AIRFRANCE INDUSTRIES KLM Engineering & Maintenance

ADAPTIVENESS®

GE90 ON-WING AGB REPLACEMENT

The MRO Lab
Adaptive Innovations

AFI KLM E&M has developed special tooling to enable GE90 AGB on-wing replacement. The manufacturer documentation calls for removing the engine and replacing the AGB in-shop and does not cover the possibility of replacing the AGB on-wing.

The issue

Sending a GE90 to the shop for AGB replacement requires a spare engine and so, increases the maintenance cost. The manufacturer's maintenance documentation calls for removing the engine and replacing the AGB in the shop. It does not cover the possibility of replacing the AGB on wing while the procedure exists for some other engine types we support (CFM56-5A/5B). Cost saving are achieved by combining on-wing maintenance and shop maintenance operations. The existing manufactuer's procedure was a constraint, because it requires to remove the engine and install a spare engine, and was considered too expensive.

The adaptive solution developed by AFI KLM E&M

AFI KLM E&M developed the tooling and the in-house procedure to enable GE90 AGB on-wing replacement. The tooling consists of a mechanical welded device that interfaces the elevator table and the AGB stand. This special in-house tooling has been designed to suit specific requirements of Boeing 777-200 and 777-300 AGBs, as well as engine position #1 and #2 configurations. An in-house procedure has also been developed and approved by GE. An AGB replacement was performed for the first time in 2012 using this tooling and this procedure. AFI KLM E&M is the only MRO in the world able to perform GE90 on-wing AGB replacement. This tooling can be shipped to any location to perform AGB replacement on a grounded aircraft at customer's premises or on a removed engine. The cost of implementing this special tooling is approximately $27,000.

Key benefits

- Main benefits:
  - Avoids engine change including splitting/mating
  - Avoids leasing a spare engine
  - Avoids the need to ferry a spare engine
  - Avoids the need to ferry the unserviceable engine to the shop
- It also means:
  - Less ground time: divided by 2
  - Fewer man hours (no engine removal/installation); approx. 400 fewer MH
  - Fuel savings; consumption cut by 3 (shorter engine run-up procedure)

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AFI KLM E&M - Adaptiveness® - March 2015 - Design: LOVE IT - Photos: Patrick Delapierre

"The tooling that enables GE90 AGB on-wing replacement"

This solution has been developed by the **AFI KLM E&M Powerplant Engineering Department,** part of the Engine Division. The solution was developed as part of our Quality and Innovation Program aimed at generating improvements and cost savings. For further information please contact your Sales Manager.

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