

# GE90-94B FADEC

## Recommended Overhaul Actions

### Reasons to overhaul FADEC

- In service since 1995
- Continued on wing reliability is at risk after 45,000 flight hours
- Stabilizes and increases reliability

### Benefits of base overhaul

- Refreshes product and provides three-year extended warranty on covered items
- Incorporates lessons learned from investigations and repair history
- Replaces at risk components and parts
- Provides expanded test coverage (sub-assembly test), complete tear down, and detailed inspections
- Allows for software updates

### Scope

- Details in FADEC International Service Bulletin S/B 73-0132
- Recommended soft time interval of 40,000 hours or 7,000 cycles
- Key reliability service bulletins and replacements included in overhaul:
  - Digital processing module 3 solder joint inspection and R28 relocation
  - Input/output module solder joint inspection and bonding material removal
  - Replacement of pressure transducers with new CPXD4
  - Front panel assembly rigid flex replacement



# A FADEC overhaul performed by FADEC International will extend the life of your unit.

FADEC International designs, develops, and manufactures highly reliable full authority digital engine controls (FADEC) and supports them to ensure optimal performance throughout the technology's life cycle. Our robust overhaul process has been developed based upon extensive knowledge of severe engine environments, design attributes, and repair history to increase the reliability of aging FADEC.

## Why overhaul?

- Extends the serviceable lifetime
- Lowers maintenance costs and fleet disruptions
- Minimizes unscheduled removals and future major failures
- Updates hardware and software for enhanced system performance, efficiency, and reliability
- Preemptive repairs lessen expensive in-service failures

## What have we learned?

Through regularly conducted reliability reviews, we focus on gathering and analyzing field performance data to understand how the harsh engine environment and cycling affect operation. This process allows us to identify any potential aging or reliability issues that need to be addressed during an electronics overhaul.

- Expected failure times and rates are calculated using original configuration data, shop history repair information, and fleet hour data
- Analyzing gathered data using Six Sigma tools allows us to identify strategies to extend product life cycle

Knowledge gained from critical investigations of repetitive failures, system verification request, and age related deterioration allows us to identify:

- Failure root causes (cracked solder joints, sub-assemblies) can be determined by correlating data from systems with common failures
- Sub-assembly circuit verification and inspection have uncovered issues undetectable at the system level
- Passive front-panel circuitry verification of the shielding/grounding systems allow us to identify any missing resistive paths or paths that should not be present

We develop a tailored overhaul scope of work by collecting, analyzing, and investigating data to develop value added reliability and life extension solutions. The scope of work is reviewed, approved, and recommended by the original engine manufacturer type certificate holder.

### Contact for more information:

FADEC International  
c/o BAE Systems  
4250 Airport Expressway  
Fort Wayne, Ind. 46809  
Email: [baefwaservctr@baesystems.com](mailto:baefwaservctr@baesystems.com)

FADEC International  
c/o Safran Electronics & Defense  
13 rue Ampere  
91334 Massy, France  
Email: [fadec.csc@sagem.com](mailto:fadec.csc@sagem.com)

