

Parts expertise

Comprehensive management and repair of engine parts, LRUs and accessories



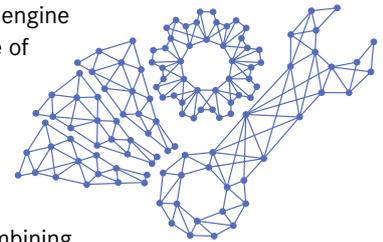
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At MTU Maintenance, we believe in repairing parts over replacing them. Because this helps customers save on material costs. We have 40 years' experience in repairing modules, piece parts and accessories and are well-known for our high-quality, cost-effective and customized repair solutions. As engine experts who combine in-depth engineering expertise with intelligent creativity, they set us apart from our competition.

We offer OEM repairs according to engine manual standards, as well as alternative repairs. The latter provide impressive benefits for our customers, including extended component life, reduced fuel burn, lower scrap rates and, in turn, lower cost. Our technologies are proprietary and have been approved by the relevant aviation authorities, such as the FAA.

Repairs are carried out throughout our global network, spanning across Asia, Europe and the Americas. This range ensures the cost and

quality that customers rely on from MTU, as well as availability and support. We have extensive repair capabilities across the MTU Maintenance engine MRO portfolio, one of the largest in the world with nearly 30 engine types.



Furthermore, we offer packages combining all MTU repair services, including AOG support, logistics and warehousing such as:

- high-tech repairs
- OEM repairs and service bulletin updates
- technical support
- AOG support
- spare parts supply, logistics services and on-time delivery to wherever in the world the parts are needed.

In-house repair capabilities

	Fan	LPC airfoils	HPC airfoils	Compressor	HPT airfoils	LPT airfoils	Cases & frames	Gearbox	Accessories	Life limited parts
Widebody jets										
CF6-80C2	■	■	■	■	■	■	■	■	■	■
GE90-110B / -115B	■	■	■	■	■	■	■	■	■	■
GEEx (TCF)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	■	n.a.	n.a.	n.a.
GP7000 (LPT)	n.a.	n.a.	n.a.	n.a.	n.a.	■	■	n.a.	n.a.	■
Narrowbody and regional jets										
CF34-8 / -10E	■	n.a.	■	■	■	■	■	■	■	■
CFM56-5B	■	■	■	■	■	■	■	■	■	■
CFM56-7	■	■	■	■	■	■	■	■	■	■
PW2000	■	■	■	■	■	■	■	■	■	■
PW1000G family	■	■	■	■	■	■	■	■	■	■
V2500-A5	■	■	■	■	■	■	■	■	■	■
Business jets										
JT15D ¹	■	■	■	■	■	■	■	■	■	■
PW300	■	■	■	■	■	■	■	■	■	■
PW500	■	■	■	■	■	■	■	■	■	■
PW600 ¹	■	■	■	■	■	■	■	■	■	■
PW800	■	■	■	■	■	■	■	■	■	■
Turboprops										
PT6A	n.a.	■	■	■	■	■	■	■	■	■
PW100 ¹ / 150A ¹	n.a.	■	■	■	■	■	■	■	■	■
Helicopters										
PT6B / -C / -T ¹	n.a.	■	■	■	■	■	■	■	■	■
PW200	n.a.	■	■	■	■	■	■	■	■	■
PW210 ¹	n.a.	■	■	■	■	■	■	■	■	■

■ planned ■ existing ¹ Repair capabilities within the P&WC network ² Newly introduced; capabilities to be added



Dedicated repairs



Life-limited parts

Life-limited parts (LLPs) are among the most cost-intensive parts of an engine and repairs are challenging. But MTU's creative engineers never shy away from a problem. We offer a wide range of licensed high-tech repair processes for the entire spectrum of LLPs. In addition to OEM repairs, MTU develops its own repairs for life-limited parts, such as for the V2500 HPC drum. Such development requires comprehensive design, material, system understanding, but provides great rewards: namely, reduced cost and improved

performance. In fact, we are the only non-OEM design owner to have received certification for a major LLP repair.

