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## **Bombardier's footprint on the Maintenance, Repair and Overhaul (MRO) market**

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**Bombardier Commercial Aircraft**  
Customer Services

**BOMBARDIER**  
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**BEST PRACTICES FOR MRO SERVICES**

# Bombardier's footprint on the Commercial and Business Aircraft MRO market

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## Services Centers:

- Wholly owned Service Centers deliver comprehensive MRO services 24 hours a day and 7 days a week

## Authorized Service Facilities (ASF):

- Authorized service partners strategically located around the world provide a full suite of MRO services
- Bombardier approved parts and equipment
- Same quality standards as Bombardier wholly owned Service Centers

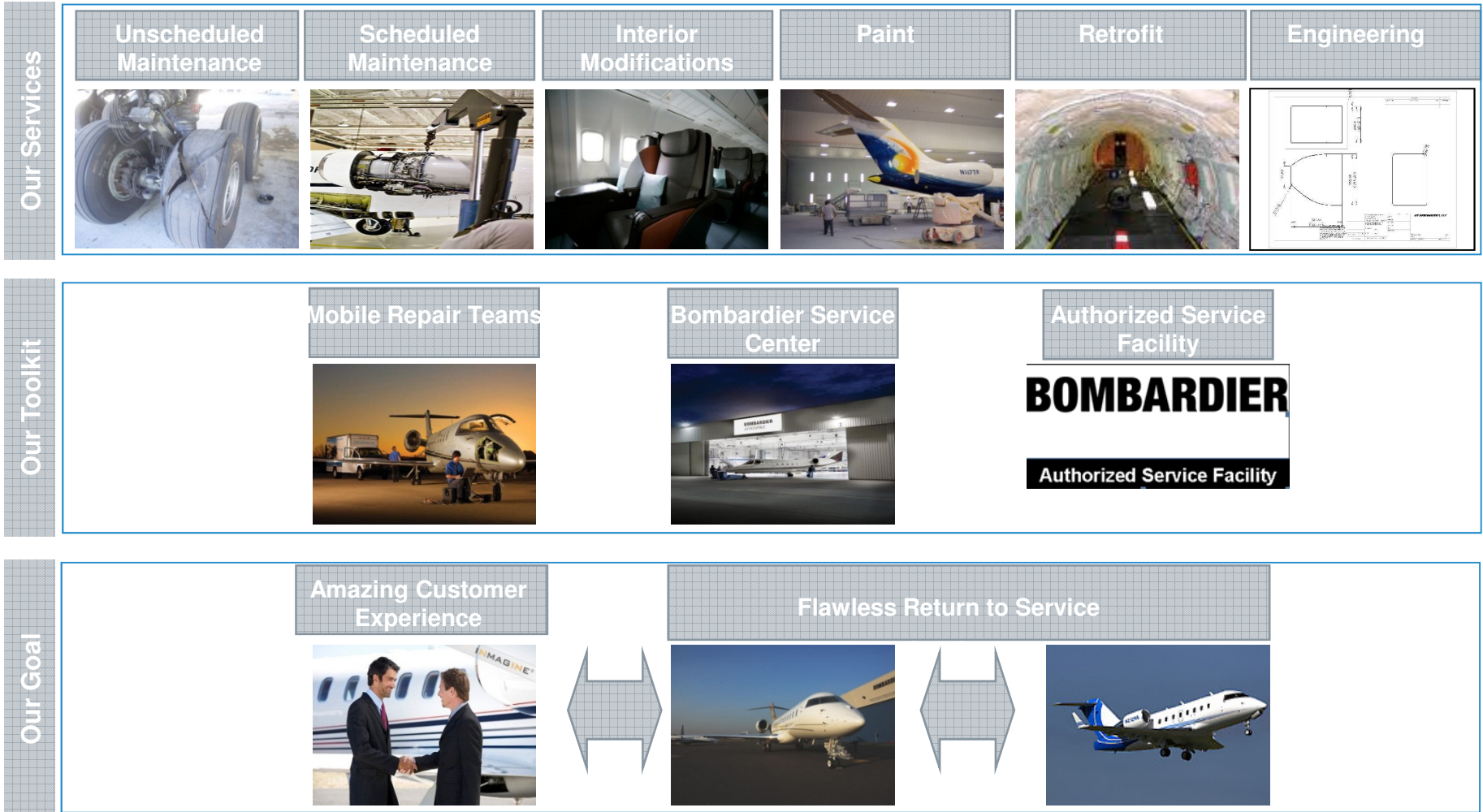
## Mobile Response:

- Mobile Repair Team (MRT) specialized in the repair of all Bombardier aircraft types
- Repairs at the highest OEM standards
- Quick Turn Around Time (TAT)



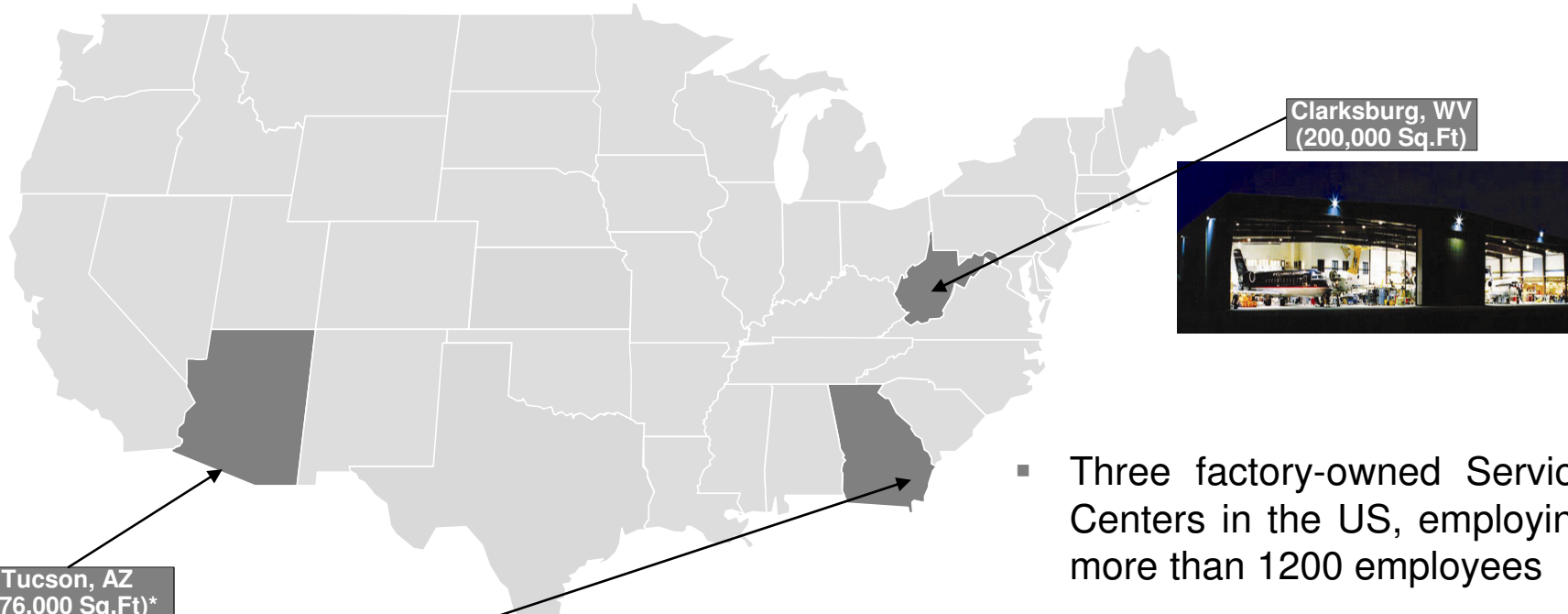
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# Bombardier's footprint on the Commercial and Business Aircraft MRO market



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# Commercial Aircraft - Service Centers



Tucson, AZ  
(276,000 Sq.Ft)\*



Macon, GA  
(97,400 Sq.Ft)



Clarksburg, WV  
(200,000 Sq.Ft)



- Three factory-owned Service Centers in the US, employing more than 1200 employees

## Main capabilities include:

- Heavy Maintenance
- Line Maintenance
- Structural Repair
- Sheetmetal Shop
- Engineering
- Non-destructive testing (NDT)
- Interior Refurbishment

# Commercial Aircraft – Authorized Service Facilities (ASF)



- Independent MROs designated as ASFs
- Strategically located around the world
- Main capabilities equal to that of the Bombardier Service Centers
- To be designated an ASF, prospective MROs must meet stringent quality and business process standards
- ASFs use OEM approved technical publications, parts and tooling for Bombardier products

