



Australian Government

Australian Transport Safety Bureau

Safety advisory notice

To pilots and aircraft operators

Number: AO-2024-041-SAN-001
Released: November 2025

Mode S transponder usage on the ground

Correct operation of approved mode S transponders can significantly improve situational awareness of other traffic on the ground. Electronic surveillance information is an effective trigger to alert pilots of other ground traffic. Early use of mode S transponders before taxi assists the process of 'alerted see-and-avoid' to identify and avoid traffic conflict.

What happened

On 15 July 2024, a De Havilland Aircraft of Canada Limited DHC-8 (Dash 8), registered VH-QOD, entered runway 05 at Wagga Wagga, unaware that a Piper PA-28, registered VH-XDK, was commencing its take-off roll from the reciprocal runway 23. The Dash 8 pilots did not detect the PA-28 until the crew of a third aircraft broadcast that there was an aircraft taking off.

Why did it happen

The pilot of the PA-28 reported selecting the mode S transponder mode to ON/ALT prior to entering the runway. This was in compliance with their operations manual and standard operating procedures. However, this meant that the aircraft would not be electronically conspicuous to other traffic in the vicinity of the aerodrome, prior to entering the runway.

While not a formalised procedure for the Dash 8 crew, electronic surveillance equipment could be used as an aid to identify potential conflicting ground movements. The crew of the Dash 8 reported that transponder information was used to identify potential traffic at the time to develop their mental model.

Safety advisory notice

AO-2024-041-SAN-001: The effective use of mode S transponders from the first movement of the aircraft can serve as an effective tool in adding another layer of collision avoidance between aircraft at a non-controlled aerodrome. Using the mode S transponder, particularly if the aircraft has ADS-B OUT capability, is the most effective way of making an aircraft electronically conspicuous and delivering maximum interoperability with other aircraft as well as the ground traffic environment. The ATSB advises pilots and operators to review their procedures to ensure that mode S transponders are on from first movement of the aircraft, particularly at non-controlled aerodromes.

Use of mode S transponders during taxi

At non-controlled airports, maintaining awareness of other traffic is critically important. Good airmanship dictates that all pilots should be looking out and using all available resources at their disposal. Pilots can guard against the issues highlighted by this incident by utilising all available tools at their disposal.

Turning your mode S transponder on prior to taxi will increase your electronic conspicuity to other aircraft, enhancing their situation awareness and alerted see and avoid practices. Likewise, using an electronic flight bag at a non-controlled aerodrome can enhance your awareness of other traffic in the vicinity when they are using mode S transponders or ADS-B.

Read more about this ATSB investigation: [Runway incursion involving De Havilland Aircraft of Canada Limited DHC-8, VH-QOD, and Piper PA-28, VH-XDK, at Wagga Wagga Airport, New South Wales, on 15 July 2024](#)