Investor & Analyst Day 2016
MTU Aero Engines AG

Rzeszów, 14th December 2016
# Agenda – MTU Investor and Analyst Day 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Agenda</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 9:10</td>
<td>Welcome</td>
<td>Michael Röger, VP Investor Relations</td>
</tr>
<tr>
<td>9:10 – 9:30</td>
<td>MTU’s Market Environment: The Cycle Continues</td>
<td>Reiner Winkler, Chief Executive Officer</td>
</tr>
<tr>
<td>9:30 – 10:40</td>
<td>Technology Leadership</td>
<td>Dr. Rainer Martens, Chief Operating Officer</td>
</tr>
<tr>
<td></td>
<td>Cost Leadership</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Industry 4.0 @ MTU</td>
<td></td>
</tr>
<tr>
<td>10:40 – 11:00</td>
<td>Coffee Break</td>
<td></td>
</tr>
<tr>
<td>11:00 – 12:20</td>
<td>MTU’s Partnership Strategy: Teaming up for Growth</td>
<td>Michael Schreyögg, Chief Program Officer</td>
</tr>
<tr>
<td>12:20 – 13:20</td>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>13:20 – 14:20</td>
<td>MTU’s Financials and Outlook: Reap the Benefits</td>
<td>Reiner Winkler, Chief Executive Officer</td>
</tr>
<tr>
<td>14:20 – 16:00</td>
<td>MTU Polska Shop Tour</td>
<td>Krzysztof Zuzak, Managing Director of MTU Polska</td>
</tr>
</tbody>
</table>
MTU’s Market Environment: The Cycle Continues
Reiner Winkler, Chief Executive Officer

Rzeszów, 14th December 2016
Market indicators support our end customers

<table>
<thead>
<tr>
<th>Airline Customers</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil</td>
<td>$52</td>
<td>$43</td>
</tr>
<tr>
<td>Traffic growth</td>
<td>+7.4%</td>
<td>+6.2%</td>
</tr>
<tr>
<td>Load factors</td>
<td>80%</td>
<td>81%</td>
</tr>
</tbody>
</table>

Continuing low fuel prices …

… stimulates traffic via low fares

Load factors at a historical peak
### Market environment supports new engine deliveries as well as engine aftermarket

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engine Deliveries</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deliveries</td>
<td>3,130</td>
<td>3,150</td>
</tr>
<tr>
<td>Backlog</td>
<td>26,030</td>
<td>26,150</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fleet growth</strong></td>
<td>+5.0%</td>
<td>+5.2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Engine Aftermarket</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Park rate</td>
<td>9.0%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Retirements</td>
<td>820</td>
<td>800</td>
</tr>
</tbody>
</table>

Delivery rates are expected to go up
Backlog will turn into deliveries
Fleet growth has been above average over the last few years
Low rate benefits mature engines
Retirements declined since 2014

Source: Ascend, MTU; airliner engines, firm orders only
MTU’s continuous growth is supported by all market segments

OEM market volume ($bn)

<table>
<thead>
<tr>
<th></th>
<th>2016-2026</th>
<th>CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total market</td>
<td>Mid to high single digit</td>
<td></td>
</tr>
</tbody>
</table>

CAGR

<table>
<thead>
<tr>
<th>Aircraft segment</th>
<th>2016-2026</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widebody (50-120 klb)</td>
<td>Mid single digit</td>
</tr>
<tr>
<td>Narrowbody (20-50 klb)</td>
<td>Mid single digit</td>
</tr>
<tr>
<td>Regional jet (13-24 klb)</td>
<td>High single digit</td>
</tr>
<tr>
<td>Business jet (3-16 klb)</td>
<td>High single digit</td>
</tr>
</tbody>
</table>

Source: MTU Dec 2016; escalated

MTU projects outperformance of market growth in 3 out of 4 segments
Over-proportional growth in three out of four segments
Increasing market shares, program shares and new business segments

Above average growth

**Business jets**
- MTU is growing in the large business jet segment with future Gulfstream business jets
- Revenue to triple within 10 years

**Regional jets**
- Future will be dominated by GTF
- Increased market share from 0 to 90%

**Narrowbodies**
- Existing market share increased
- Excellent market position further improved

**Widebodies**
- Partner in all new GE widebody programs
- Strong partnership with GE Aviation

14th December 2016
Investor & Analyst Day 2016, Rzeszów
MTU achieved higher CAGRs than industry average during good times and was less influenced by crises in bad times.

