

# The aero engine experts

Intelligence and creativity





# We are engine experts



**MTU Maintenance is a business unit of MTU Aero Engines AG, a world-class technology leader in the aviation industry. We combine our engineering expertise with in-depth market understanding and robust financial strength to provide customers with optimum engine solutions. Be part of it!**

## Our background

MTU Maintenance is the global market leader in customized service solutions for aero engines. As engine experts, we offer a wide range of individually-tailored solutions encompassing innovative maintenance, repair and overhaul (MRO) services, integrated leasing and asset management.

Our people make the difference: We are passionate about engines and dedicated to supporting our customers. We marry world-class engineering with intelligent creativity and never give up unless an optimal solution has been found.

This is demonstrated by our track record of great customer relationships. MTU Maintenance and its 5,500-strong workforce currently perform over 1,200 shop visits a year for more than 270 airline customers and over 30 engine types. We are certified by the FAA, EASA and CAAC and have over 50 country-specific certifications throughout our network.

# We are global

**MTU Maintenance Lease Services B.V.** is a successful and fast-growing leasing specialist. On the market since 2014, our leasing and asset management experts continually innovate solutions for asset owners and operators such as technical asset management (TAMS). Its portfolio mirrors the MTU Maintenance engine portfolio.

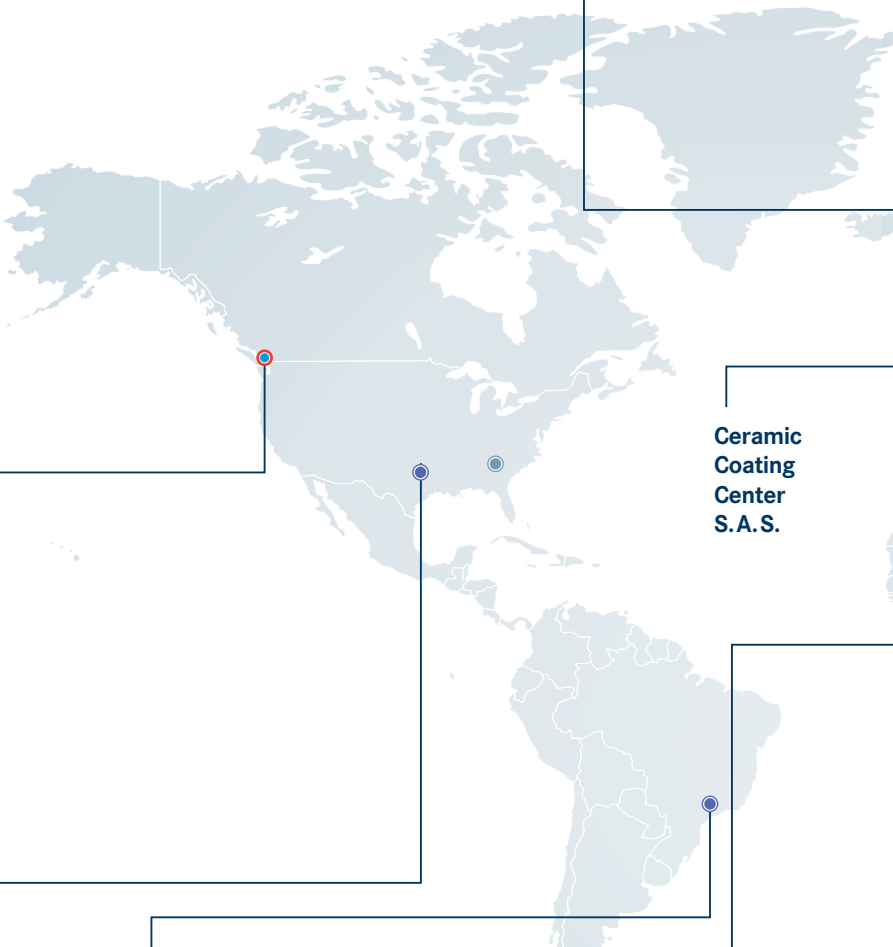


With locations in the Americas, Europe and Asia, capabilities for on-site and near-wing services, as well as representative offices, MTU Maintenance and its 5,500-strong workforce is available wherever and whenever needed.

