



Lufthansa Technik

World of services  
**Mobile Engine  
Services  
in the Americas**

Mobile Engine Services by Lufthansa Technik offers a broad spectrum of customized repair and maintenance solutions within in the Americas.

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 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 stations in Tulsa, USA and Montréal, Canada. 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 the Americas.

#### 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

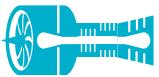
a shop visit at the same time, Lufthansa Technik's Mobile Engine Services has developed a procedure to replace the inner and outer VSV bushings InFIELD at the aircraft's location. With the engine removed, the VSV bushings together with the also often damaged shrouds and seals are replaced. This procedure 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](http://www.lufthansa-technik.com/Cyclean)

#### Mobile Engine Services: Your solution-oriented approach



## Lufthansa Technik capability list

CFM56-5B/-7B		V2500	
<b>Engine</b> 	Engine C-Check (Lufthansa Standard)		Engine C-Check (Lufthansa Standard)
	QEC Installation		QEC Installation
	QEC Removal and Inspection		QEC Removal and Inspection
	Video Borescope Inspection and Report		Video Borescope Inspection and Report
<b>Fan Module</b> 	Accessory Gearbox Replacement (AGB)		Angle Gearbox Replacement (AGB)
	Brg. No. 3 Front Seal (270°) Replacement		External Gearbox Carbon Seals Replacement
	Brg. No. 3 Stationary Air Oil Seal Replacement		Fan Blade Replacement
	Fan Abradable Liner Replacement		Fan Case Attrition, Anti-Ice or Acoustic Panel Replacement
	Fan Blade Replacement		Fan Case Replacement
	Fan Disk Replacement		Fan Exit Guide Vane Replacement
	Fan Frame Bearing Unit Replacement (2BU)		Fan Hub Replacement
	Inlet Gearbox Replacement (IGB)		Fan Trim Balance
	LPC Blade Replacement		LPC Module Replacement
	LPC Module Replacement		LPC Stg. 1.5 Blade Replacement
	Transfer Gearbox Replacement (TGB)		LPC 2.5 Bleed System Repair/ Replacement
			Main Gearbox Replacement (MGB)
			N1 Probe/Harness/Vibration Sensor Replacement
			No.3 Bearing Replacement
<b>Core Module</b> 	Combustion Chamber Replacement		Combustor Module Replacement
	Fuel Nozzle Replacement		Combustor Panel Replacement
	HPC Boro Blend Repair		Fuel Nozzle Replacement
	HPC VSV Bushing Repair		HPC Module Replacement
	HPT Blade Replacement		HPC Stg. 3.-8. Drum Replacement
	HPT Module Replacement		HPC Top Case Repair (Front Split Cases)
	HPT Front Rotating Air Seal Replacement		HPT Blade Replacement
	HPT NGV Module Replacement		HPT Module Replacement
	HPT Stg. 1 NGV Replacement		HPT T1/T2 Hub Replacement
	IGV Actuation Ring Replacement		HPT Single Nozzle Guide Vane (NGV) Replacement
	LPT Stg. 1 NGV Replacement		M-Flange Diff-NGV-HPT Case Replacement
	Top Case Repair		
<b>LPT Module</b> 	LPT Module Replacement		Brg. No. 5 and Carbon Seal Replacement
			Brg. No. 5 Blind Cap Seal Replacement
			Brg. No. 5 Oil Coking

 InFIELD (on-wing)

 InFIELD (on-site)

 Repair station



## Mobile Engine Services in the Americas



**Lufthansa Technik**

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