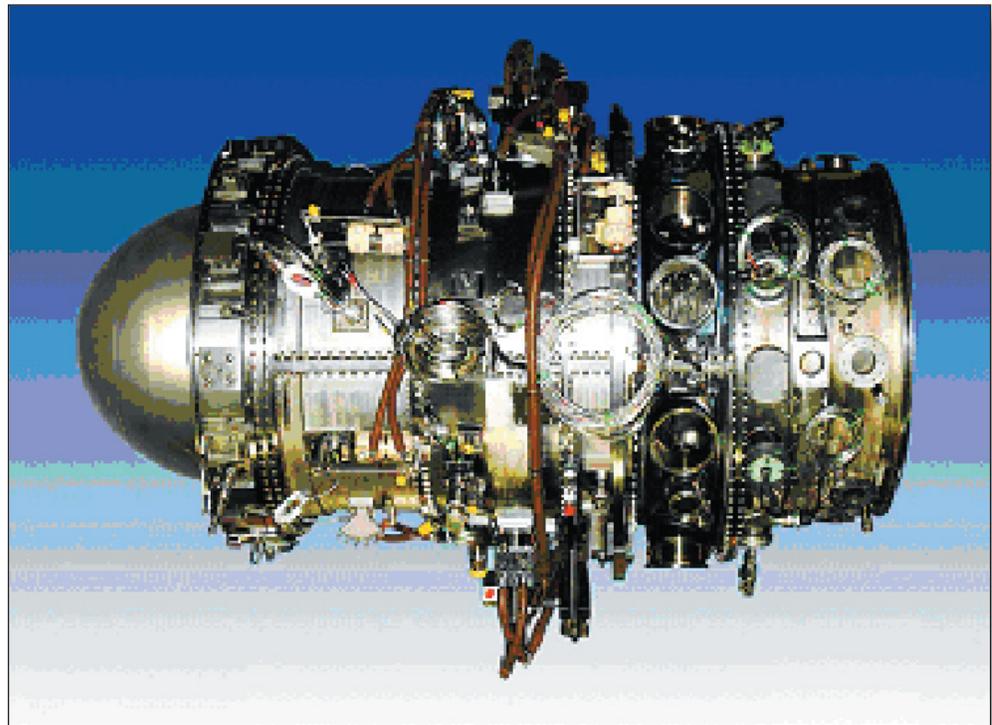




Success Story

TURBINE ENGINE CORE DEMONSTRATOR MAKES PROPULSION HISTORY



The Propulsion Directorate's Integrated High Performance Turbine Engine Technology (IHPTET) test program recently demonstrated significant achievements in turbine engine design and development. The testing highlighted the IHPTET core demonstrator as one of the most advanced turbine engine technology in the world.



Air Force Research Laboratory
Wright-Patterson AFB OH

Accomplishment

The world's most advanced turbine engine core demonstrator successfully completed 48 hours of testing at the Allison Advanced Development Company in Indianapolis, Indiana. This testing validated the achievements of several advanced engine technologies required by the F136 (Joint Strike Fighter) engine. In addition to far exceeding thrust-to-weight ratio goals, the testing demonstrated features such as compressor high-cycle fatigue reduction, high fuel-to-air ratio combustor design, advanced turbine cooling technology, and the use of hybrid ceramic bearings. The engine also demonstrated a ceramic matrix composite combustor lining, which allowed operation at steady turbine rotor inlet temperatures that were higher than ever before achieved.

Background

The directorate's IHPTET program is managed at Wright-Patterson Air Force Base, Ohio. The program was established with the primary goal of doubling propulsion capability over conventional designs. The program is a national collaborative effort among the Air Force, Navy, Army, National Aeronautics & Space Administration, Defense Advanced Research Projects Agency, and the turbine engine industry. The IHPTET demonstration was planned as a major milestone in the program to illustrate the capability to provide low-risk technology transition that will greatly improve engine performance, reduce costs, and increase the readiness and reliability of future engines.

Propulsion
Support to the Warfighter

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (04-PR-09)