- Engine MRO
- Specialized component repair
- Services beyond MRO
- P&WC CSC network
- Representative offices
- On-site service center



Our North American cousin, **MTU Maintenance Canada Ltd.**, is specialized in solutions for CF6, CFM56 and V2500 commercial engines and their military variants as well as comprehensive accessory and LRU services for engines ranging from the CF34 to the GE90 engine families.



**Ceramic Coating Center S.A.S.**



**MTU Maintenance Dallas Inc.**  
The location at Fort Worth Alliance Airport is MTU's main North American hub for ON-SITE<sup>Plus</sup> services. It is able to perform hospital shop visits and a wide range of on- and near-wing engine repairs. The facility recently expanded its capacities and capabilities and will soon feature a test stand with up to 100,000 lbs of thrust.



**MTU Maintenance do Brasil Ltda**  
Located in São Paulo, the company offers fast and convenient ON-SITE<sup>Plus</sup> services such as borescope and end-of-lease inspections for IAE's V2500 and various GE Aerospace engines. In early 2023, the facility received FAA-EASA dual-release approval for the CFM56 engine.

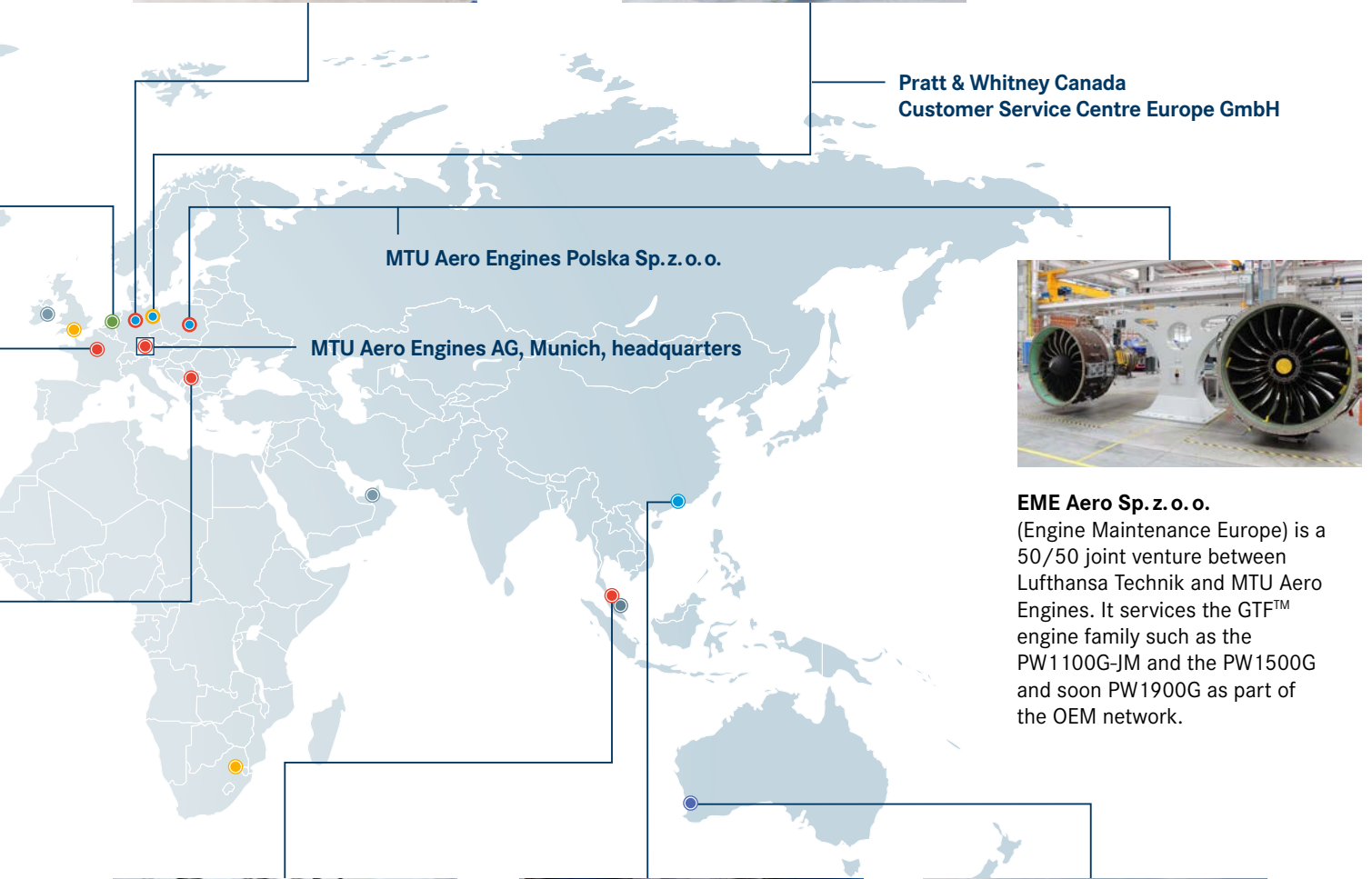


**MTU Maintenance Serbia d.o.o.**  
The latest addition to MTU's global network is a wholly-owned parts repair facility just outside of the Serbian capital Belgrade. It is equipped with state-of-the-art equipment for repairs of high-value parts, such as fan blades, cases, and low-pressure compressor airfoils for a large variety of engine types in MTU's portfolio.

**MTU Maintenance Hannover GmbH** is our birthplace and the largest facility within the group. Specialized in MRO services for large and medium-sized aero engines, the facility is the go-to shop for engines such as the GE90, CF6-80C2, CFM56-7, PW1100G-JM and V2500, as well as high-tech repairs.



**MTU Maintenance Berlin-Brandenburg GmbH** has been part of the MTU network for over 30 years and focuses its attention and expertise on the small and mighty CF34 and Pratt & Whitney Canada engines. In 2021, the facility added the CFM56-7B to its portfolio.



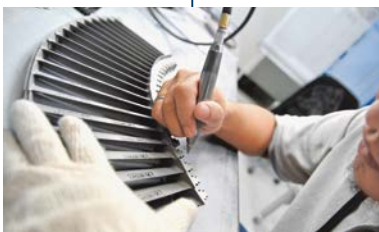
