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INNOVATIVE, COMPETITIVE AND TECHNICALLY SOPHISTICATED
With its large internal land mass and geographic distance from its trade partners, Australia has been actively involved in aviation since the early days of the industry.

The black box flight recorder is just one of the innovations Australia has contributed along the way.

Today, the Australian aerospace industry is a respected global supplier, offering a diverse range of expertise in manufacturing, maintenance, research and development, training and business services. This is underpinned by a strong domestic market, innovative research and development, and government support.

This industry capability statement provides an overview of Australian capability in the aerospace industry, including examples of some of the many Australian companies with specialist expertise.

Talk to your local Austrade representative for tailored advice and information on connecting and partnering with the Australian aerospace industry.
The Australian aerospace industry is a competitive and technically sophisticated global supplier, with exports representing more than 20 per cent of total revenue, and a growing role in global supply chains in Europe, US, India, China and ASEAN.

Australian capability is broad, with expertise ranging from civil and defence applications including:

- systems and software design
- engineering
- metallic and composite component and sub-assembly design and manufacturing
- tooling and assembly
- air systems integration
- air traffic management
- industry services including:
  - aircraft maintenance, repair and overhaul
  - ground support equipment design and manufacture
  - charter services
  - pilot and engineering training.

The active domestic market, advanced research and development capability and strong government support have helped drive innovation, enabling companies to provide best-value solutions to aerospace markets worldwide.

Some of the advantages Australia offers are:

- the highest product quality levels within the Asia-Pacific region at competitive prices
- an advanced manufacturing environment with an excellent skills and transport infrastructure base
- high quality, cost effective aerospace design with excellent communications and IT infrastructure
- exceptional R&D resources, education and training facilities.

The aerospace industry has become increasingly globalised over recent years. The current wave of globalisation will see greater collaboration between nations, such as the Australian Government’s partnership with the US on the Joint Strike Fighter aircraft program.

Globalisation will also have an impact on the commercial sector. For example, major airlines are using private contractors to provide maintenance services, rather than in-house mechanics.

Continued demand for more fuel-efficient aircraft is expected to drive product innovation in aircraft manufacturing.

With proven capabilities, experience and expertise, Australia is an ideal partner to help international companies meet these challenges and more.
Australia’s aviation and aerospace industry has a proven track record delivering manufacturing, maintenance, research and development, and training and education services globally.

The Australian industry is significant, generating revenues of around A$4 billion. The sector has approximately 830 firms and around 14,000 employees.1-3

Education, design, safety, innovation and research and development are key strengths. Most of Australia’s major aerospace manufacturing companies operate globally, with exports in the industry accounting for more than a fifth of total industry revenue.2

Australia’s innovative advanced manufacturing capability is in strong demand in global supply chains. Australia’s capabilities are focused on high technology, high value-add, and high-skill manufacturing that uses advanced design, processes, materials and technologies. Expertise in this sector is underpinned by a strong network of support from the public and private sector and a deep pool of technical talent.

Australia’s aerospace industry encompasses aero structure component manufacture; development and supply of systems engineering and avionics; manufacture of light aircraft for training, agricultural and recreation uses; maintenance, repair and overhaul (MRO) services for domestic and overseas airlines; and pilot and engineering training.

Expertise and capability includes:

- solid track record in aerospace programs and experience in working on commercial aircraft programs and classified military projects
- design, manufacture and software/systems engineering
- flexible innovative technology and volume manufacturing
- integrated support solutions, health and usage monitoring systems, information and training systems
- capability to deliver projects within short lead times
- transport infrastructure and delivery systems that are highly developed and efficient.

The Australian aerospace capability comprises four main segments:

- manufacturing, including commercial and military aircraft and parts
- maintenance, repair and overhaul and extending aircraft life
- research and development
- training and business services.
MANUFACTURING

Australia’s aerospace manufacturing industry is dominated by large scale light metal (e.g. titanium and aluminium) and composite component and sub-assembly production activities. Component manufacturing expertise covers both commercial and military aircraft, including large composite structures.

Commercial aircraft parts manufacturing accounts for 33 per cent of the market, with the manufacture of military aircraft, parts and missiles and maintenance, repair and overall services comprising the other main sectors.

