Honeywell



Transforming the operational capabilities of jaguar

INDIAN AIR FORCE JAGUAR RE-ENGINING PROPOSAL

Re-engining of the Indian Air Force (IAF) Jaguar with Honeywell's F125IN Turbofan

Honeywell has proposed its proven F125IN turbofan engine as a replacement for the existing engines on the IAF Jaguar. The F125IN offers a significant increase in engine and aircraft performance, and will transform the Jaguar's mission capabilities, while greatly reducing maintenance costs.

Transforms Jaguar's mission capabilities and performance

- Enhanced mission capabilities above 30,000ft
- Full hot-day capability, with over 25% more thrust
 - Reduces take-off distance by over 30 percent
 - Significant improvement in Jaguar's high/hot take-off capability
 - Faster climbs, improved single-engine safety
- Improved safety and lower pilot workload.

Lowest cost approach to enhancing the Jaguar's capabilities

By matching a proven airframe with a proven engine, the IAF will have many of the capabilities of a new aircraft, at a fraction of the cost. At the same time, re-use of the majority of the infrastructure, training and experience associated with the current Jaguar fleet, will allow much more rapid entry into service than for a new aircraft. In addition, the F125IN's proven reliability, and durability will significantly reduce life cycle costs.

Tested, proven and reliable engine

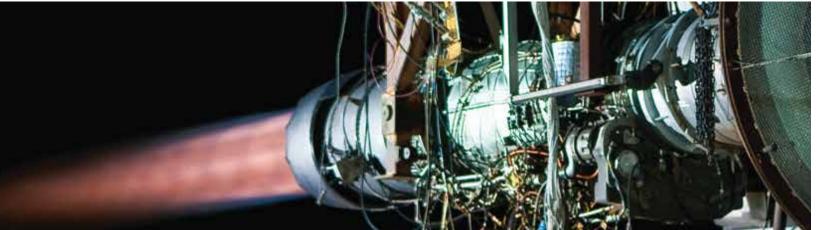
The F125IN is based upon the off-the-shelf, in-service F125 engine, with minimal external changes for the Jaguar installation. The F125IN has already been demonstrated in its production configuration at Honeywell's Phoenix test facilities and benefits from:

- Reliable: Increases time between overhaul to 2,000 hours, from current level of 500 hours
- Off-the-shelf: Existing engine performance meets/exceeds requirements
- Future-proof: F125IN has 30% of untapped growth potential remaining.

Made in India

Honeywell's proposal maximizes the degree to which the program is 'made in India':

- Greater than 25% of the engine's components will be manufactured in India
- All airframe modifications, flight testing and certification will be conducted in India
- Production upgrades will be carried out in India
- An engine maintenance depot will be established in India
- IAF will be able to conduct engine support at operating bases.



Transforming the operational capabilities and performance of IAF Jaguars, at a fraction of the cost of a new aircraft



Honeywell has demonstrated its commitment to the re-engining of IAF Jaguars

Although the Jaguar re-engining program is only at the proposal stage, Honeywell has made significant investment in support of the program over the past 5+ years, to ensure that it can proceed rapidly and effectively should the IAF decide to proceed:

- Demonstration of an F125 engine at HAL in Bengalaru
- Purchase of two Jaguar airframes for use as integration facilities at Honeywell
- Completion of detailed aircraft-engine integration studies
- Demonstration of the performance of the production standard F125IN.

F125IN - Modular, Reliable and High Performance Turbofan Engine

The F125IN is a high performance, low bypass-ratio turbofan engine that meets the most rigorous requirements of modern light combat and advanced trainer aircraft.

Maximum Performance

The engine has the highest thrust-to-weight ratio in the 9500 lbf thrust class and allows unlimited operation at all power ratings. Incorporating a three-stage fan and five-stage axi-centrifugal high-pressure compressor, the unique design of the F125IN engine maximizes engine performance, while providing exceptional inlet distortion tolerance and stall resistance.

Advanced Control

Designed from inception to operate with a Full Authority Digital Electronic Control (FADEC), the engine includes all controls and sensors required for fully automatic operation. Pilot workload is, therefore, significantly reduced:

- Automatic start and ignition
- Continuous temperature and speed limiting
- Automatic control of the afterburner, including continuous thrust modulation from max dry thru max reheat
- Automatic relight after engine or afterburner flameout
- Transient fuel and nozzle scheduling to avoid engine surge.

The dual FADECs perform continuous diagnostics through built-in test (BIT) and fault-detection / accommodation logic.



Ease of Maintenance

The F125IN engine is a truly modular engine. All modules can be installed or removed from the engine, or interchanged with modules from another engine, without requiring special re-testing, balancing, or shimming.

An integrated Engine Monitoring System continuously monitors engine health and tracks life usage in order to alert the operator when a maintenance action is required. This on-condition maintenance philosophy helps to significantly reduce maintenance and down times.

Honeywell Aerospace

Honeywell is a leading global provider of integrated avionics, engines, wheels and brakes systems and service solutions for aircraft manufacturers, airlines, business and general aviation, military, space and airport operations

Honeywell Aerospace 1944 East Sky Harbor Circle Phoenix, AZ 85034 800-601-3099 International: 602-365-3099 www.honeywell.com

