

Engineering Capabilities

Engineered To Help Your Business



For more information please
contact the Marshall sales team



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marshalladg.com

Overview and history

Established in 1909, Marshall Aerospace is a British aerospace and defence company with a rich engineering heritage and an enduring commitment to serving prime contractors and governments.

As a global leader in military maintenance, repair and overhaul (MRO), we work closely with aircraft operators to keep their fleets mission-ready and mission-capable. Drawing on decades of engineering expertise and wide-ranging design organisation approvals, we are able to plan, integrate and certify complex programmes from start to finish.

Marshall Aerospace designed and continues to manufacture auxiliary fuel tanks for the Boeing P-8. More broadly, our partnership with Boeing spans over 60 years and has seen Marshall manufacture auxiliary fuel tanks for 747, 767 and 777 aircraft, and over 1,200 tanks for the P-8. We have also led and supported other legacy programmes on Boeing platforms, including our appointment as the E-3 Sentry sister Design Authority, and major 747 fleet modifications and interior refits.

As part of the United Kingdom’s defence industrial supply chain, Marshall counts many primes, including Boeing, Lockheed Martin and Thales, among our customers and partners. Our adaptable delivery frameworks see us working as partner, prime or subcontractor, to suit the delivery needs of a programme.

Combined, our Aero Engineering Services (AES), Maintenance Repair and Overhaul Services and Solutions (MRO SS), and Advanced Manufacturing Solutions (AMS) Business Lines offer a depth of expertise and breadth of capability few can match.

This makes Marshall an ideal partner for Deep Maintenance and Modification Services (DMMS) of both military and militarised civil platforms, maximising availability and enabling through life enhancement and support of these critical aircraft.

	Typical base of operations capability	Marshall: MRO SS and AMS capability	Marshall: AES capability
Line maintenance	✓		
Surge capacity		✓	
Depth maintenance		✓	✓
Block upgrades		✓	✓
Modifications		✓	✓
Future supportability			✓



707



727



E3



747



777



P-8A
POSEIDON

BOEING 707
Wing pod installation carried out for carriage of spare engine

1963

BOEING 747
Design and manufacture of upper deck executive furnishings

1971

BOEING 747
Contract awarded for general servicing between 1987 and 1989

1987

BOEING 727
Structural inspection, corrosion control programme, major service and partial repaint under the Ageing Aircraft Programme

1990

BOEING E3 AWACS SENTRY
Appointed sister design authority for Boeing E3 AWACS Sentry aircraft operated by the RAF

1996

BOEING 747
Major modification programme for over 130 British Airways aircraft including extensive passenger and crew seating overhaul, in-flight entertainment upgrades and SATCOM – with CAA certification and full functional test programme

1998-2002

BOEING 747
Contract to design and manufacture auxiliary fuel tanks for the Longer Range 747-400ER

2000

BOEING 777
Major modifications for Alitalia to install crew rest facilities on six new aircraft prior to delivery

2002

BOEING P-8 POSEIDON
Initial contract awarded by Boeing to design and produce auxiliary fuselage fuel tanks for the P-8 Poseidon

2005

BOEING 777
Designed and manufacture of lightweight fuel tanks fitted to a Boeing 777, enabling it to fly eastwards from Hong Kong to London; the longest flight ever made by a commercial aeroplane

2006

BOEING 747
Selected by Lufthansa to carry out interior configuration work on 7 of their 747-400 aircraft

2009

BOEING P-8 POSEIDON
Delivery of 100th auxiliary fuel tank

2012

BOEING P-8 POSEIDON
Received Boeing Supplier of the Year award

2014

BOEING P-8 POSEIDON
Delivery of 500th auxiliary fuel tank; Boeing Performance Excellence Award

2017

BOEING P-8 POSEIDON
Delivery of 600th auxiliary fuel tank; Boeing Performance Excellence Award

2018

P-8 POSEIDON
Delivery of 1000th auxiliary fuel tank; awarded Boeing Blue Supplier status

2022

P-8 POSEIDON
Delivery of 1200th auxiliary fuel tank

2024

Design organisation & approvals

Delivering safe, compliant engineering solutions, our people and processes are approved to the highest standards.

Our approvals include:

Baseline quality approvals

AFAQ: ISO 9001 : 2015 : 2008/32550.17
AFAQ: AS9110:C / SJAC 9110:B / prEN9110:2018: 2013/57102.9
AFAQ: AS9100:D / JISQ 9100:2016 / EN 9100:2016: 2008/32551.17

Current customer & partner specific approvals

Boeing: Manufacturing Processes D1-4426
Boeing: Develop & Manufacture D6-82479
Lockheed Martin Heavy Maintenance Centre
Lockheed Martin Hercules Service Centre

Special process approvals

Various

National level regulatory approvals

UK CAA: 21G Production Organisation: UK.21G.2078
UK CAA: 21J Design Organisation Approval: UK.21J.0181
UK CAA: 145 Maintenance Organisation: UK.145.0003
UK CAA: 147 Training Organisation: UK.147.0131
UK CAA: Aerodrome Certificate: UK - EGSC-001

