Introduction to ST Aerospace

For US exhibitors
15 Feb 2016
ST Engineering

Aerospace
- USD 1.52B
- ~ 7,800 staff
  - Airframe Maintenance & Modification
  - Component Total Support
  - Engine Total Support
  - Aviation & Training Services
  - Aerospace Engineering & Manufacturing

Electronics
- USD 1.19B
- ~ 5,800 staff
  - Rail & Transport Systems
  - Satellite Communications
  - e-Government Solutions
  - Software Systems & Solutions

Land Systems
- USD 1.03B
- ~ 7,000 staff
  - Armoured Vehicles
  - Munitions and Weapons
  - Specialty Vehicles
  - Homeland Security
  - Assets Total Support
  - Automotive Repairs

Marine
- USD 0.99B
- ~ 1,900 staff
  - Shipbuilding
  - Engine Servicing
  - Ship Repair
  - Ship Conversions
  - Design & Engineering
  - Environmental Engineering

1 USD = 1.36 SGD
ST Aerospace

2014
Revenues: USD 1.52B (SGD 2.07B)
PBT: USD 208M (SGD 283M)
Employees: ~ 7,800 globally

► Started in 1975 as a military MRO service provider in Singapore
► Ventured into commercial MRO in 1990s
► Started globalisation in the mid-90s (facilities in US, Europe, China, Australia and Singapore)
► Today, 3 main areas of business:
  ► Airframe Maintenance & Modification (AMM)
  ► Components, Engines Repair & Overhaul (CERO)
  ► Engineering, Materials & Services (EMS)
Businesses (1/2)

**Airframe Maintenance**
- Line Maintenance
- Light Checks
- Heavy Maintenance

**Modifications**
- Passenger to freighter (PTF) conversions (727, 757, 767, DC10, MD11)
- Ageing aircraft modification
- Interior reconfiguration and refurbishment and completions
- VIP Completions

**Fleet Technical Management**
- Maintenance planning & scheduling
- Technical records
- Maintenance control
- Maintenance design engineering

**Component MRO Services**
- Capabilities for >25,000 mechanical and avionics component types
- Approved repair station by 15 Airworthiness Authorities
- Service centre for 30 leading OEMs

**Maintenance-By-the-Hour (MBH)™ Programme**
- MBH - Airframe maintenance, component/engine repair and overhaul, or inventory management, the MBH programme supports on a fixed fee per flight hour basis
- Rotable asset management

**Warehousing & Distribution**
- 24x7 AOG services
- Global Logistics and Distribution Network

**Engine Repair & Overhaul**
- Extensive support for narrow-body aircraft engines (F110, T700, T55, Ariel, CFM56-3, -5B, -7B)
- Engine parts repair

**Engine Leasing**
- Joint Venture with Marubeni
- Engine financing, operational lease and sale & lease back

**Aviation Services**
- Engine wash (EcoPower) – JV with Pratt & Whitney
- On-wing services - License for GEnx Engines
- Asset management – Part down and trading
Avionics & Systems Upgrade
- Mission Avionics & Operations capability upgrades

Unmanned Aerial Systems (UAS)
- Family of UAVs for wide range of applications

Passenger to Freighter Conversions
*Boeing 757-200 PTF Conversion*
- ST Aerospace performs full development engineering (Holder of 2 FAA STCs and 1 EASA VSTC)
- 14-Pallet, 14 ½ -Pallet, 8-Pallet Combi and 15-Pallet

*Airbus A330 P2F Conversion*
- ST Aerospace is the technical and programme lead with full responsibility to develop the STCs

Turnkey Cabin Interiors Support
- Integrated cabin interiors modification services for both VIP and commercial aircraft
- Cabin & product design, programme management, engineering, certification, kits development

Pilot Training
- RWC, TWC
- First and proven 3rd Party Multi-Crew Pilot License (MPL) training provider
- CPL training

Charter Services
- Aircraft charter for executive, leisure and aero-medevac services, target towing
- Aircraft fleet: Gulfstream G550 & G150, Learjet 35A, 45 & 60, King Air C90, Eurocopter EC120

Aircraft Leasing
- Focus on mid-life and end-of-life aircraft
- Acquire aircraft for lease, conversion or part-out

Technical Training
- Provides basic & type course training
- EASA & CAAS 147 approved MTO
A Focus on Total Aviation Support

ASSET MANAGEMENT
- Aircraft leasing, Mid Life & End of Life Solutions – Parting & Conversions

TRAINING
- Commercial Pilot License, ATPL and Multi-Crew Pilot License
- Technical Crew training
- Military Pilot Training

AIRLINE SERVICES
- Maintenance Operations Control
- Fleet Technical Mgmt
- Line Maintenance

AIRFRAME MAINTENANCE & MODIFICATION
- Light & Heavy Maintenance
- Transit/Turnaround Servicing & Checks
- PTF Conversions
- Cabin Interior Upgrades
- VIP Completions
- Military Aircraft Upgrades

ENGINE TOTAL SUPPORT
- Maintenance by the Hour (MBH)
- Leasing
- Part Down
- On Wing Support
- Engine Wash
- Engines Repair & Overhaul/ Parts Repair
- Engines Health Monitoring & Maintenance Planning