Source: MTU internal, Oxford Economics (Oct. 2016)
Main indicators that influence the resilience of our industry

<table>
<thead>
<tr>
<th>Demand indicators</th>
<th>Early '00s</th>
<th>Mid-late '00s</th>
<th>Today</th>
<th>Influence on Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backlog</td>
<td>4 yrs</td>
<td>8 yrs</td>
<td>8 yrs</td>
<td>✓ Higher rates needed to meet orders</td>
</tr>
<tr>
<td>Technology status</td>
<td>'90s</td>
<td>'90s</td>
<td>'10s</td>
<td>✓ Step change in efficiency achieved</td>
</tr>
<tr>
<td>Cost of debt</td>
<td>high</td>
<td>mid</td>
<td>low</td>
<td>✓ Easier access to financing options for airlines</td>
</tr>
<tr>
<td>Oil</td>
<td>30</td>
<td>80</td>
<td>50</td>
<td>✓ Below $80, continued traffic stimulation</td>
</tr>
</tbody>
</table>

Important key indicators in better shape than at any time in the last 15 years
Conclusion

MTU's market is in excellent shape:
No indication of weakness of demand

MTU has the right portfolio:
MTU has positioned itself better than ever to move forward

MTU is reliable:
In the past, MTU weathered well through all times
Technology Leadership –
Status Development Programs and Production Ramp-up
Dr. Rainer Martens, Chief Operating Officer
Rzeszów, 14th December 2016
Geared Turbofan – flying in-service
First Geared Turbofan engine flights

- Bombardier CS100: 16.09.2013
- Mitsubishi Regional Jet: 11.11.2015
- Irkut MS-21: open
- Airbus A320neo: 25.09.2014
- Airbus A321neo: 09.03.2016
- Embraer E190-E2: 23.05.2016
- Bombardier CS300: 27.02.2015
- Embraer E175-E2: open

Six maiden flights with Geared Turbofan were accomplished in recent years, with two more on their way
Geared Turbofan – flying in-service
A very successful new product family

The eight-engine product family powers eleven different aircraft and provides a wide range of thrust.
Geared Turbofan – flying in-service
Deliveries and in-service experience

- Nine airlines are now operating over 30 aircraft powered by Geared Turbofan engines
- The engines have already accomplished more than 17,000 flights
- The dispatch reliability is already very high in early phase
- Early teething issues are fixed – motor-to-start time and nuisance messages
- Focus is on
  - product maturity
  - delivery performance and stabilizing the supply chain
  - completion of MRO-readiness.

Over thirty Geared Turbofan aircraft are in-service at nine airlines
Geared Turbofan – flying in-service
Features and metrics of PW1100G-JM

- Higher propulsive efficiency
- Higher low spool component efficiency
- Shorter, lighter

Source: P&W

FDGS
3 stg LPC
8 stg HPC

2 stg HPT
3 stg LPT

- 25% fewer stages
- 45% fewer airfoils
- Lower cycle temperature

Fuel Burn ✓ Reduced by approx. 16%
Noise ✓ Noise footprint reduced by approx. 75%
CO₂ / NOx ✓
Maintenance cost ✓

Specifications and targets have been proven in service
### Update: Development milestones of new engine programs

