

# Installation of ADS-B and PBN Equipment

With ADS-B becoming mandatory in controlled airspace above flight level 245, aircraft owners will need to equip their aircraft with compatible technology.

New Zealand's surveillance radar system is being replaced by Automatic Dependent Surveillance – Broadcast (ADS-B). In July 2018, rule changes became effective that require ADS-B OUT for all aircraft flying in controlled airspace above flight level 245. The rule changes also set the standards for all ADS-B systems.

Aircraft that do not meet the new rule standards can operate in controlled airspace above flight level 245 by operating in Mode A and C, or Mode S until 31 December 2018.

However, from 31 December 2018, all aircraft operating in controlled airspace above flight level 245 are required to be equipped with transponders that meet the new rule standards for the ADS-B systems, and operate in ADS-B OUT mode.

The CAA is proposing to extend the ADS-B mandate to cover all controlled airspace from 31 December 2021. In preparation, the new rule requires any ADS-B systems already on, or being fitted to, aircraft will need to meet the rule requirements. You can now be certain about what ADS-B equipment you'll need to meet the 2021 mandate.

At the same time, New Zealand is progressing towards a full Performance Based Navigation (PBN) environment by 2023. This means IFR operators will be required to equip with GNSS capability if they want to use GPS as their primary method of navigation.

If you're thinking ahead, or need to replace your transponder or GNSS receiver now, there are three things to keep in mind:

- » For your transponder, look for TSO-C166(b).
- » For your GNSS receiver, look for TSO-C145 or 146.
- » Make sure your transponder and GNSS receiver are compatible.

You can now buy all-in-one ADS-B units that include the transponder and a GNSS receiver.

It's important to note that the Universal Access Transceiver system (UAT) used in the US will not be implemented here. Operators shouldn't buy or fit UAT equipment because it's not compatible with the 1090 MHz system (UAT operates on 978 MHz).



Photo: Garmin

The installation of ADS-B or PBN equipment is considered a Design Change. Therefore, the installation of this equipment will require Acceptable Technical Data (ATD) and an approved installer.

ATD is defined in Part 21 *Certification of Products and Parts*, Appendix D. ATD for the installation of ADS-B or PBN equipment includes:

### **Service Bulletin**

A Service Bulletin (SB) is the document used by manufacturers of aircraft, their engines or their components, to communicate details of modifications that can be embodied in aircraft. In some cases, these may be issued as a Mandatory SB in which case a corresponding Airworthiness Directive will be issued by the appropriate national airworthiness authority.

### **Supplemental Type Certificate**

A Supplemental Type Certificate (STC) is an approval of a major modification covering those areas or aspects of an aeronautical product that were modified, including updates to the Flight Manual, user guides or manuals, and instructions for continuing airworthiness.

### **Approved Model List – Supplemental Type Certificate**

An Approved Model List – Supplemental Type Certificate (AML-STC) is intended for installations that are identical or similar and that share baseline data between the models. This streamlines the certification effort by avoiding unnecessary testing and re-submission of data that is common to more than one model of aircraft. Your specific aircraft type and model must be listed in the AML-STC for it to be considered ATD.

If an SB, STC, or AML-STC is available for your aircraft type, an approved installer can use this ATD to install ADS-B or PBN equipment into your aircraft as a modification. Depending on the complexity of the associated equipment installation or test requirements, this modification may be classified as 'Major'. This requires conformity on a CAA337 *Conformity Certificate – Major Modification, Major Repair* by an IA or Part 145 *Aircraft Maintenance Organisation* equivalent.

If an SB, STC or AML-STC is not available for your aircraft type, support from a Part 146 *Aircraft Design Organisation* or OEM will be required to develop and certify ATD in accordance with the guidance set out in Part 21.

### **More information**

- » Refer to Advisory Circulars AC21-5 *Approval of modifications covering aircraft ferry fuel systems and overweight operation* and AC43-14 *Avionics, Installations – Acceptable Technical Data*. Also, a simplified process flow chart is available on [nss.govt.nz](http://nss.govt.nz) that depicts the process of using ATD for ADS-B or PBN equipment installation.
- » For any questions about the design change process, email [airworthiness@caa.govt.nz](mailto:airworthiness@caa.govt.nz).
- » For general questions about ADS-B or PBN, email [adsb@caa.govt.nz](mailto:adsb@caa.govt.nz) or [pbn@caa.govt.nz](mailto:pbn@caa.govt.nz). ■



## Introducing Don Huse

The new deputy chairman of the Board brings with him years of experience in airport management and governance...and a Tiger Moth tie.

**T**he involvement in aviation of the newest Board member, Don Huse, stretches back to 1991.

In that year he was appointed chief executive of Wellington International Airport. In his eight years at the helm, the airport's terminal facilities were greatly upgraded, and the company moved from a Crown and city council joint venture to being partially privatised.

"That was my first exposure to the Civil Aviation Authority," says Don. "The CAA's responsibility for aviation safety and security aligns absolutely with the interests of an international airport, and I developed a deep respect for how the Authority went about its business."

As chief financial officer at Sydney Airport from 1998 to 2003, Don was again deeply involved in major airport development projects, culminating in privatisation in mid-2002.

Back home, as chief executive of Auckland International Airport for five years, Don was once more leading major airport development, closely interacting with all the major players in New Zealand's aviation sector. From 2008 until 2013, Don was a director of Sydney Airport Corporation.

He is greatly looking forward to his new role.

"Aviation is a dynamic industry, often at the cutting edge of many world-changing technologies, such as those we are now seeing with unmanned aircraft.

"Aviation makes a tremendous contribution to the national economy and to the country's security and well-being. It's a critically important sector to New Zealand.

"But to remain vibrant it must also be safe and secure. You cannot have one without the other."

And the Tiger Moth tie? "I wish I could tell you a fascinating tale of how it entered my possession," says Don, laughing.

"But I saw it in a shop in Sydney and – thinking of all the Tiger Moth aircraft assembled at Wellington Airport all those years ago – I just had to have it!" ■