

Aircraft Platforms

Projects in the Aircraft Platform program are largely concerned with developing composites, building components for aircraft engines, developing a domestic capacity to manufacture and sustain these components, and developing prognostic health monitoring systems for detecting component degradation.

Projects that concentrate on the affordable manufacture of difficult-to-machine alloys and superalloys and the advanced tooling technologies for the manufacture of these components will address identified gaps in Australia's supply chain to improve domestic competitiveness.

Research in this program will also focus on developing prognostic tools to reduce the impact

of corrosion on military aircraft, including filling the capability gaps in the Australian Defence Force's preventative maintenance practices.

Key materials in Australian defence aircraft platforms include composites, aluminium alloys, titanium alloys for structural components, and nimonic superalloys for engine components. Projects will examine both mechanical and chemical degradation of paints and alloys.

Outputs of the Aircraft Platform program will include the development of predictive tools for incorporation into the existing prognostic health management systems to enable in-service diagnosis, and the development and robust predictive capability through validation and verification of the models.



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Project example:

DMTC will develop techniques to accurately and rapidly assess damaged parts in the design, fabrication and operational phases of a component structure's life using advanced and evolving NDI methodology. A tool will be developed for the automatic identification of common defects in composites, and the criticality of the defects factored into the model to determine component acceptance or rejection.

Opportunities to engage and build a small to medium enterprise (SME) network linked to other key members of the defence aircraft component supply chain will be explored under this program.

Program Benefits:

- Manufacture of affordable titanium components to provide supply contract opportunities with the Joint Strike Fighter and other global supply chain procurement programs
- Better prognostic tools to assist in managing maintenance programs
- Highly-skilled domestic industry
- Building the whole-of-supply-chain for delivery of manufacturing technologies within Australia

to provide strong competitive advantage in marketing total service to domestic and international clients

- Adaptability of products to dual-use applications across industry sectors including civil aviation, marine, automotive, medical and power generation
- Improved preventative maintenance programs
- Development of predictive tools for paint and alloy degradation
- Improved asset performance and through-life support
- Reduced cost of asset ownership
- Expertise at customising equipment for Australian requirements
- Improved manufacturing and operational efficiency
- Capability to automate the detection of defects in composites during design, fabrication and operational phases
- Research outcomes will be used to develop commercial-grade software
- Validation of implemented analysis techniques through a comprehensive testing program