<table>
<thead>
<tr>
<th></th>
<th>PW1500G C Series</th>
<th>PW1100G - JM A320neo</th>
<th>PW1200G MRJ</th>
<th>PW1400G MS-21</th>
<th>PW1900G 2nd Gen E-Jets</th>
<th>PW800 G500 / G600</th>
<th>GE9x B777x</th>
<th>T408 CH-53K</th>
</tr>
</thead>
<tbody>
<tr>
<td>First engine to test</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Tested in flying testbed</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>N/A</td>
<td>✓</td>
<td>✓</td>
<td>2017</td>
<td>N/A</td>
</tr>
<tr>
<td>Engine certification</td>
<td>✓</td>
<td>✓</td>
<td>2017</td>
<td>✓</td>
<td>2017</td>
<td>✓</td>
<td>2018</td>
<td>2018*</td>
</tr>
<tr>
<td>First flight</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>2017</td>
<td>✓</td>
<td>✓</td>
<td>2018</td>
<td>✓</td>
</tr>
<tr>
<td>Entry into service</td>
<td>✓</td>
<td>✓</td>
<td>2018</td>
<td>2019</td>
<td>2018</td>
<td>2017</td>
<td>2020</td>
<td>2019</td>
</tr>
</tbody>
</table>

* T408: Certification of whole aircraft system after flight testing is completed

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**Steady progress on all platforms achieved**
Update: Production ramp-up

Key ramp-up projects

- **New blisk shop**
  - Progress status: In operation

- **Optimize rotor and stator production lines**
  - Progress status: In operation

- **Extension of MTU-AE Polska**
  - Progress status: In operation

- **Engine assembly**
  - Progress status: In operation

- **Logistics building**
  - Progress status: In operation

- **Shop floor management**
  - Progress status: In operation

Relevant projects have been completed. Infrastructure and equipment are ready for ramp-up
Update: Production ramp-up

Production rates

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2015</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbines</td>
<td>800</td>
<td>1150</td>
<td>1850</td>
</tr>
<tr>
<td>Compressors</td>
<td>200</td>
<td>320</td>
<td>1580</td>
</tr>
<tr>
<td>Turbine center frames</td>
<td>30</td>
<td>380</td>
<td>350</td>
</tr>
<tr>
<td>Engine assembly</td>
<td>30</td>
<td>110</td>
<td>290</td>
</tr>
<tr>
<td>Total</td>
<td>1060</td>
<td>1960</td>
<td>4070</td>
</tr>
</tbody>
</table>

Volume increases step by step

- +10% Yearly increase
- +15% Yearly increase
Update: Production ramp-up
Geared Turbofan target costs and achievements

- Quality is at a high level: Production and supplier challenges have been fixed
- Volume is increased step by step
- Lead times are on track
- Actual costs are within target costs, further reductions are ongoing

On track to achieve target costs
Cost Leadership – Production Strategy for Best-Cost
Dr. Rainer Martens, Chief Operating Officer

Rzeszów, 14th December 2016
Production strategy for best-cost

Major company sites

Production strategies for OEM and MRO define the most competitive locations worldwide
OEM production strategy
Strategic set-up

High-tech

MTU Aero Engines Munich
- Sophisticated parts and production processes
- Automation
- Development of new production technologies
- Know-how to support all MTU sites and suppliers

Mid-low-tech

MTU Aero Engines Polska
- Adopting established parts and production lines
- Improvement of "mid-tech" parts and production processes
- Module assembly improved with know-how transferred from automotive industry

Raw material, mid-low-tech

Supplier
- Raw parts
- Finished parts as second source
- "Low-tech" parts from low cost countries

OEM strategic setup ensures a cost-saving allocation of parts in the MTU network
**OEM production strategy**
Highly-automated blisk machining shop in Munich

**Target**

**Flexible manufacturing system**
- Suitable product portfolio
- Efficient processes and structures
- Stable processes
- High utilization rate
- High flexibility and reaction time

**Key factors**

**Operating figures**
(YE 2016)
- ~1,100 blisks produced
- 30 employees

**Labour efficiency**
[HC]

High-tech with highest quality standards is produced at a cost-efficient machining shop
OEM production strategy
Labour and machining hours trend in Munich

Higher automation makes future production more efficient
OEM production strategy
Engineering, operations and services at MTU Aero Engines Polska

Major business areas
• Engineering and operations
• V2500 IAE upshare: Externals and accessories center
• Services: IT, procurement, production planning, production tooling design

Operating figures (YE 2016)
~ 110,000 parts produced
~ 600 employees thereof 120 R&D

Labour costs per hour

MTU Aero Engines Polska in Rzeszów is a key pillar of the OEM production strategy
OEM production strategy
History and company development at MTU Aero Engines Polska

The company was built and continuously expanded in recent years

- June 2007: Supervisory board approval
- April 2008: First ground broken
- August 2008: Construction phase started
- April 2009: Production start
- Dec. 2012: Complete Shop floor in operation
- June 2012: V2500 IAE upshare
- Dec. 2014: Company extension finished

Time:

increasing workload
MRO production strategy
Engine MRO at MTU Maintenance Zhuhai Co. Ltd.