UK military regulatory approvals

UK Military Aviation Authority: DAOS UK.MAA.DAOS.153
UK Military Aviation Authority: MRP Part 145 MAOS 145.1001

European military regulatory approvals

Various



UK CAA: Part 21J scope

	Flight	Structures	Cabin	Avionics	Electrical systems	Hydro-mechanical systems	Environmental control systems	Powerplant and fuel systems
Large aeroplane	✓	✓	✓	✓	✓	✓	✓	✓
Small aeroplane	✓	✓	✓	✓	✓	✓	✓	✓
Large rotorcraft	✓	✓	✓	✓	✓	✓	✓	✓
Small rotorcraft	✓	✓	✓	✓	✓	✓	✓	✓
STC	✓	✓	✓	✓	✓	✓	✓	✓
Major change	✓	✓	✓	✓	✓	✓	✓	✓
Minor change	✓	✓	✓	✓	✓	✓	✓	✓
Major repair	✓	✓	✓	✓	✓	✓	✓	✓
Minor repair	✓	✓	✓	✓	✓	✓	✓	✓
Flight conditions	✓	✓	✓	✓	✓	✓	✓	✓
Permit to fly	✓	✓	✓	✓	✓	✓	✓	✓

Maintenance

Our uniquely versatile MRO facility benefits from a 1,965m (6,447ft) runway, providing access to 117,000m² of hangar space, including:



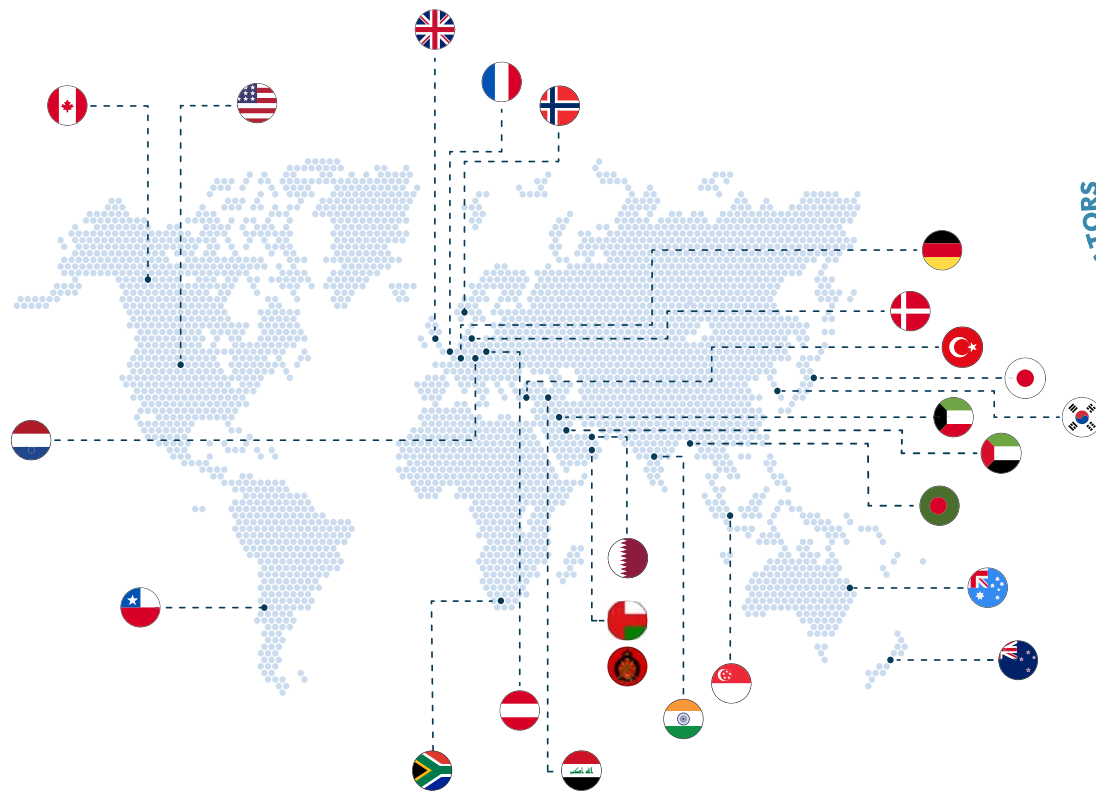
14 aircraft maintenance bays and 2 aircraft paint bays



Enclosed engine ground running facilities and compass swing facilities



Hangars able to accommodate aircraft up to and including the Boeing 747



- Depth maintenance
 - US Navy planned maintenance intervals (PMI) and minor depot inspections (MDI)
 - Lockheed Martin SMP A through D inspections
- Major structural overhaul, including replacement of primary structural elements
 - World's first Lockheed Martin approved Centre of Excellence for Centre Wing Box Changes
- Aircraft avionics upgrade programmes
- Embodiment of complex modifications
- Flight test and acceptance (Cat 1 experimental, Cat 2 developmental)

A highly capable and adaptable workforce is a critical to our success. This is enabled by our UK CAA Part 147 training organisation approval, allowing us to train new operatives on our core platforms and allocate experienced operatives to support new platforms.