ENGINEERING & DEVELOPMENT
- Cabin Interior Reconfiguration
- Interior Products
- Avionics Upgrades
- ODA and STCs
- UAV development

COMPONENT TOTAL SUPPORT
- Maintenance by the Hour (MBH)
- Aircraft Parting
- Parts Trading and Exchange
- Repair & Overhaul
Global Footprint & Workforce

Total Workforce
7,800 (Subsidiaries and Affiliates)
2,200 (Associated Companies)

Americas Workforce
2,000

Hondo
Hondo Aerospace Aviation Academy of America

San Antonio
VT San Antonio Aerospace
VT DRB Aviation Consultants
AERIA Luxury Interiors Turbo Mach

Burlington
VT Volant Aerospace

Mobile
VT Mobile Aerospace Engineering

Wethersfield
EcoServices – 50.1%

Miami
VT Aerospace Rotables (Americas office)

London

Dresden

Cazaux

Copenhagen/Stockholm

Dubai

Shanghai

Shanghai Technologies Aerospace Company – 49%

Tokyo office

Singapore

Xiamen

Guangzhou

Australia Workforce
50

Europe Workforce
1,400

China Workforce
1,150

Singapore Workforce
5,400

Total Workforce
7,800 (Subsidiaries and Affiliates)
2,200 (Associated Companies)
Our Customers*

*In the last 3 years
Airframe Maintenance & Modification (AMM)

Total global capacity:

38WB, 26NB, 24GA bays
Largest Airframe MRO

► Completed more than 9000 heavy maintenance for commercial aircraft
► Supported 1700 military aircraft

Top 10 MRO Players by Total Airframe Maintenance Man-hours

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>Million manhours for commercial airframe (Yr 2014)</th>
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<tbody>
<tr>
<td>1</td>
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<td>12</td>
</tr>
<tr>
<td>2</td>
<td>HAECO Group*</td>
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<td>9</td>
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</tr>
<tr>
<td>10</td>
<td>Sabena Technics</td>
<td>2</td>
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*Includes majority owned/controlled subsidiaries

Component Total Support (CTS)

- Support 800 aircraft under component MBH
- Refurbished more than 900,000 components
Engine Total Support (ETS)

Redelivered over 8000 engines

STATCO
- Engine Overhaul
- Potential for up to 300 engines/year

Wethersfield
**EcoServices**
- Engine Wash

Turbine Overhaul Services (TOS)
- Vanes and Blades repair

Turbine Coating Services (TCS)
- Repair of turbine airfoils via advanced coating technologies

Xiamen

Singapore
**STA Engines**
- Engine Repair & Overhaul
- Parts Repair & Sale

Total Engine Asset Management (TEAM)
- Engine Leasing
Aviation & Training Services (ATS)

Pacific Flight Services

► Operation and management of executive jets for charter
► Aircraft charter for executive, leisure and aero-medevac services
► Aircraft fleet: Gulfstream G550, Gulfstream G150, Learjet 45, Learjet 35A, King Air C90

ST Aerospace Academy

► Facilities in Australia, Singapore and the US
► First and proven 3rd Party Multi-Crew Pilot License (MPL) service provider in the region
► Airline pilot training service provider for ab-initio CPL and MPL, jet bridging and type-rating on A320 aircraft
Aircraft Engineering and Manufacturing (AEM)

FedEx 757-200 14P
>100 Redelivered

A330 P2F
In development

RNZAF 757-200 Combi
2 Redelivered

757 15P PTF
In development

A320 PTF

GAP 757-200 Combi
1 Redelivered

Passenger-to-Freighter Conversion
Aircraft Engineering and Manufacturing (AEM)

- Aftermarket Sales & Support
- Taste and Style Design
- Programme Management, Integration & Execution
- Design & Engineering
- Providing Turnkey support for Cabin Interiors
- Product Development; Supply Chain Management
- Certification
- Aircraft Maintenance & Modification Network
- VT Volant Aerospace
- Engineering & Development Centre, VT DRB Aviation Consultants

VT Volant Aerospace

VT DRB Aviation Consultants

Certification

Engineering & Development Centre
STA in the U.S.

**VT Mobile Aerospace Engineering**
Mobile, Alabama
Wide & narrow body heavy maintenance
Passenger-to-Freighter Conversion

**VT San Antonio Aerospace**
San Antonio, Texas
Regional jet, wide & narrow body heavy maintenance
Engineering, completions and refurbishment of Boeing and Airbus jets

**Facility under construction**
Pensacola, Florida
Aircraft heavy maintenance

**VT Volant Aerospace**
Burlington, Washington
Provides new and refurbished interior parts and support services

**Aviation Academy of America**
Hondo, Texas
Ab-initio flight training

**EcoServices**
Wethersfield, Connecticut
Provider of advanced technology engine wash services to commercial and military aircraft operators
Possible Areas of Collaboration/Support

► Component OEM partnership – STA as a regional service center
► Engine parts repair
► Aircraft retrofit and system upgrade
► Aircraft / system integration
► Consignment of inventory
► Strategic sourcing of consumables and expendables
Thank You