



Lufthansa Technik



World of services

**Mobile Engine
Services
in Asia Pacific**

Mobile Engine Services by Lufthansa Technik offers a broad spectrum of customized repair and maintenance solutions within Asia Pacific. These specialized solutions keep your engines flying while avoiding costly shop visits. They range from individual borescope inspections to comprehensive engine fleet programs, from scheduled maintenance events at your site to emergency overnight repairs.

Mobile Engine Services is Lufthansa Technik's fast track to avoid major shop visits. Depending on the requirements of the individual repair solution, the available options range from InFIELD services provided by our Airline Support Team (AST® Engines) to a number of smaller InSTATION events performed at our local repair station at Lufthansa Technik Shenzhen. A Cyclean® Engine Wash* at one of the locations of our continuously growing regional Cyclean® station network is also part of our InOPERATION offering for customers in Asia Pacific.

An exemplary case for the AST® Engines solutions

In standard operation, the variable stator vane (VSV) bushings on several CFM56 engine types start to show signs of wear at 16,000 to 20,000 operating hours. Since an inspection is not required before the 24,000 operating hour limit, the consequences can be drastic – at worst, they can result in an in-flight shutdown (IFSD). To prevent this and to avoid

Customer advantages

Minimized impact on aircraft operation through short turnaround times

Sustainable reduction of total MRO cost

No shipping cost if event is performed on-wing/on-site

Surgical repair solutions with minimum workscopes

Fast SB and AD implementation

a shop visit at the same time, Lufthansa Technik's Mobile Engine Services has developed a procedure to replace the inner and outer VSV bushings InFIELD at the aircraft's location. With the engine removed, the VSV bushings together with the also often damaged shrouds and seals are replaced. This procedure takes four days at most and can be carried out during a suitable layover, for example during a C-Check. This preventive measure gives the customer not only an extra exhaust gas temperature (EGT) margin of six to eight degrees Celsius but also the chance to use the engine for its entire potential life. Depending on the respective operator's flight profile, the CFM56 engine has an on-wing life of no less than 30,000 hours.

* For more information about Cyclean® Engine Wash, please refer to a separate data sheet or visit our website www.lufthansa-technik.com/cyclean

Mobile Engine Services: Your solution-oriented approach



Mobile Engine Services

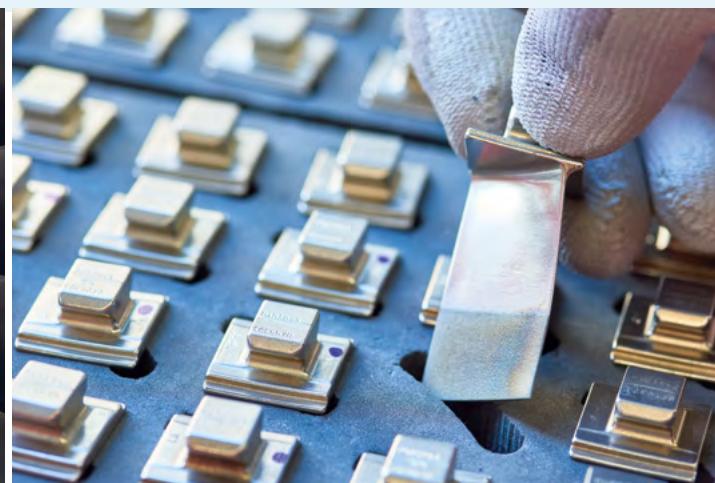
- Local presence in the regions (repair stations and mobile teams)
- Focus: Surgical repairs
- Keep your engine flying!

Lufthansa Technik Shenzhen capability list

| CFM56-5B/-7B | | V2500 |
|-----------------------------------------------------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------------|
| Engine  | Engine C-Check (Lufthansa Standard) |  |
| | QEC Installation |  |
| | QEC Removal and Inspection |  |
| | Video Borescope Inspection and Report |  |
| Fan Module  | Accessory Gearbox Replacement (AGB) |  |
| | Brg. No. 3 Front Seal (270°) Replacement |  |
| | Brg. No. 3 Stationary Air Oil Seal Replacement |  |
| | Fan Abradable Liner Replacement |  |
| | Fan Blade Replacement |  |
| | Fan Disk Replacement |  |
| | Fan Frame Bearing Unit Replacement (2BU) |  |
| | Inlet Gearbox Replacement (IGB) |  |
| | LPC Blade Replacement |  |
| | LPC Module Replacement |  |
| | Transfer Gearbox Replacement (TGB) |  |
| | VBV Guide Pad Replacement |  |
| Core Module  | Fuel Nozzle Replacement |  |
| | HPC Boro Blend Repair |  |
| | HPC VSV Bushing Repair |  |
| | HPT Blade Replacement |  |
| | HPT Module Replacement |  |
| | HPT NGV Module Replacement |  |
| | HPT Stg. 1 NGV Replacement |  |
| | IGV Actuation Ring Replacement |  |
| | LPT Stg. 1 NGV Replacement |  |
| | Top Case Repair |  |
| LPT Module  | LPT Module Replacement |  |
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Mobile Engine Services in Asia Pacific



Lufthansa Technik

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