Major business areas
- Engine MRO
- On-wing services
- Standard repairs
- MRO-related services

Operating figures (YE 2016)
~ 250 engine shop visits
~ 750 employees

Labour costs per hour

MTU Maintenance Zhuhai is an established and well-known independent engine MRO facility in China
MRO production strategy
Parts repair at Airfoil Services Sdn. Bhd. (ASSB)

Major business areas
• Repair of high-pressure compressor (HPC) airfoils
• Repair of low-pressure turbine (LPT) airfoils

Operating figures (YE 2016)
~ 440,000 parts repaired
~ 450 employees

Labour costs per hour

ASSB celebrated its 25th anniversary in 2016
Site selection and benefits
Three-step model for site selection

**Step 1:**
Evaluation of possible countries and regions

**Step 2:**
Pre-selection of countries and regions

**Step 3 “deep dive”:**
Close-pitch selection of 2-3 countries 1-2 regions each

**Country & regional level**
- Logistics
- Skilled labour availability
- Wage level

**Regional level**
- Total cost
- Logistics
- Skilled labour availability
- Labour regulations
- Macroeconomics
- Governmental incentives

The establishment of companies in Rzeszów, Zhuhai and Kuala Lumpur were based on this model
Site selection and benefits
OEM benefits and achievements

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2015</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total production rates</td>
<td>1060</td>
<td>1960</td>
<td>4070</td>
</tr>
<tr>
<td>Headcount MTU Aero Engines Munich</td>
<td>4430</td>
<td>4410</td>
<td>4470</td>
</tr>
<tr>
<td>Headcount MTU Aero Engines Polska</td>
<td>240</td>
<td>560</td>
<td>800</td>
</tr>
</tbody>
</table>

- Total production will grow approx. 15% per year, from 2015 to 2020
- Headcount in Munich will remain stable through increased efficiency and benefits from production strategy
- Headcount at MTU AE Polska will continuously grow. Further service work packages will be transferred

Production strategies foster the ramp-up with growing headcounts only at best-cost sites
Industry 4.0 @ MTU
Dr. Rainer Martens, Chief Operating Officer

Rzeszów, 14th December 2016
Industry 4.0 projects and digitalization

- Product design/virtual engine
- Simulation in material development
- Simulation in production processes
- Additive manufacturing
- Digital twin
- Manufacturing execution system (MES)
- Optimized material flow
- Digital supply chain
- Predictive maintenance
- Engine Trend Monitoring
- Engine Trend Monitoring
- Digital supply chain
- Optimized material flow
- Manufacturing execution system (MES)
- Simulation in production processes
- Additive manufacturing
- Simulation in material development
- Product design/virtual engine

Different projects are leveraging all sectors of the supply chain
Virtual engine – product design 4.0
Technology roadmap key enabler

<table>
<thead>
<tr>
<th>Virtual Engine</th>
<th>Goal</th>
<th>Activities</th>
</tr>
</thead>
</table>
| ![Virtual Engine image](image1) | • Intensified use and development of highly capable simulation methods for all engineering disciplines as well as manufacturing of engine parts and modules  
• Reduction of cost-intensive testing of materials, parts, modules and ultimately engines | • **ICM²E**: Integrated Computational Materials and Manufacturing Engineering  
• **DLR TESIG**: Testing and Simulation Gas Turbines with a cutting edge facility  
• **Digital factory** “Fabrik 4.0” including “Logistic 4.0”  
• Additive manufacturing  
• Life cycle engineering  
• Strong enhancement of interdisciplinary working together |