Australia’s technological manufacturing skills have led to the design and supply of high value-add manufactured components for the world’s major aircraft companies. Boeing, Airbus, Lockheed Martin, Eurocopter and BAE Systems are just some of the international companies utilising Australian innovation and expertise.

Particular areas of expertise include metal and composite aero structure component manufacture and assembly; development and supply of systems engineering and avionics; and the manufacture of light aircraft for training, agricultural, recreation, surveillance and charter uses.

Australia also has capability in the supply of specialty alloys and materials, parts, engineering and manufacturing services, certified metals processing and heat treatment (e.g. IATA and NADCAP certification) for manufacture and repair, high quality precision tooling and equipment, unmanned aerial vehicles (UAVs), specialised ground support equipment and other niche products.

Australian aerospace sectors by revenue 2012-13

- Total: $4.4bn
- Commercial aircraft and parts: 33%
- Military aircraft, parts and guided missiles: 30.5%
- Maintenance, repair and overhaul: 29.8%
- Light aircraft and parts: 6.7%
MAINTENANCE, REPAIR, OVERHAUL AND EXTENDING AIRCRAFT LIFE

Australian companies offer substantial expertise in maintenance, repair and overhaul (MRO) services for both domestic and overseas airlines. Australian capability has led to international demand and the export of MRO services. The industry delivers innovative technologies and has considerable experience in delivering complex aircraft systems and services.

Specific maintenance and life extension expertise covers a range of aircraft including C-130, P-3, F/A-18, Hawk 127, PC-9, MiG-17, CT-4, CH-47 Chinook, S-70 (SH-60) Seahawk, and Dash 8, Boeing and Airbus commercial aircraft.

Australian industry has the ability to provide world leading services and expertise in all aspects of aircraft maintenance, repair and overhaul, advanced maintenance, upgrades, and condition and health monitoring. These can be scheduled or unscheduled in nature and further described as breakdown, preventative, predictive or proactive activities.

RESEARCH AND DEVELOPMENT

Australian research and development (R&D) in aerospace is strong and features many thriving public-private partnerships. Some examples of Australia’s R&D strengths and collaborative efforts include:

- Australian Advanced Manufacturing Research Centre (AusAMRC) – a new collaboration between Boeing and Swinburne University that will develop technology-driven solutions to ensure Australian suppliers are among the most innovative, competitive and capable in the world.
- Cooperative Research Centre for Advanced Composite Structures (CRC-ACS) – this CRC, based at Monash University, has built a global reputation for composites research, in close collaboration with industry.
- Advanced Manufacturing Cooperative Research Centre (AMCRC) – based at Swinburne University of Technology, this CRC develops next-generation technology platforms across numerous manufacturing sectors.
- Platform Sciences Laboratory in the Defence Science and Technology Organisation (DSTO) is Australia’s leading aeronautical research institute.
- Defence Materials Technology Centre (DMTC) provides technological solutions to enable industry to enhance Australian defence capability.
- Sir Lawrence Wackett Aerospace Centre at RMIT University works on the development of next-generation aerospace technologies.
- Materials Science and Technology division of CSIRO (the Commonwealth Scientific and Industrial Research Organisation).
- Many other researchers at the Universities of Sydney, New South Wales, Monash, RMIT and Queensland.
Charter air transportation and air training are the Australian industry’s major service segments.

Charter air transportation includes rental or leasing of aircraft with crew, used mainly for passenger transportation and sightseeing.

The air training segment has performed solidly in recent years due to the strong demand for commercial pilots and Australia’s specialist skills in this area. Australia’s geography and location are ideal for pilot and air skills training.

Local firms train an increasing number of overseas students and trainees, and inward investment in the segment is strong.

Particular areas of training expertise include:

• Australian universities and vocational education and training institutions offer world-class courses in aerospace engineering, attracting international students and fostering collaborations with international education bodies.

• Australian industry providers offer aeronautical, avionics technical training and other engineering training, in addition to cabin crew training and aviation English training.