Key processes:

- Adaptive milling
- Chromium/nickel plating and stripping
- Laser welding
- Non-destructive testing
- Plasma spray coating
- Surface treatments

Cold-section airfoils

We have a wide range of repair capabilities for fan, low- and high-pressure compressor airfoils. Additionally, MTU has developed special repair techniques, such as the erosion-resistant coating ERCoat^{eco}, which reduces fuel consumption, minimizes material costs and provides longer on-wing times. What's not to like?

Key processes:

- Adaptive machining
- Application of anti-friction coatings (dovetail coating)
- Chord width restoration (CWR)
- ERCoat^{eco} Erosion-Resistant Coating
- Surface finish repairs
- Tip Protection
- Tip welding
- Ultrasonic inspection by immersion (fan blades)

Hot-section airfoils

These airfoils are exposed to extreme wear and tear during operations, and they often show it. We offer a wide range of repair processes to increase their service-life and make sure they are performing at full potential.

Key vane and shroud processes:

- Chemical vapor deposition (CVD)
- Fluoride ion cleaning (FIC)
- Thermal barrier coating (TBC)
- Throat area control/restoration
- MTU^{Plus} Airfoil Replacement
- MTU^{Plus} Brazing

Key blade processes:

- Adaptive milling
- Chemical vapor deposition coating (CVD)
- Electron beam physical vapor deposition coating (EB-PVD)
- Full repair/rejuvenation
- Laser drilling
- MTU^{Plus} Balance Stripping
- MTU^{Plus} Laser Powder Cladding (tip repair)
- MTU^{Plus} Tip Protection
- MTU^{Plus} Under Platform Coating

Cases and frames

Cases and frames are among the most highly stressed parts of an engine. But MTU is at hand with technologically advanced welding and plasma repair processes that can restore these parts to serviceable condition.

Key processes:

- Atmospheric plasma spraying (APS) and wire-feed plasma spraying

- Dimensional restoration
- Electron-beam welding
- Flange/section replacements
- Laser welding
- Low-pressure plasma spraying (LPPS)
- Microplasma-welding
- Painting
- Rub-coat renewal
- Weld repairs

Combustor

The highest temperatures during engine operation occur in the combustor section. Which is why we protect these parts with thermal barrier coatings and air cooling holes.

Key processes:

- Extensive weld repairs
- Section replacements
- MTU^{Plus} Thermal Barrier Coating

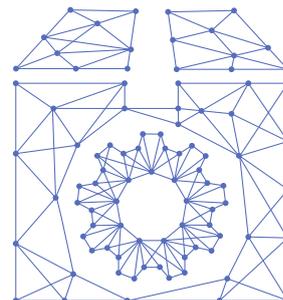


LRU Management

Our LRU management services range from straightforward maintenance and repair during on and off-wing maintenance events all the way to comprehensive, hassle-free parts management, including all line replaceable units (LRU) such as engine accessories.

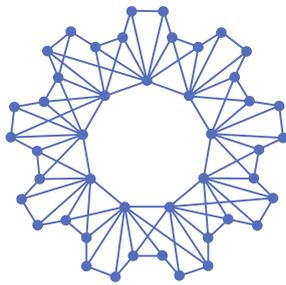
We take care of the entire repair cycle including vendor management and logistics, so you only have a single supplier for all LRUs and accessories and benefit from preferred pricing through our vendor network.

Furthermore, we operate an LRU pool and can include exchange and material replacement services wherever needed. Additionally, we can provide and manage a main base kit. All of this results in significant cost reductions for customers and faster service, with LRUs reaching you within 24 hours if required.





Accessories



Our team of experts also refurbish and repair engine accessories. While not core engine components, these parts, for instance starters, fuel and hydraulic pumps, actuators, sensors, valves and tubing, are essential for its operation – much like the coronary blood vessels around a heart.

Engine accessory portfolio:

- CF34
- CF6
- CFM56
- GE90
- PW2000
- V2500

Services:

- Bench checks
- Repairs
- Overhaul (refurbishments)

We are global

