

ADVICE FROM ADS-B EQUIPPED PILOTS

The government's ADS-B grant scheme has received more than 500 applications. Three pilots told *Vector* about the difference the technology has made to their flying, and what to watch out for.

South Island pilots Ian Andrews and Ian Sinclair say their ADS-B technology came into its own on a recent AOPA safari around the top of the island.

"At no stage did I not know where the other two in my group were," says Ian Andrews.

"Even flying down the remote Clarence River valley to Quail Flat, we all knew where each other was.

"When we came out of the Clarence onto the coast, heading back to Kaikōura, there was a lot of traffic going in all directions. In most cases the ADS-B IN told us where to look long before we saw the aircraft."

"Many of the places we flew," says Ian Sinclair, "weren't covered by cell data networks so 'in app traffic sharing' services, like in OzRunway, didn't work.

"But ADS-B IN relies only on other aircraft having ADS-B OUT. It works everywhere."

Increasing uptake = increasing safety

Ian Sinclair says he got the technology because he wanted to play his part in safety and be electronically conspicuous to others.

"I enter controlled airspace fewer than 10 times a year, but I want the choice to do so. My flights quite often take me into transponder mandatory zones however."

He says the growing take-up of the new tech will obviously add to safety.

"When the Rangitata River bridges were out (due to flooding in December 2019) it was interesting to fly in that area with about half of the aircraft transmitting with ADS-B OUT.

"I regularly fly into Wanaka where there are a good number of aircraft equipped with ADS-B OUT. I've had several traffic alerts in the circuit. All have been for traffic that I'd already viewed out the window, but it's reassuring to see the system working as it should."

Modern ADS-B technology fitting nicely into a simple Cessna 172 cockpit.



Great traffic information

Ian Andrews says the technology gives him traffic information almost equal to what a passenger aircraft pilot would receive.

“My PA28-236 has a Garmin glass cockpit, ADS-B OUT via a Trig TT31, and ADS-B IN using a Garmin GTS 800 traffic awareness unit. This is more than just ADS-B, although I think ADS-B is the best part of the system.

“With the G500 screen right in front of me, the direction of traffic and height difference between aircraft is clearly shown on the MFD page.”

Avoiding a near miss

Steven Perreau of North Shore describes how ADS-B helped him avoid a possible near miss.

“I was coming back from Whangārei and flew out to the coast. I noticed a target on the screen and I could tell it was a ground target because it was displaying as a brown diamond. That told me it wasn’t moving.

“I’m going, ‘what the heck? There’s no airfield out here. That’s really odd’.

“So I climbed to about 900 feet and moved further out to sea for a good look. And I saw some sort of resort with a helicopter on the ground, deep in trees, with its rotors turning. It was clear they’d started up and were about to take off.

“It wasn’t necessarily a ‘save’, but it’s possible the helicopter could have taken off from inside that group of trees, and I could have been in its path.”

Steven says even TCAS or ACAS wouldn’t have been able to warn him of that helicopter “because it’s unlikely it would have been on mode C. It would have been on Standby and transmitting nothing”.

“With the old tech, you just don’t get the sort of situational awareness that I got that day as the miles were ticking down.”

The audible assistant

All three pilots value the audible traffic alerts the technology provides. In fact Ian Sinclair feels they’re of even more value than the display.

“I really appreciate an ‘assistant’ who’s calling out traffic,” he says. “It adds to what I can see out the window, and hear on the radio, in building my situational awareness.

“On one occasion, I came over a ridge north of Masterton and received an audible warning ‘1.6 miles three o’clock low’. A Fletcher was landing on a fert strip on the other side of the ridge.”



// Aspen showing live ADS-B in traffic displayed in ARC mode in flight.

“Once, leaving Nelson,” says Ian Andrews, “there was an inbound Sounds Air plane passing overhead 1000 feet above me. I did see it out the window, but, should I have not done so, the audio sounding, ‘Traffic! Traffic! Traffic! One o’clock closing!’ would really have got my attention...”

Ian says the screen also did its bit to warn him of traffic in close proximity, flashing from black to yellow.

Steven Perreau tells a story of how the combo of display and audible alert warned him of hard-to-detect traffic.

“I was tracking towards Orere Point and another aircraft appeared on the screen. It was flying right to left at four to five o’clock, and the ADS-B told me it was about 200 feet below me.

“And then the audible traffic alert encouraged me to climb a little further, for more separation and to visually pick up the other aircraft.

“I’m a low wing. I would normally never have seen it. And – they were possibly making radio calls on another frequency – I never once heard a radio call from them.” »

// Lookout, good radio work, and predictable flight patterns all need to be maintained. //

» 'Enhancing' comms with Airways

Ian Andrews says ADS-B OUT also helped – sort of – when he was flying to Omaka from Nelson via the Wairau River.

“I had this great idea to do a Domes arrival from the west by using the transit lane below 1500 feet, to avoid talking to the Tower at Woodbourne.