Australian business services expertise includes:

• fixed-base operator (FBO) services

• services companies providing aeronautical services such as fuelling, hangaring, tie-down and parking, aircraft rental, aircraft maintenance and flight instruction

• integrated resources management and logistic services – for example, continual tracking of all airframe and engine components and inventory systems.
Boeing looks to Australia for innovation breakthroughs

Case study: research and development

Boeing, the world’s leading aerospace company, and the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia’s leading research and science agency, have been in partnership for more than 23 years.

With the whole world to choose from, the aerospace giant turned to CSIRO for its innovative ideas, skills, and expertise in research.

And it is a partnership which is paying dividends: CSIRO was named one of Boeing’s suppliers of the year in 2010 and a joint Boeing-CSIRO project was awarded a CSIRO excellence award in 2011.

In addition, it has delivered a number of technological breakthroughs, including topcoat reactivation technology for recoating Boeing airliners, airspace and airport congestion simulation tools and sustainable aviation fuels.

In May 2012, the two organisations announced a new five-year, A$25 million research program to cover innovations in space sciences, advanced materials, energy and direct manufacturing.
Lovitt Technologies partnering with high flyers

Case study: manufacturing

Lovitt Technologies Australia, a Melbourne-based specialist aerospace and defence manufacturer, produces components for some of the world’s most advanced military aircraft. In February 2013, Lovitt was awarded contracts with Boeing valued at around A$4 million for machined parts for the global F/A-18 Super Hornet fleet.

Lovitt is one of a number of Australian companies winning international contracts through the Global Supply Chain Program. It has previously been awarded a Super Hornet contract in 2012, along with other contracts to supply machined parts for the V-22 Osprey, CH-47 Chinook and P-8 Poseidon.

Lovitt Technologies is also an important Australian supplier for the F-35 Joint Strike Fighter, delivering complex machined airframe components to Lockheed Martin. A particular milestone was achieved in August 2012, with the delivery of the first Australian made component for the first F-35 for the Royal Australian Air Force, which is currently in production in the USA.
Careers take off at Flight Training Adelaide

Case study: training

Airlines around the world are looking to Australia as an ideal setting for pilot training and Flight Training Adelaide (FTA) is a leader in this field. It has been training airline cadets since 1982, working with many of the world's major airlines along the way. As well as serving Australian carriers such as Virgin Australia, QantasLink and being an approved training provider for Australia’s national carrier Qantas, FTA is currently providing training for Cathay Pacific, Dragonair, Hong Kong Government Flight Services, the China Rescue and Salvage Service (Helicopters) and the Hong Kong Civil Aviation Department. Different aviation customers have their own requirements for courses and FTA caters for all of these.

It also ensures that its training courses are delivered to the standards set by different Civil Aviation Regulators and that they meet the rigorous requirements of the various international regulatory bodies.

By partnering with so many different airlines, FTA has developed a broad understanding of the unique training practices and cultural operating environments of each individual airline and continues to deliver tailor-made training solutions for aviation companies around the world.
Advanced facilities help Ferra stand out

Case study: manufacturing

‘Our initial supplier was close to 18 months behind schedule. Ferra was one of the fastest and most efficient supplier transfer programs within the group, and brought the schedule back on track in less than 3 months’ – Eurocopter Supplier Management

Ferra has recently signed a number of long-term agreements with Boeing for supply of P-8, CH-47, F-18, 767 and 747-series components, as well as contracts to produce Weapon Pylons and Mission Kits for the MH-60R Romeo helicopter and components for the F-35 project. It is also involved in research partnerships with Lockheed and the University of Queensland for advanced titanium machining and manufacturing processes.

Industry awards and recognition for Ferra include Boeing Supplier of the Year for 2011 in the International Category, Platinum supplier status award from Northrop Grumman and a Boeing award for outstanding supplier achievement for its bulk head machining project.

A commitment to advanced facilities and R&D has helped Brisbane-based Ferra Engineering become a leading partner to aerospace OEMs in the Australasian region.

Specialising in the design, manufacture, assembly and testing of aerospace structures and sub-systems, Ferra’s customers include Airbus, Boeing, BAE Systems, GE Aviation, Goodrich, Lockheed Martin, Thales, Marvin Engineering, Northrop Grumman, Parker and Rolls Royce.