**Pratt & Whitney Canada  
Customer Service Centre Europe GmbH**

**MTU Aero Engines Polska Sp.z.o.o.**

**MTU Aero Engines AG, Munich, headquarters**



**EME Aero Sp.z.o.o.**  
(Engine Maintenance Europe) is a 50/50 joint venture between Lufthansa Technik and MTU Aero Engines. It services the GTF™ engine family such as the PW1100G-JM and the PW1500G and soon PW1900G as part of the OEM network.



**Airfoil Services Sdn. Bhd. (ASSB)** in Malaysia does as the name suggests: airfoil repairs for low-pressure turbines and high-pressure compressors. A 50/50 joint venture with Lufthansa Technik, the facility enjoys strong demand for its dedicated component repair services, in particular for CF34, CF6, CFM56, and V2500 airfoils.



Our Asian pearl, **MTU Maintenance Zhuhai Co. Ltd.**, a 50/50 joint venture with China Southern, is located in the Zhuhai free trade zone near Hong Kong and Macau. The facility is the largest engine shop in Asia and narrowbody engine specialist. Its portfolio includes CFM56, LEAP, PW1100G-JM and V2500 engines.



**MTU Maintenance Service Centre Australia Pty. Ltd.**

Founded originally as a gas turbine field service shop in 2014, it recently expanded its capabilities to aero engines as part of MTU's ON-SITE<sup>Plus</sup> service network. In early 2023, it obtained CASA Part 145 approval for CF34-10E engines.

# Our intelligent solutions

At MTU Maintenance, we understand that operators increasingly require services tailored to their specific needs in order to control and optimize cost. Additionally, we know that residual value is key to lessors and asset managers. Our solutions meet these needs.

