

MTU performs component repairs for the following engine types:

- V2500
- PW2000
- PW4000 Growth
- CF34
- CFM56

While MTU Aero Engines has a major development and manufacturing stake in some of these programs, it is moreover fully qualified for the maintenance and repair of all of these engines.

What components does MTU repair?

Stationary components, such as

- Ducts
- Static seal segments
- Inner duct segments
- Diffuser supports
- Support ring assemblies
- Exhaust cases

Rotating components, such as

- Disks
- Hubs
- Air seals

Airfoils, such as

- Fan blades

Where else can customers benefit from MTU's expertise?

- Combustion chamber repairs
- Hot & cold section case repairs
- Shaft repairs
- Hot & cold section blade repairs
- Hot & cold section vane repairs
- Accessories

For capability lists, contact:

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Areas of competence

Pre-treatment

- **Cleaning**

Component degreasing, derusting, descaling, repainting and activating.

- **Etch inspection**

Electrolytic smoothing, deburring and rounding of component edges using special-purpose electrolytes.

- **Peening/blasting**

Component surface compaction peening or cleaning using glass beads, plastic media or metal shot.

Coating

- **Plating**

Deposition of metallic and dispersion coatings, as well as anodizing, chromating and phosphating to produce quality functional surfaces.

- **Thermal spraying**

Deposition of quality metallic and nonmetallic coating systems by means of flame spraying, atmospheric plasma spraying and high-speed oxy-fuel flame spraying.

- **Painting**

Application of anti-friction paints, inorganic high-temperature paints and organic paint coats.



Heat treatment

- **Annealing**

To achieve a uniform microstructure and proper hardness, normalizing, soft annealing, recrystallizing and stress relieving are used.

- **Hardening**

To prolong the life of components, they are hardened and tempered.

- **Thermochemical processes**

For highly-stressed components, case-hardening, carbonitriding, nitriding, aluminizing and chromating are used.

- **Brazing and joining**

For a good joint between materials, diffusion bonding, induction and high-temperature vacuum brazing are used.

Welding

- Manual and CNC TIG welding

- CNC laser welding

- CNC plasma welding



Machining

- NC/CNC milling
- NC/CNC turning
- NC/CNC grinding
- NC drilling
- NC/CNC electro-discharge machining

Inspection

Surfaces are inspected for defects using penetrant, magnetic particle, eddy current and radiographic inspection processes.

Service

• Service team

A staff of more than 300 is taking care of all matters, however small.

• Quality assurance

Each manufacturing process is reviewed using separate tests. Regular reviews of the test procedures and various audits make sure MTU's high product quality levels are maintained. MTU has been certified to DIN EN ISO 9001.



Certificates and approvals

MTU's intent is to achieve the high quality standards its customers have a right to expect. This is why MTU has instituted a process-oriented integrated environmental and quality management system that has since become a benchmark for the industry. The first combined quality/environment audit at MTU's Munich facility was completed successfully in 2002.

- DIN EN ISO 9001
[Quality Management Systems; Requirements; (ISO 9001; 2000)]
- EN 9100; AS 9100
(Aerospace series; Quality Management Systems; Requirements)
- AQAP 2110
(NATO Quality Assurance Requirements for Design, Development and Production)
- DIN EN ISO 14001
[Environmental Management Systems; Requirements with Guidance for Use (ISO 14001; 1996)]
- OHRIS
(Occupational Health and Risk Management System)
- EASA Part 21 (DE.21G.0053)
- EASA Part 145 (DE.145.0019)
- 14 CFR Part 145 (CK5Y782M)



The partner for component repairs

- Quality
- On-time delivery
- Reliability

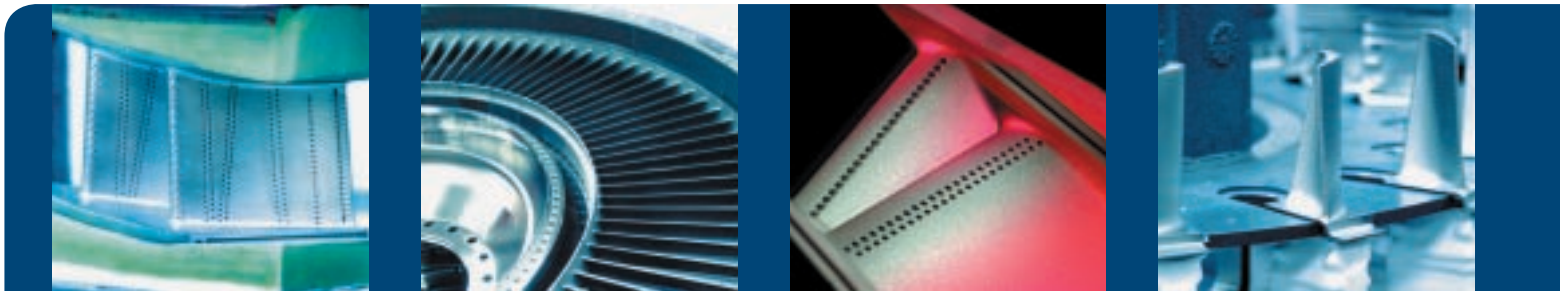
Whenever a competent partner in manufacturing technology is needed to satisfy the most exacting requirements MTU Aero Engines is the partner of choice.

So why come to MTU?

- More than 50 years in the component repair business, both military and commercial.
- A high level of quality and reliability at an affordable price.
- Pooled expertise and experience of specialists from engineering, manufacturing and repair enable MTU to develop, certify and perform the most demanding repair work.
- Sophisticated repair procedures and process techniques, as well as highly advanced equipment, ensure customers get the finest aviation-compatible quality.
- Highest flexibility enables MTU to find optimum solutions for all customer types, requirements and needs.

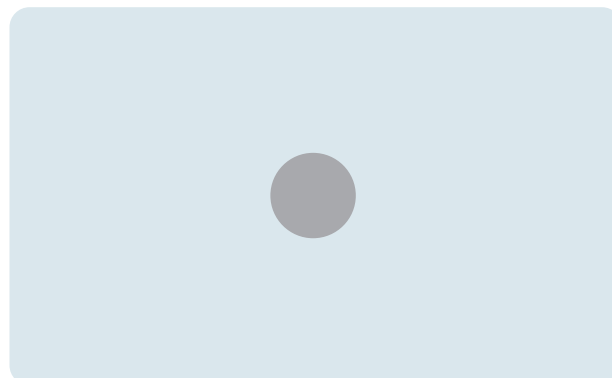
Meeting extremely ambitious challenges is part of MTU's day-in, day-out business.

Knowledgeable staff is available by telephone or e-mail to answer your questions around the clock.



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Component and Parts Repair Services



Company profile

Be it military or commercial, MTU Aero Engines, Germany's leading engine manufacturer, develops, manufactures and provides service support for aircraft engines and industrial gas turbines.

Its customers are engine and gas turbine operators across the globe, ones that appreciate expertise, comprehensive know-how and reliable partnership in the implementation of stringent requirements.

Services

Apart from developing and manufacturing engines, modules and components, MTU also repairs engine components at its various locations. The high quality and reliability of its products and services make MTU a preferred partner, worldwide.



● Commercial MRO services are provided by the locations marked orange.



Quality and reliability

Its global links and networks, as well as its time-proven cooperative ventures with leading systems and engine manufacturers, ensure MTU will be able to deliver top performance also down the road.

Jointly with its partners in cooperative efforts, MTU provides superior engines. Its major partners are:

- Pratt & Whitney
- General Electric
- Rolls-Royce
- Snecma Moteurs
- Volvo Aero
- Avio