Photo courtesy of Ferra Engineering
Ryan Aerospace takes helicopter training in a new direction

Case study: training

When pilot Chris Ryan started helicopter training over ten years ago, he spotted a gap in the market – and decided to do something about it. Ten years on, his company Ryan Aerospace produces COTS (commercial off-the-shelf) helicopter and fast jet simulators and synthetic training devices for international clients including Boeing, the Royal Air Force (United Kingdom), the Australian Navy, the Indonesian Navy, the Saudi Arabian Military, commercial training schools and human factors analysis labs.

The company’s flagship product, the Helimod, is a unique design that allows users to ‘bolt on’ aircraft-specific modules to a main platform which replicates a generic helicopter configuration. Combined with display systems that replicate the pilot’s view outside the cockpit, the system can deliver highly realistic training at a fraction of the cost of flying time in a real helicopter.

‘While demonstrating the Helimod for the US Navy, one official commented that it was 80 per cent of the solution at about two per cent of the cost,’ Mr Ryan said.

‘The Helimod can teach basic flying and airmanship skills, emergency procedures, navigation and weather avoidance and interaction. It has also found a place in aeronautical testing laboratories around the world, being used for human factors analysis and lab software testing. The machine is also being used by military organisations for combined arms training,’ Mr Ryan said.

A dual-control version, the Helicrew, is now also in production.

In addition to winning numerous Australian industry awards, Ryan Aerospace was chosen as one of four finalists in the US-based Aviation Week Aerospace and Defence Supplier Innovation Challenge 2011.

Photo courtesy of Ryan Aerospace
Airbiz – in demand from Brussels to Botswana

Case study: business services

Airbiz Aviation Strategies, an Australian aviation and airports consultancy, is providing expertise for major airport and aviation developments around the world. The Melbourne-based company has completed consultancy projects in over forty countries on five continents, and now earns more than half its income from international work.

Airbiz’s expertise and services cover the gamut from strategic planning in airport master plans to feasibility studies and terminal and airfield simulations. Its airport management work includes testing for operational readiness and terminal design, including spatial analysis and airport retail analysis and planning. It also advises on aircraft noise, traffic forecasting, aviation policy, airport systems, financial modelling, expert evidence and due diligence.

Airbiz played a key role in the new C$3 billion Calgary International Airport (YYC), Canada’s third busiest. The company was selected as the specialist aviation planning and simulation consultant for the runway modelling and environmental assessment for Calgary’s C$500 million new parallel runway. It also provides planning and project management services for the upgrade of passenger concourses.

Other recent overseas projects have included work with Queenstown Airport Corporation in New Zealand on a Common Departure Terminal development to allow the airport to respond to rapid growth in tourist numbers, and terminal planning projects in Brussels and Botswana.
Quickstep spreads its wings

Case study: manufacturing

The C-130 Hercules airlifter is one of the best-known and longest-serving military aircraft in the world. Its latest version, the C-130J Super Hercules, is set to take off with parts manufactured by the Australian firm Quickstep. An advanced carbon composites manufacturer, Quickstep has recently received its first purchase order as part of a contract with Lockheed Martin to supply composite wing flaps for the Super Hercules.

The first step of the agreement involves preliminary work such as planning, process qualification, tooling and training activities. Together with the recent grant of a Manufacturing Licence Agreement, these activities pave the way to starting deliveries following the receipt of a $A12 million order in September 2012 covering one year of supply. The program is expected to generate revenues of A$75 million to A$100 million over five years.

The first delivery of parts is expected in the middle of financial year 2013-14 and will feed the Lockheed Martin C130J assembly line in Marietta, Georgia, in line with global supply chain delivery arrangements.
The following are some of the government and industry bodies involved in the Australian aerospace industry.

Contact your local Australian Trade Commission representative about connecting and partnering with the Australian aerospace industry.