## PERFORM<sup>Plus</sup>

MRO makes up the core of our services and we are exceptional at it. For operators of newer engines, it is all about generating more flight hours with customized solutions. We achieve this by intelligent fleet management that optimizes removals across a defined period. This is complemented by predictive maintenance, based on engine trend monitoring, on-site services and spare engine support. Once an engine comes into the shop, our customized workscoping, high-tech EASA-FAA approved repairs and our engineering expertise help lower overall costs.

## SAVE<sup>Plus</sup>

We know that as engines age, MRO costs increase. And we understand that whatever engines operators fly, they want to do this in the most cost-effective way. Which is why we provide smart strategies for mature engines.

Our fully independent solutions include alternative MRO, such as smart repairs and tailored worksopes to suit operators' remaining flight periods as well as material salvation and intelligent teardowns. Furthermore, these services can be combined with alternatives to MRO such as leasing in of green-time engines or exchanging engines for the remaining period until phase-out.





- SERVICE<sup>Plus</sup>**
- AOG support
  - Engine fleet management with CORTEX
  - Engine leasing
  - Engine trend monitoring
  - Engine/module MRO
  - LRU and parts management
  - ON-SITE<sup>Plus</sup>
  - Parts and accessory repair
  - Service investigation and failure analysis
  - Spare parts, LRU and QEC
  - Teardown
  - Technical asset management

## MOVE<sup>Plus</sup>

MTU Maintenance offers portable MRO solutions to lessors and asset owners across the lifecycle with the goal of mitigating technical and financial risks and maximizing revenue streams. Our services enable fast remarketability of assets through easy, simplified transfers and predictable costs with no unnecessary MRO work. Customers have the choice to opt in or opt out of our services at any point in their asset's lifecycle.

Lessors are directly involved in engine maintenance decisions – particularly during transitions between lessees – in managing and optimizing maintenance reserves and choosing the timing of shop visits. Our solution also includes intelligent end-of-life strategies and extensive technical consultancy.

## VALUE<sup>Plus</sup>

Towards the end of aircraft life, asset owners are looking to get the most value from their engines. Our effective end-of-life asset management ensures the best exit strategy for the asset. This can range from generating additional income through green-time lease out to sale, exchange and trade all the way to maximizing the material value of the asset through teardown and material management. Our competence as an MRO provider, parts trader and lessor means that whatever the engine or parts, we will find the right solution and the right price for you.

## SERVICE<sup>Plus</sup>

In addition to these fully integrated service solutions, we also provide a series of additional and individual services ranging from single MRO events, ON-SITE<sup>Plus</sup> services to complementary services such as technical asset management services, LRU management, fleet management and engine trend monitoring. All of these services can be provided on an ad-hoc basis, or combined as part of a customized solution.

Whether it's a planned repair or an Aircraft on Ground (AOG), MTU's ON-SITE<sup>Plus</sup> engine experts from seven facilities across the globe provide an extensive spectrum of services, from borescope inspection to module swaps and hospital shop visits for the largest engine portfolio worldwide.

Over the past few years we have been focusing on further digitalizing and improving our services, such as MTU's engine monitoring technology WebETM 3.0, which we have outfitted with new unique features for advanced diagnosis, analysis and prognosis. MTU's latest innovation is CORTEX, a fleet management software that combines MTU's technical expertise with data, algorithms and artificial intelligence to provide tailored, immediate and proactive MRO planning options for entire engine fleets. It helps to reduce maintenance and operating cost, and increase dispatch reliability for our customers.

# We have the largest portfolio worldwide

## From business jets to widebody engines

MTU Maintenance has the largest engine portfolio worldwide and is proud of this diversity. We are the leading independent MRO service provider for all engines in our portfolio, including the popular CFM56, GE90 and V2500 engines, and renowned for our in-depth understanding of how these engines tick. Furthermore, we lend our MRO expertise to the OEM for next generation engines such as the PW1100G-JM, GEnx and GP7000 and share synergies with our parent company, MTU Aero Engines, which has OEM program shares.

