F135 ENGINE FOR THE F-35 LIGHTNING II

Designed for Single Engine Safety & Reliability

Pratt & Whitney’s F135 engine safely powers the 5th generation F-35 Lightning II single-engine tactical fighter, producing over 40,000 lbs. of thrust and unmatched capability to the warfighter.

The F135 engine represents superior technology advances in propulsion safety, design, performance and reliability that set the stage for continued air dominance for years to come.

As of April 2019, over 450 F135 engines are in operation with 10 customers in 17 locations around the world.

Safety

- Pratt & Whitney has a strong legacy of single engine fighter safety. The 4th generation F100-PW-229, which has been in service for more than 25 years, remains the safest single-engine fighter propulsion system in U.S. Air Force’s history, with zero Class A mishaps on the F-16 since initial operation.

- The F135 builds upon this legacy - its Non-Recoverable In-Flight Shutdown rate is 13X better than 4th generation fighter engines at 100,000 engine flight hours.

- Dual Redundancy:
  - Two Full Authority Digital Engine Controls (FADECs) on board, providing complete electronic control systems backup and enhanced diagnostic coverage to detect potential issues before they happen.
  - Two Electro-Hydraulic Servo Valves (EHSV) on every actuator for control system backup.

- Engine blades are specifically designed to tolerate Foreign Object Damage (FOD). There have been over 70 foreign object ingestion events, including very large birds; each time the engine continued to operate and the pilot landed safely.

Reliability

- The F135’s mission capability rate is 95% with current production engines already exceeding key 2020 reliability requirements.

- The F135’s Unscheduled Engine Removal (UER) rate has shown nearly a 3X improvement over 4th generation fighter engines.

- The F135 demonstrated successful operation in extreme climatic test conditions including icing test.

The F135 is the world’s most advanced fighter engine, delivering unmatched advances in safety, reliability, and performance.
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