Preparing for the future – balancing design, materials and manufacturing innovation with cost
Additive manufacturing – the cornerstone has been laid

Very promising new technology

<table>
<thead>
<tr>
<th>Commercial &amp; Military Business</th>
<th>Boroscope eye</th>
<th>Sealing carrier</th>
<th>Bearing chamber</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost reduction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight reduction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certification</td>
<td>2013 ✓</td>
<td>2019</td>
<td>2020</td>
</tr>
</tbody>
</table>

Additive manufacturing offers distinct functional and cost-reduction potential
Conclusion

• Geared Turbofan engine generation has entered service and meets all targets
• Development milestones for all new engine programs are secured
• Several new programs are about to enter service or already in-service
• Major ramp-up projects done. Quality, volume and cost on track
• OEM and MRO ramp-up will trigger headcount increase at best-cost sites
• Production and sourcing strategies define future roadmaps
• Industry 4.0 projects will foster technological leadership
MTU's Partnership Strategy: Teaming up for Growth
Michael Schreyögg, Chief Program Officer

Rzeszów, 14th December 2016
MTU’s strategic objectives in a long term business environment

- Access to growing markets
  - Strongly growing engine programs
  - Portfolio expansion

- Risk mitigation
  - Substantial up front investment
  - Long-term product cycles require a balanced portfolio

- Benchmark competitiveness
  - Strong competition

- Leading technology
  - High technology expertise required

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General Electric: Reliability in a long-term partnership
Focusing on widebody segment and US military market access

- License manufacturing
- RRSP
- Entry to IGT market
- R&D responsibility for TCF
- Access to US Military market
- CF34 MRO
- OEM/MRO network partner
- Expanding presence in WB
- Next engine generation

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Pratt & Whitney: Exclusive collaboration
Increase our market presence and expand our responsibilities
Return on investment in the commercial engine business

Entry into service

Cumulative cash flow

- Technology
  - PW1000G-family
  - GE9X
  - GE9X 777X
  - PW1000G-family
  - A320neo, E2-Jet, C Series, MS-21, MRJ
  - 0
  - GEnx
  - 787
  - 747-8
  - GP7000
  - A380
  - V2500
  - A320
  - PW2000
  - PW4000
  - 757, C-17
  - 777
  - CF6-80
  - LM6000
  - 747, 767, IGT
  - A300, A310, A330
  - 40
  - Calendar years after program launch

+ Production

Aftermarket

R&D

14th December 2016

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MTU Aero Engines partnering with OEMs
Well established in all market segments

- Excellent technology
- Benchmark production costs
- Reliable partner in terms of delivery and quality
- Long-term relationship
- Market leader in widebody segment
- Access to US military business
- Strategic collaboration
- Improving market position in business / regional jet and narrowbody segment

Providing leading technology
Ensuring growth & market access in all business segments
Balanced portfolio & risk mitigation
MTU Aero Engines cooperating with the German Armed Forces

- **License manufacturing**
- **Classic MRO**
- **Integrated services**
- **Private Public Partnership**
- **Performance based logistics & service concept**

Timeline:
- **1950s**
- **1960s**
- **1970s**
- **1980s**
- **1990s**
- **2000s**
- **2010s**
- **2020s...**

engine models:
- J79
- RR250
- RB199
- EJ200
- MTR390
- TP400
MTU Aero Engines and the German Armed Forces

Saving cost, time and resources

- Customer since 1956
- Private Public Partnership since 2002
- Employees: 75% MTU; 25% Armed Forces

- Engine, module and parts repair
- Technical and logistical support
- Spare parts provisioning and stock management

Bringing a commercial approach to military engine programs
Sharing technical know-how and military operational experience
Evolution of our MRO service portfolio
Increasing airline demand for full MRO service packages

- Classic MRO
- Additional services independent MRO
- Integrated services
- Full-service packages
- GE OEM/MRO
- GTF JV

Increasing local presence worldwide
MTU Maintenance and Lufthansa Technik
Best-cost for engine parts repair

25 years

• 50:50 partnership with Lufthansa Technik since 2003*
• Over 80 customers worldwide
• Revenue has grown 9x since 2003