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# Business Aircraft – Service Centers and ASFs



- 8 wholly owned service centers
- 50+ Authorized Service Facilities (ASF)

# Commercial and Business Aircraft – Mobile Repair Team (MRT)



- Prepared to deploy on short notice to anywhere around the world.
- Dedicated AOG on-site support.
- In-field structural repairs and system rebuilds for rapid aircraft return to service.
- Liaison between Bombardier Engineering and the customer on MRT project related activities
- Main capabilities:
  - Damage assessment
  - Repair proposal
  - Aircraft recovery
  - Damage repair
  - Project Management

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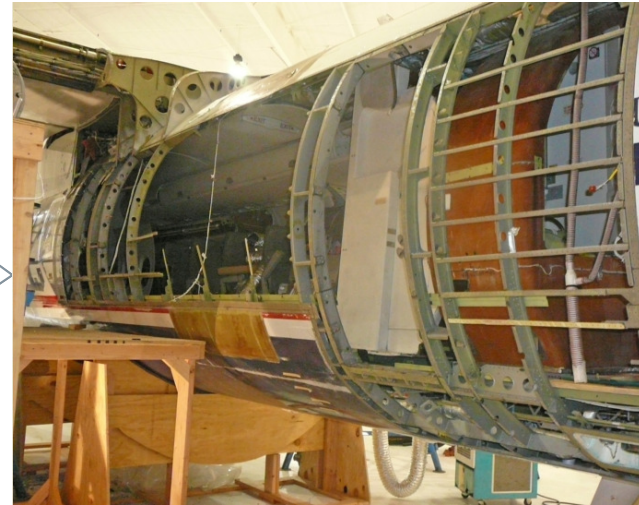
# MRT Services: Success Stories

## Commercial Aircraft



CRJ200: Repairs to radar bulkhead and cockpit skin after ramp collision damage

DHC8-100: Fuse skin and frame replacement after propeller strike damage



CRJ200: frame and Nose Landing Gear (NLG) support structure replacement after runway excursion

# MRO services: Success Stories

## Business Aircraft

Interior refurbishment shop added to the Singapore Service Center in April 2015:

- Flying Colours Corp., the Ontario-based Canadian aviation company specializing in business aircraft completions, maintenance and refurbishments, has a full interior shop on-site at the Singapore Service Centre
- It can perform interior work on all *Learjet*, *Challenger* and *Global* aircraft.
- Full range of services includes preliminary interior inspection, removal and installation, repair, modification and refurbishment work
- Offers expanded capability to operators closer to their base operations



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# Aircraft Customization: Success Stories

## Commercial Aircraft

### CRJ200 “Large Cargo Door” Freighter Conversion



- Aftermarket solution for CRJ 200 freighter operators
- Bombardier Licensed third party STC provider: Aeronautical Engineers, Inc. (AEI)
- IFL Group was the launch customer for the CRJ200 SF (Special Freighter)
- 40 aircraft modified up to date

