

AUTOMATIC DEPENDENT SURVEILLANCE BROADCAST (ADS-B)

Airservices is a world leader in the use of satellite-based technology, with all flights at or above 29 000 feet now provided with enhanced air traffic control surveillance courtesy of Automatic Dependent Surveillance Broadcast (ADS-B).

Australia commissioned the world's first continent-wide ADS-B system in 2009. It delivers radar-like coverage of aircraft movements in upper airspace across Australia, leading to enhanced surveillance, increased safety and greater efficiency.

HOW IT WORKS

ADS-B technology broadcasts an aircraft's call-sign, position, altitude, velocity and other data, twice every second. This enables aircraft to be accurately tracked by air traffic controllers and other pilots without the need for conventional radar.

THE AUSTRALIAN SYSTEM

Australia's ADS-B system is made up of 61 duplicated ADS-B ground stations and multilateration sites. These deliver continuous surveillance of aircraft operations in high level airspace across western, central and northern Australia where radar coverage does not currently exist and also in the Sydney basin and across Tasmania.

The ADS-B ground stations are connected to Airservices digital national communication network, which uses fibre optic technology with satellite back-up to ensure security and reliability of information transmission.

Airservices plans to install 13 new ADS-B ground stations to enhance its coverage of satellite-based air traffic surveillance in Australia's airspace. The new ground stations will bring the national ADS-B network to 74 ground stations.

In addition, Airservices and the Indonesian Directorate General of Civil Aviation began exchanging ADS-B data between the two countries' Flight Information

Regions in November 2010. A world-first, the ADS-B data exchange allows air traffic controllers to precisely track aircraft up to 150 nautical miles (around 278 kilometres) inside the other country's airspace.

BENEFITS

The accuracy of the ADS-B information displayed on air traffic controllers' screens allows them to reduce separation between aircraft to five nautical miles (around 9 kilometres) instead of 30 nautical miles (around 55 kilometres). This accuracy leads to improvements in safety and the efficiency of the airways system.

ADS-B data is used to provide air traffic controllers with automated safety alerts. This includes continual monitoring of the assigned route and altitude to alert controllers to any discrepancies.

The availability of ADS-B during times of tropical storms and turbulence also means less restrictive diversions around bad weather, faster access to preferred flight routes and levels, and better situational awareness of other aircraft.

ADS-B also improves the management of traffic flows into and out of busy east coast air corridors. It delivers environmental benefits by enabling aircraft to reduce fuel burn and emissions.

ADS-B can be also used for Reduced Vertical Separation Monitoring (RVSM) on revenue flights reducing the costs of RVSM validation.

ADS-B IN products for large airliner aircraft as well as small aircraft are also now available which allow pilots to see nearby aircraft on cockpit displays.

ADS-B MANDATES

The Civil Aviation Safety Authority (CASA) has published a range of regulations concerning the fitment and use of ADS-B. These regulations impact both Australian and foreign registered aircraft that intend to operate in Australian territorial airspace.

The first CASA mandate came into effect on 12 December 2013 requiring aircraft operating under Instrument Flight Rules, at or above 29 000 feet, to be fitted with ADS-B. All aircraft first registered after 6 February 2014 also require ADS-B to conduct instrument flight rules (IFR) operations.

By 2 February 2017 every IFR aircraft flying in Australia's airspace, at all levels, must be fitted with ADS-B.

FOR MORE INFORMATION

Contact Airservices on 1300 301 120, or visit www.airservicesaustralia.com/projects/ads-b/other-mandates-2014-2017 for more information on ADS-B, mandates and fitment requirements.

Where do you fit?	On or after	Requirement
All flights at/above FL290	Implemented on 12 December 2013	Must be ADS-B capable
Addition to Australian register	Implemented on 6 February 2014	Must be ADS-B capable GNSS avionics required
Replacement transponder	Implemented on 6 February 2014	Must be ADS-B transponder
Operating 500NM from Perth	4 February 2016	Must be ADS-B capable
IFR aircraft (aerial work/private operations)	4 February 2016	GNSS avionics required
Operate to BNE, SYD, PER or MEL	4 February 2016	Mode S transponder required
All IFR aircraft	2 February 2017	Must be ADS-B capable