~5 million parts repaired

• Repair of blades from major aircraft engine types, including GE, CFMI and IAE
• Cost-efficient and state-of-the-art engine parts repair
• Synergies and economies of scale
• Potential to expand product portfolio to cover all OEMs

Dedicated to parts repair – now and in the future

*company was founded in 1991 by MTU and Malaysian Airlines
MTU Maintenance Zhuhai Ltd. and China Southern

A success story

15 years

• 50:50 JV with China Southern since 2001
• Access to 3rd biggest airline worldwide
• JV $ revenue has doubled in last 5 years

~$800m revenue

• Improved market access
• Most efficient narrowbody engine MRO shop
• Worldwide customer base
• Strong financial performance

#1 MRO shop in China aiming to expand customer base and grow narrowbody portfolio
MTU Maintenance and JetBlue
Low-cost airline supported with t(h)rust

11 years

- Contract in place since 2005
- Reliable fleet management on a flight-by-hour basis
- Offering full service package

>500 Shopvisits

- Market leader for V2500
- More than 300 engines covered
- Joint capacity planning approach

Driving cost-savings for airline and supporting MTU’s strategy as independent MRO provider
Engine lease JVs with Sumitomo
Complementing each other’s business model

- Entities located in Amsterdam since 2013
- Lease pool of +100 engines
- Lease business complementing traditional MRO business
- Improved access to used material
- Asset & material management

- Integrated engine leasing solutions for all thrust segments
- Expansion of customer base and sales channels (esp. Asia)
- Capital-intensive business

Rapid recognition in lease business
Potential for further growth
Partnerships are necessary to remain competitive in commercial MRO

**OEM cooperation**
- Provide cost-efficient, industrialized MRO
- Leverage OEM network

**Independent MRO**
- Remain #1 provider with focus on customers
- Provide integrated life cycle services

**Airline cooperation**
- Develop current cooperation
- Investigate future cooperation potential

**Goal**

**Partner**

- GE Aviation
- AIRFOIL Services
- Sumitomo Corporation
- CHINA SOUTHERN AIRLINES
- Lufthansa Technik
We continue to develop strong partnerships
MTU and Lufthansa Technik explore a maintenance joint venture

Background

• MTU and Lufthansa Technik participate in the PW1000G aftermarket network
• Additional capacity for disassembly, assembly and test work in a cost competitive environment
• For MTU, the PW1000G is a major growth program in the commercial engine business
• For Lufthansa, the PW1000G is an integral part of the fleet development

Main contribution to MTU’s strategy

• Shared investments
• Synergies due to combined volume
• Shared buildup effort
• Fast ramp-up

High volumes and high industrialization in a low-cost environment will generate the most efficient MRO shop for PW1000G in the future
Opportunities @ MTU to ensure future growth

GTF JV
Enterprise 4.0 @ MTU
Fleet management for military programs
Future GTF technology
Next WB / NB generation
Next generation of engines for fighter aircraft

Opportunities

… 2016s

2030s…
Pillars of MTU Strategy

Access to growing markets
Benchmark competitiveness
Leading technology
Risk mitigation

Employees & expertise

All of MTU's partnerships with their different characteristics contribute to MTU’s growth strategy
MTU’s Financials and Outlook: Reap the Benefits
Reiner Winkler, Chief Executive Officer

Rzeszów, 14th December 2016
Pillars of MTU Strategy

Profitable growth

Access to growing markets
Benchmark competitiveness
Leading technology
Risk mitigation

Employees & expertise
### Head and tailwinds 2017

<table>
<thead>
<tr>
<th>Category</th>
<th>Growth Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Military</td>
<td>Down mid single digit</td>
</tr>
<tr>
<td>Commercial OE</td>
<td>Up high single digit</td>
</tr>
<tr>
<td>Commercial Spares</td>
<td>Up mid single digit</td>
</tr>
<tr>
<td>Commercial MRO</td>
<td>Up in the low teens</td>
</tr>
</tbody>
</table>