# Aircraft Customization: Success Stories

## Business Aircraft

### Bombardier MEDEVAC aircraft solution:

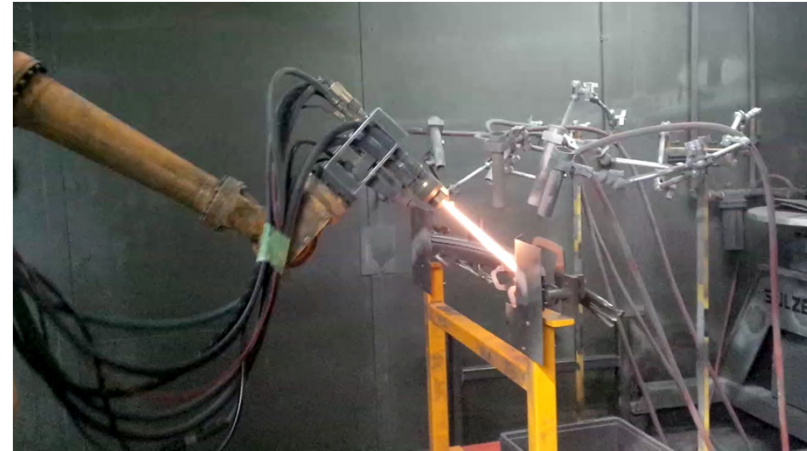
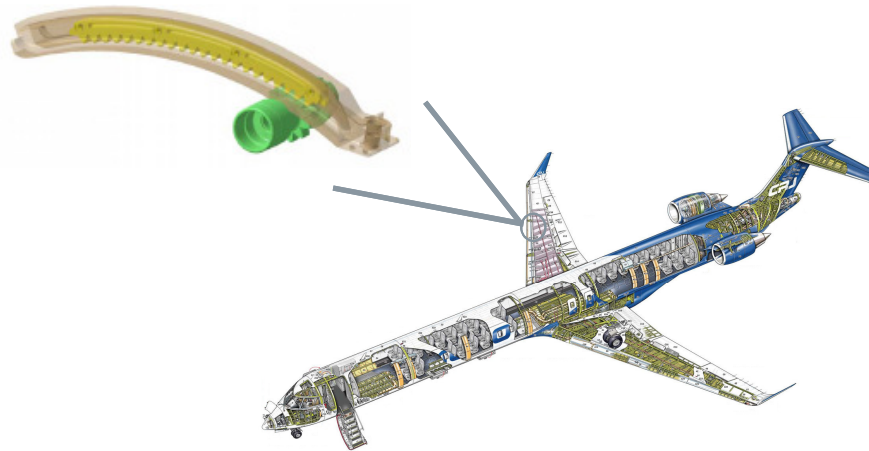
- The Quebec Government operates two Challenger 601 which fly a combined annual 2,500 hours
- The aircraft are used for remote missions in Quebec province
- Air Hospital configuration: Up to five passenger seats, three Intensive Care Units, three Stretchers, one Infant Incubator



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# Small and Medium-sized Enterprises (SME) contribution to Bombardier Aerospace

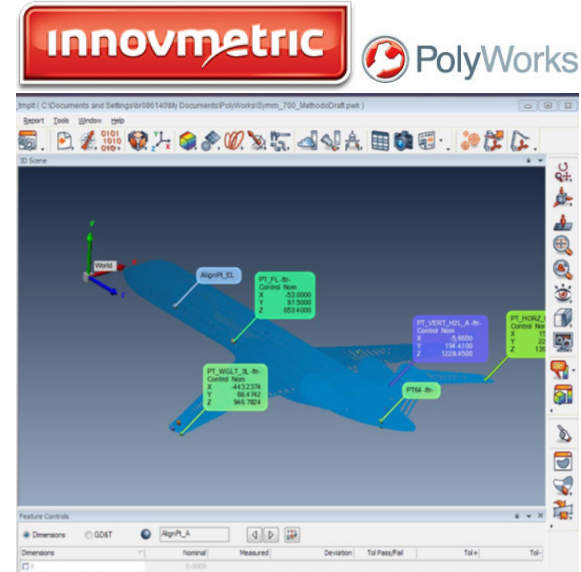
## CRJ Slat track repair process



- Aerospace Welding (AWI) employs over 100 workers in Blainville, QC.
- Currently an approved repair facility by Bombardier Commercial Aircraft
- To provide a better customer experience, Bombardier worked with AWI to develop a robust repair solution as an alternative to purchasing new slats tracks
  - Bombardier and AWI developed a repair procedure using HVOF (High Velocity Oxy-Fuel spraying).

# Small and Medium-sized Enterprises (SME) contribution to Bombardier Aerospace

## Symmetry measurements



- InnovMetric Software Inc. is a Canadian company with headquarters in Quebec
- Bombardier purchased a software tool used for aircraft symmetry measurements:
  - Aircraft geometry evaluation to assess viability of repairing the aircraft
- Recently used in the Tucson Service Center to assist the return to service of a CRJ 200 after long-term storage
- Bombardier worldwide support to assist Operators with symmetry measurement requirements

# Best Practices for MRO Services

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- **Infrastructure:**
  - In-house shops with expanded capabilities to meet customer needs
  - State-of-the-art Technology
- **Quality Assurance:**
  - Customer and regulatory oversight/audits
  - Shared best practices across Service Center network
  - Highly experienced labor force that is dedicated to the product
- **Operations:**
  - Robust operational processes continually under improvement
- **Maintenance & Cost Planning:**
  - Overall cost and turn around time (TAT) guarantees
  - Scope of work definition ahead of aircraft arrival
- **Inventory Management**
  - Forecast of aircraft parts demand
  - A flexible and efficient parts distribution network



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