**Australian Industry and Defence Network (AIDN)** is the industry association for small-to-medium enterprises (SMEs) wishing to do business in the defence and security sectors. [aidn.org.au](http://aidn.org.au)

**Australian Business Defence Industry Unit (ABDIU)** is a nationally-focused organisation based in Canberra that assists companies in defence-related activities to maximise their business potential through advocacy, market information and assistance in providing relevant products and services for the defence and broader national security markets in Australia and overseas. [nswbusinesschamber.com.au/abdefence](http://nswbusinesschamber.com.au/abdefence)

**Aviation/Aerospace Australia** is the national association representing the aviation and aerospace industries. [aviationaerospace.org.au](http://aviationaerospace.org.au)

**Australian Helicopter Industry Association (AHIA)** is a new body formed to represent the Australian helicopter industry. With more than 2,000 helicopters on the CASA Aircraft Register, Australia has the sixth-largest civil helicopter fleet in the world. [austhia.com](http://austhia.com)

**Aviation Maintenance Repair Overhaul Business Association (AMROBA)** is a non-profit organisation dedicated to represent the maintenance, repair and overhaul segment of Australia’s aviation industry. [amroba.org.au](http://amroba.org.au)

**Airframe and Engine MRO in Australia** provides a list of links to a number of third-party or contract aerospace Maintenance, Repair & Overhaul (MRO) companies and organisations in Australia. [airlineupdate.com/content_subscription/mro/oceania/australia.htm](http://airlineupdate.com/content_subscription/mro/oceania/australia.htm)

**Airservices Australia** is a government-owned corporation responsible for providing airspace management, aeronautical information, aviation communications, radio navigation aids and aviation rescue and firefighting services to the aviation industry in Australia. [airservicesaustralia.com](http://airservicesaustralia.com)

**Civil Aviation Safety Authority (CASA)** is responsible for regulating the industry and maintaining safety standards. [casa.gov.au](http://casa.gov.au)

**The Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education** helps industry to become more efficient, competitive and innovative. [innovation.gov.au/Industry/Aerospace/Pages/default.aspx](http://innovation.gov.au/Industry/Aerospace/Pages/default.aspx)
JSF Team Australia – Joint Strike Fighter program. Team Australia is a partnership of industry and Government to provide the first point of contact for information about Australian industry and technological capabilities for the JSF program. [link](http://innovation.gov.au/Industry/Defence/JSF/Pages/default.aspx)

Extending Aircraft Life program recognises Australian industry’s unique capabilities and ability to provide world leading services and expertise in all aspects of aircraft maintenance, repair and overhaul, advanced maintenance, upgrades and condition and health monitoring. [link](http://innovation.gov.au/Industry/Defence/Pages/ExtendingAircraftLife.aspx)

Defence Materiel Organisation (DMO) is Australia’s largest project management organisation. Its mission is to acquire and sustain equipment for the Australian Defence Force (ADF). [link](http://defence.gov.au/dmo)

Australian Military Sales Office (AMSO) within the Defence Materiel Organisation works closely with Australia’s defence and aerospace companies to help them export their products and services. Team Defence Australia trade missions and Australian pavilions at international trade exhibitions are used to showcase Australia’s capabilities across all domains. As well as providing advice on Australia’s defence industry capabilities, AMSO facilitates government to government sales of defence equipment and services. [link](http://defence.gov.au/deu)

Defence Science and Technology Organisation (DSTO) is the Australian Government’s lead agency charged with applying science and technology to protect and defend Australia and its national interests. [link](http://dsto.defence.gov.au)

Industry Capability Network (ICN) is a business network that introduces Australian and New Zealand companies to projects, both large and small, in Australia, New Zealand and other international markets. [link](http://icn.org.au)

Simulation Australia is the peak association for the simulation industry in Australasia. Simulation Australia provides a forum for discussion and distribution of information, and to advance the research, development and use of simulation technologies and practices in society, industry, academia and government. [link](http://simulationaustralia.org.au)

Simulation Australia training and simulation industry capability directory can be found here: [directory.simulationaustralia.org.au](http://directory.simulationaustralia.org.au)
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4. IBISWorld, C2824 Aircraft Manufacturing in Australia, December 2012.
The Australian Trade Commission – Austrade – is the Australian Government’s trade, investment and education promotion agency.

Through a global network of offices, Austrade assists Australian companies to grow their international business, attracts productive foreign direct investment into Australia and promotes Australia’s education sector internationally.

Austrade helps companies around the world to source Australian goods and services. We can help you reduce the time, risk and cost involved in sourcing suppliers by:

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