**Tailwind from US$**
- Slight headwind from mix

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenues</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Military:</td>
<td></td>
<td>Military:</td>
</tr>
<tr>
<td>Com. OE:</td>
<td></td>
<td>Com. OE:</td>
</tr>
<tr>
<td>Com. spares:</td>
<td></td>
<td>Com. spares:</td>
</tr>
<tr>
<td>Com. MRO:</td>
<td></td>
<td>Com. MRO:</td>
</tr>
<tr>
<td><strong>EBIT adjusted</strong></td>
<td>Growth in line with revenue</td>
<td>Growth stronger than revenue</td>
</tr>
<tr>
<td><strong>Net Income adj.</strong></td>
<td>Growth stronger than EBIT adj.</td>
<td>Growth in line with EBIT adj.</td>
</tr>
<tr>
<td><strong>CCR</strong></td>
<td>Low double digit %</td>
<td>High double digit %</td>
</tr>
</tbody>
</table>

* Cash Conversion Rate = Free Cash Flow/Net Income adj.
Investment phase 2014 to 2017 – well on track to deliver

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Military:</td>
<td>↑</td>
<td>↓↓</td>
<td>↘</td>
<td>↓</td>
<td>➡    ✓</td>
</tr>
<tr>
<td>Commercial OE:</td>
<td>➪</td>
<td>➪</td>
<td>➪</td>
<td>➪</td>
<td>➪    ✓</td>
</tr>
<tr>
<td>Commercial Spares:</td>
<td>➪</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>➪    ✓</td>
</tr>
<tr>
<td>Commercial MRO:</td>
<td>↑</td>
<td>↘</td>
<td>➪</td>
<td>➪</td>
<td>➪    ✓</td>
</tr>
</tbody>
</table>
### Investment phase 2014 to 2017 – well on track to deliver

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EBIT adjusted Margin</strong></td>
<td>~10%</td>
<td>~10%</td>
<td>~11%</td>
<td></td>
<td>Growth in line with revenue ✓</td>
</tr>
<tr>
<td><strong>Net Income adj.</strong></td>
<td>€253m</td>
<td>€307m</td>
<td>~€340m</td>
<td></td>
<td>Growth stronger than EBIT ✓</td>
</tr>
<tr>
<td><strong>CCR</strong></td>
<td>17%</td>
<td>22%</td>
<td>21%</td>
<td></td>
<td>Low double digit % ✓</td>
</tr>
</tbody>
</table>

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Revenue growth in commercial OE

Today (2015)

Future (2025)

CAGR ~ mid-single digit

Growth of commercial OE business secured through extensively filled order books and stronger diversification
Revenue growth in commercial spare parts

Today (2015) vs Future (2025)

New engine programs (GP7000, GEnx, GTF) will join the V2500 to significantly drive future spare parts growth.
Revenue growth in military

Today (2015)
- After market/services
- Series

Future (2025)
- After market/services
- Series

CAGR ~ stable

Stronger demand in aftermarket/services and T408/GE38 compensates for decline in EJ200 production
Revenue growth MRO

Today (2015)

- Airline cooperation
- Independent
- OEM cooperation

Future (2025)

- Airline cooperation
- Independent
- OEM cooperation

CAGR ~ 10% incl. MTU Zhuhai
w/o MTU Zhuhai high single digit*

Independent business will remain MTU MRO’s revenue driver while OEM & airline cooperation business gains importance

*) MTU Zhuhai is consolidated at equity thus not part of MTU's group reported IFRS revenues. JV's Net Income part of the group's EBIT line.
Long term outlook 2018-2025 update: Improvement of profits and cashflow reconfirmed

<table>
<thead>
<tr>
<th></th>
<th>Consolidation phase 2018-2025</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenue</strong></td>
<td></td>
</tr>
<tr>
<td>Military (ex slightly down):</td>
<td></td>
</tr>
<tr>
<td>Com. OE:</td>
<td></td>
</tr>
<tr>
<td>Com. spares:</td>
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</tr>
<tr>
<td><strong>CCR</strong></td>
<td>High double digit %</td>
</tr>
</tbody>
</table>
### MTU’s cash deployment strategy