“Before reaching the control zone I descended to 1400 feet AMSL. Anyone who knows that area will know you cannot stay at that height and cross the hills unless you're about 50 feet AGL. Naturally I didn't want that, so thought I'd sneak around the corner of the control zone.

“‘Nekminit’ I got a call from the Tower.

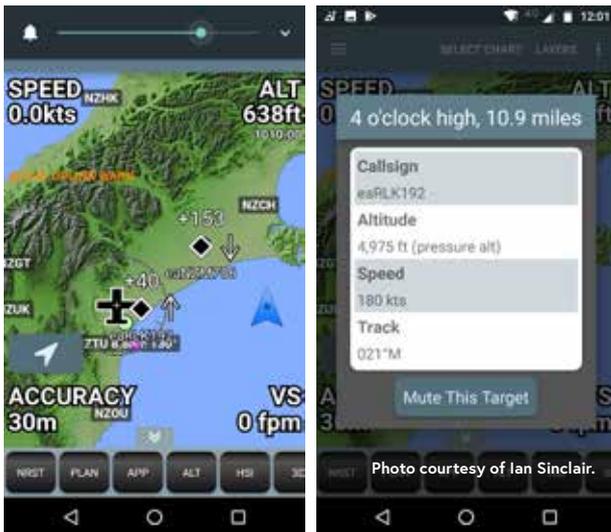
‘Foxtrot Mike Sierra, Woodbourne Tower’. He knew where I was and who I was.

“I responded with, ‘I know, I know. I'm just turning right to the Domes, sorry’.

“A mike click response let me know we understood each other.

“Was that a benefit or not? I think it was. It shows surveillance really works.

“Better to be spoken to early than face the consequences when you get too far into an area you shouldn't be in.”



// Moving map showing ADS-B target.



// Transponder and moving map.

Lessons

Steven Perreau says with ADS-B, the transponder should always be started up, not in Standby or Off, but in ALT mode.

“In ALT mode, the transponder knows you're on the ground, and it begins transmitting at a reduced rate, every few seconds, reporting you're on the ground.

“The transponder automatically switches from ground to airborne mode, and back again.

“Modern transponders, like the Garmin GTX 345 that we have in our aircraft, should always be started up in ALT mode, and when you land you don't touch it.

“You don't ever select Standby mode. The only reason you'd ever select Standby is if air traffic control told you, you were transmitting faulty data, because Standby would stop that transmission.

“But in Standby mode, the Garmin 345 still continues to receive traffic around you, using ADS-B IN.”

Ian Sinclair encourages other pilots to learn the new technology while still on the ground.

“You need to rate yourself on the new equipment and incorporate ADS-B operations into your procedures – before you fly.”

For Steven Perreau, ‘ground work’ means understanding what the display symbols represent.

“I read my manual backwards and forwards and learned all the symbols. If you understand what all the colours and shapes mean before you fly, you won’t be going, ‘What the heck is that showing?’ and getting all tied up looking at the display, instead of outside the cockpit.”

No replacement for the Mark 1 Eyeball

Steven says it’s important pilots new to ADS-B get to know their technology well.

“One day I got into our aircraft, and one of the guys in our syndicate had accidentally selected ‘traffic none’ so there’d be no traffic displayed. The Apsen glass cockpit can be set to a number of modes for traffic display ranging from *none*, *above*, *below*, *normal*, and *unrestricted* to give you the best traffic picture you want. I guess they set it to ‘none’ by mistake.

“So you can never assume that a lack of traffic on the display means there’s actually no traffic around.

“There can be a multitude of reasons why a target doesn’t appear. The other aircraft doesn’t have ADS-B, or it’s faulty, or it’s in Standby mode, or in ‘traffic none’ mode.

“You’d be a mug to use it 100 percent instead of the Mark 1 Eyeball.”

Ian Sinclair agrees. “You cannot be tricked into assuming all traffic is electronically visible. It’s not. Even though it has quite good eyesight, ADS-B IN is still only one tool in the awareness shed.

“Lookout, good radio work, and predictable flight patterns all need to be maintained.”

Avoid bedazzlement

Both Ian Sinclair and Steven Perreau warn against becoming intoxicated by the new tech.

“It can be very demanding of your attention,” says Ian. “You need to not be all-consumed by it.”

Steven Perreau agrees. “Every shiny new toy in the cockpit has the possibility to distract the living heck out of a pilot. If you’re VFR, you have to always be looking outside.”

Ian Sinclair says the basics do not change with ADS-B.

“It’s aviate, navigate, communicate – then technology.”

To keep up-to-date

To get the latest information on ADS-B and to apply for a grant, visit www.nss.govt.nz/adsb. ➔

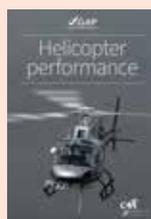
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