Security

Marshall takes the safety and security of customer assets and personnel extremely seriously. As a UK CAA approved international airport, Marshall surpasses the standards set by this authority





Production

Supporting our MRO operations, our Part 21G and NADCAP accredited facility produces high-quality certified aerospace parts and assemblies.



EU 1702/2003 Part 21G



2000
We produce circa 2,000 OEM approved parts annually.

We supplement our internal capability through established supply chains, leveraging our long-term relationships with equipment and material OEMs. Our extensive knowledge of aerospace standards and export regulations, including ITAR, ensures we maintain a compliant, sustainable and socially responsible procurement process.



Complex machining and fabrication

- Complex subtractive manufacture (metallic)
- FDM additive manufacturing (polymer)
- Sheet metalwork
- Pipework
- Bespoke tool design and manufacture
- Welding



Surface treatments and coatings

- Heat treatment
- Surface treatment
- Chemical conversion treatments
- Paint



Final assembly and acceptance

- Complex assembly
- System acceptance testing
- Production acceptance testing
- Component assembly
- Electrical wiring and looming



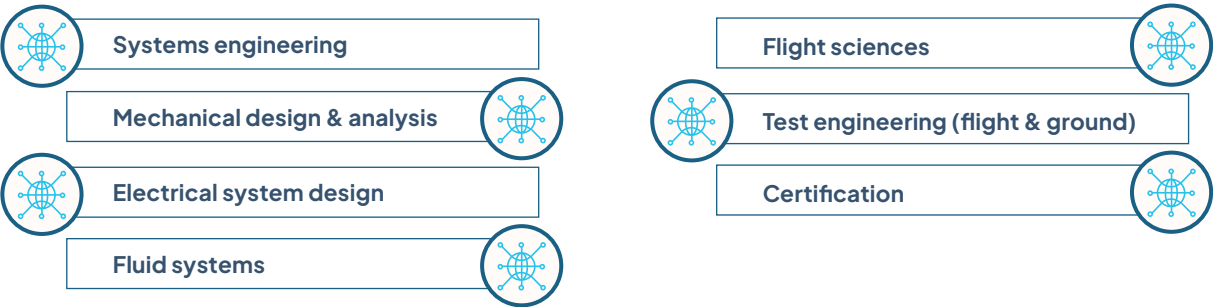
Level 3 non-destructive testing

- Radiographic
- Ultrasonic
- Surface and rotating eddy current
- Magnetic particle
- Dye penetrant

Design and support

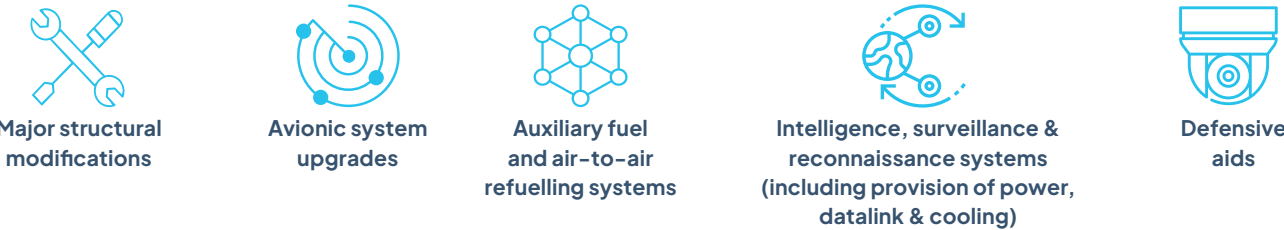
A globally respected Part 21 Design Organisation, Marshall Aerospace has a wealth of experience delivering aircraft repairs, complex modifications, and ensuring aircraft remain supported through life.

Our in house-capabilities include:



Our flexible and tailorable engineering processes allow controlled evolution from requirements through to final certification, with customers in the loop at key design reviews and decision points.

Using these capabilities we have delivered more than 15,000 non-SRM repairs, and more than 1,700 bespoke modifications and upgrades to civilian and military aircraft, including:



Certification is delivered by a team of certification verification engineers (CVEs) covering 13 certification panels, enabling an exceptionally broad, unique outside of the OEM community, Part 21J Scope.

- ☐ Panel 1: Flight
- ☐ Panel 3: Structures
- ☐ Panel 4: Hydromechanical Systems
- ☐ Panel 5: electrical Systems
- ☐ Panel 6: Avionic Systems
- ☐ Panel 7: Powerplant Installations & Fuel Systems
- ☐ Panel 8: Environmental Control Systems
- ☐ Panel 9: Noise Fuel Venting and Emissions
- ☐ Panel 10: Software: AEH, Development
- ☐ Panel 11: Cabin Safety
- ☐ Panel 12: Safety Assessment
- ☐ Panel 14: ICA
- ☐ Panel 15: OSD MMEL

Our technical support teams have answered more than 24,000 technical queries, providing advice and recommendations which ensure airworthiness and safety, whilst optimising aircraft availability and operational efficiency.

Our technical support teams are experts in:

- ☐ Responding to technical queries
- ☐ Tracking aircraft baselines
- ☐ Usage monitoring
- ☐ FRACAS
- ☐ Obsolescence management

