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F/A-18E/F Infrared Search And Track System
The World Leader in IRST Technology



F/A-18 E/F IRST (Infrared Search and Track)



PD079-080

The liquid cooled sensor head WRA with the IMU

The F/A-18E/F IRST is a passive, long-wave infrared sensor system that searches for and detects heat sources within its large field-of-regard (FOR). Operating passively, the IRST enables long-range detection and track of enemy targets under normal and electronic attack (EA) environments and enhances survivability and lethality in both offensive and defensive counter-air roles. Operating in a wide variety of flight regimes, it provides robust performance against a wide variety of targets while ensuring immunity to electronic detection and RF countermeasures. Additionally, it enhances survivability by permitting passive operation (no radar) in the face of anti-radiation missile (ARM) threats. The IRST's high angle accuracy provides dramatically improved raid cell count at maximum declaration ranges - information that can stand alone or be fused with other sensor data to enhance situational awareness, thus ensuring first look, first shoot capability.



PD079-080

The liquid cooled processor WRA

The IRST provides the F/A-18E/F mission computer with track file data on all targets while simultaneously providing infrared imagery to cockpit displays. The F/A-18E/F IRST operates in either track-while scan or single target track modes with cockpit selectable HOTAS (Hands-on-Throttle-and-Stick) controlled scan volumes in azimuth and elevation. The Pilot interface is consistent with other F/A-18E/F sensors to reduce aircrew workload.

The F/A-18E/F IRST is mounted in the forward section of the centerline fuel tank. This installation provides numerous operational advantages; the FOR of the IRST is maximized, no weapons store station is lost, and the fuel tank preserves 330 gallons of fuel. The subsystems are: a sensor head that houses a three-axis inertially stabilized gimbal that scans the optics and detector assembly; a COTS processor that hosts the algorithms and a high density digital recorder, and an air-to-liquid heat exchanger (environmental control subsystem or ECS).

Currently, Lockheed Martin Missiles and Fire Control plans to provide 150 F/A-18E/F IRST systems to the U.S. Navy. The IRST system enhanced the capabilities of the F-14D AN/AAS-42 IRST that had been operational aboard U.S. aircraft carriers and accumulated over 200,000 flight hours.



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The IRST installation in the prototype fuel tank

Features

- First look, first shoot capability
- Longwave, track-while-scan sensor
- Inertial tracking in aircraft reference frame
- Large field-of-regard search volume
- Programmable scan modes
- HOTAS Pilot Interface
- Immune to EA and RF counter-measures
- Weapons quality passive ranging
- Proven, automatic target declaration algorithms
- Multiple display modes
- No loss of weapon store station

Specifications (Less Tank)

Field-of-Regard

Azimuth ±70 deg

Elevation ±70 deg

Sensor Head

Diameter 9.2 in (23.4 cm)

Length 38 in (96.5 cm)

Weight 115 lb (52.2 kg)

Processor

Height 7.6 in (19.3 cm)

Length 18.5 in (47 cm)

Width 9.3 in (23.6 cm)

Weight 42 lb (19.1 kg)

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