We also carry out MRO activities on behalf of Pratt & Whitney Canada Customer Service Centre Europe GmbH, a 50/50 joint venture between MTU Maintenance Berlin-Brandenburg and Pratt & Whitney Canada for the market area Europe, Middle East and Africa. Through this joint venture, we provide services for the business jet engines JT15D and PW600, as well as the helicopter engines PT6B/C/T, in addition to the PW&C engines served in-house at our Ludwigsfelde location.

### The number one independent provider

#### CF34-8/10E



Start year	2003
Shop visits <sup>1</sup>	1,500+
Market share	12%

#### CFM56-2<sup>\*</sup>/5B/7



Start year	1999
Shop visits <sup>1</sup>	2,600+
Market share	7%

#### CF6-80C<sup>\*</sup>



Start year	1981
Shop visits <sup>1</sup>	4,000+
Market share	18%

#### GE90-110/115B



Start year	2010
Shop visits	100+
Market share	7%

#### LEAP-1A/B



Start year	2019
Shop visits	50+
Market share	9%

#### PW2000



Start year	1988
Shop visits	700+
Market share	18%

#### V2500-A5



Start year	1989
Shop visits <sup>1</sup>	6,300+
Market share <sup>2</sup>	33%

<sup>1</sup> incl. ceased subtypes | <sup>2</sup> incl. IAE volume

<sup>\*</sup> incl. military applications: F108, F138



A strong OEM partner

**GE9X**



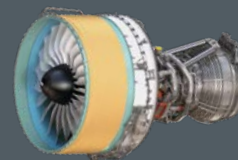
Start year	planned
Workscope	TCF MRO
RRSP share	4%

**GENx**



Start year	2015
Workscope	TCF MRO
RRSP share	6.6%

**GP7000**



Start year	2010
Workscope	LPT MRO
RRSP share	22.5%

**PW 1100G-JM**



Start year	2016
Workscope	Engine MRO
RRSP share	18%

**PW 1500G/1900G**



Start year	2021/2023
Workscope	Engine MRO
RRSP share	17%

**V2500-A5/E5**



Start year	1989
Workscope	Engine MRO
RRSP share	16%

P&WC engines<sup>3</sup>

**PT6A**



**PW200/210**



**PW300**



**PW500**



**PW800**



Start year	1992	2000/2016	2002	2005	2019
Workscope	Engine MRO	Engine MRO	Engine MRO	Engine MRO	LPT MRO <sup>4</sup>
Shop visits	2,800+	1,200+	350+	200+	/

<sup>3</sup> Served in-house at MTU Maintenance Berlin-Brandenburg GmbH | <sup>4</sup> Engine MRO planned  
All data from year 2022.

# Our people are our future



## Staff and training

A company is nothing without its expert workforce, especially in the MRO industry. At MTU Maintenance, it is our collective brain that produces the best solutions for our customers. As such, we invest heavily in our staff: We provide apprenticeship schemes and training for mechanics, continual education for engineers and administrative staff, as well as management schemes for bright sparks. We employ a workforce of over 5,500 from over 60 different nationalities and are always looking for the next industry talent.

## Invest, grow and succeed

MTU believes in the strength of the aviation industry and the desire to travel. As such, we remain committed to our organic growth strategy. We have recently expanded our facilities in Berlin-Brandenburg, Hannover, and through a move to a brownfield site, also increased our available space in Vancouver, Canada. Additionally, we opened a brand-new component repair facility in Serbia at the end of 2022 and are constructing a second facility close to our existing one in Zhuhai, China.

As we set our sights on the future, we continue to invest in our people, our network of facilities and their capabilities and capacities. One of our main goals is to train and develop new generations of engine experts for a growing global MRO market. We are also focusing our efforts on further digitalizing our services for even better, faster and more responsive interaction with our customers.



MTU

FRAGILE. USE PROTECTIVE PAD  
WHEN HOISTING IN BELLANZONI  
LIMIT 2 PERSONS AT ONE TIME



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