<table>
<thead>
<tr>
<th>Prio</th>
<th>Instrument</th>
<th>Investment phase 2014-17</th>
<th>Consolidation phase 2018 - 25</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Investment in organic growth</td>
<td>Strong investment in new programs</td>
<td>Limited opportunities</td>
</tr>
<tr>
<td>II</td>
<td>Dividend deployment</td>
<td>Growth in line with net income</td>
<td>Growth stronger than net income</td>
</tr>
<tr>
<td>III</td>
<td>Share buyback programs</td>
<td>No buyback programs as cash conversion low</td>
<td>Instrument to limit deleveraging</td>
</tr>
<tr>
<td>IV</td>
<td>M&amp;A</td>
<td>No suitable targets in aircraft engine market</td>
<td>No new targets expected</td>
</tr>
</tbody>
</table>
IFRS 15 – Summary

- IFRS 15 "Revenue from Contracts with Customers" has been endorsed by the EU in October 2016, becoming effective in 2018
- It replaces all existing IFRS revenue recognition requirements
- IFRS and US GAAP revenue standards are substantially aligned
- The new framework focuses on contractual performance obligations and on allocating a transaction price to those obligations (5-step model)

1. **Step 1** Identify the contracts with the customer
2. **Step 2** Identify the performance obligations in the contract
3. **Step 3** Determine the transaction price
4. **Step 4** Allocate the transaction price
5. **Step 5** Recognize revenue when a performance obligation is satisfied

- Core principle: Revenue should be recognized as an entity transfers control of goods or services
- No impact on cash flows
### IFRS 15 @ MTU

#### Preliminary assessment of implications on MTU accounts:

<table>
<thead>
<tr>
<th>Main accounting issues</th>
<th>Current accounting</th>
<th>Potential future accounting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Concessions</strong></td>
<td>▪ Cost of goods sold</td>
<td>▪ Reduction of revenue when underlying engine sales occur</td>
</tr>
</tbody>
</table>
| **Program entry fee and compensation payments for development costs** | ▪ Capitalization as intangible asset  
▪ Straight-line amortization over the useful life within costs of goods sold | ▪ Payment to the customer capitalized as “other long-term assets”  
▪ Reduction of revenues over program term depends on timing of revenue recognition |
| **Flight Hour Agreements**                          | ▪ Recognition of revenue when shop visits occur                                     | ▪ No change                                                                             |

No material impact on profit and cash recognition expected from IFRS15
Market in excellent shape

Better position than ever

GTF on spec

Acceleration of EBIT and FCF growth

...looking forward to answering your questions!
Cautionary Note Regarding Forward-Looking Statements

Certain of the statements contained herein may be statements of future expectations and other forward-looking statements that are based on management’s current views and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in such statements. In addition to statements that are forward-looking by reason of context, the words “may,” “will,” “should,” “expect,” “plan,” “intend,” “anticipate,” “forecast,” “believe,” “estimate,” “predict,” “potential,” or “continue” and similar expressions identify forward-looking statements.

Actual results, performance or events may differ materially from those in such statements due to, without limitation, (i) competition from other companies in MTU’s industry and MTU’s ability to retain or increase its market share, (ii) MTU’s reliance on certain customers for its sales, (iii) risks related to MTU’s participation in consortia and risk and revenue sharing agreements for new aero engine programs, (iv) the impact of non-compete provisions included in certain of MTU’s contracts, (v) the impact of a decline in German or other European defense budgets or changes in funding priorities for military aircraft, (vi) risks associated with government funding, (vii) the impact of significant disruptions in MTU’s supply from key vendors, (viii) the continued success of MTU’s research and development initiatives, (ix) currency exchange rate fluctuations, (x) changes in tax legislation, (xi) the impact of any product liability claims, (xii) MTU’s ability to comply with regulations affecting its business and its ability to respond to changes in the regulatory environment, (xiii) the cyclical nature of the airline industry and the current financial difficulties of commercial airlines, (xiv) our substantial leverage and (xv) general local and global economic conditions. Many of these factors may be more likely to occur, or more pronounced, as a result of terrorist activities and their consequences.

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