

Model RS-374 Airborne Thermal Control Unit (TCU)



Description

An advanced pod electronic cooling system, Meggitt Defense System's RS-374 thermal control unit (TCU) provides cooling and heating to a forward-looking infra-red (FLIR) electronics sensor pod. The pod is mounted on an adapter attached to the fuselage of an F/A-18C/D. An efficient ram air scoop captures required air flow over the entire flight profile with minimum drag.

TCU power requirements, 115Vav, 3 phase, 400Hz and 28Vdc, are obtained directly from the aircraft power supply. A built-in microprocessor based

Digital Control Unit (DCU) continuously monitors the TCU's operation and detects and isolates faults in the TCU and its shop replaceable assemblies (SRAs). Faults are stored in non-volatile semiconductor memory. A high performance fan allows ground operation of the TCU.

This represents another exciting program in which Meggitt Defense Systems is proud to be a team member.

Model RS-374

Airborne Thermal Control Unit (TCU)

SIGNIFICANT FEATURES

- HIGH RELIABILITY COMPONENTS QUALIFIED TO MIL-STD-810C INCLUDING ESS.
- HIGH MTBF (4000 HOURS).
- LIGHTWEIGHT REFRIGERATION COMPRESSOR, OPERATING AT 11,000 RPM, PROVIDES COOLING CAPABILITY IN REFRIGERATION MODE.
- OPERATES IN TWO MODES: REFRIGERATION AND DIRECT HEAT REJECTION TO AMBIENT
- OPTICALLY ISOLATED SERIAL COMMUNICATIONS LINK PROVIDES CONTINUOUS STATUS MONITORING AND FAULT REPORTING
- HIGH CORROSION RESISTANCE, SUITABLE FOR CARRIER DECK OPERATION
- DESIGNED TO FUNCTION IN STRINGENT AIRCRAFT CARRIER DECK EMI ENVIRONMENTS

TECHNICAL SPECIFICATIONS

- **COOLANOL DELIVERY:**
Coolanol 25 at 0.7 gpm minimum to FLIR electronics, at 104°F maximum
 - **PRESSURE DROP:**
25 psid minimum at 104°F
 - **THERMAL CAPACITY:**
900 Watts minimum steady state
 - **DIGITAL CONTROL UNIT (DCU):**
Provides control, fault detection, and isolation. Executes BIT (initiated BIT and Periodic BIT)
 - WEIGHT: 62 LBS
 - **PERFORMANCE PROFILE:**
Coolant delivery, at 104°F maximum, over the entire 30 minute continuous tactical jet aircraft flight profile. Delivery temperature will be 135°F maximum during transient flight profiles.
 - **MIL-STD-210 FLIGHT PERFORMANCE:**
HOT DAY: 0.98 Mach from 0 ft. altitude to 0.92 Mach at 50,000 ft., continuous. Up to 1.6 Mach at 40,000 ft. altitude, transient.
COLD DAY: 0.2 Mach from 0 ft. altitude to 0.92 Mach at 50,000 ft., continuous. Up to 2.2 Mach at 50,000 ft. altitude, transient.
SEA LEVEL: -65°F to +125°F ambient.
 - **ENVELOPE:**
10.0 Dia. , Length 27.0 in.
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