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ADS-B Trial in Airspace Below FL290

NAV CANADA is conducting a trial within specific airspace below FL290 in Montreal Flight Information Region beginning December 10th 2021, followed by Edmonton FIR in early 2022. This trial will represent the first time ADS-B data is used below FL290.

The trial will help evaluate performance, gather air operator and air traffic controller feedback, and address any potential technical issues prior to the mandate going into effect. Equipage will not be mandatory for this trial, which will only leverage aircraft that are already equipped to transmit to space-based ADS-B receivers. These equipped aircraft may benefit from ADS-B in areas not previously covered.

Questions and Answers

1. **What level of equipage is required to leverage space-based ADS-B?**

   In order to take advantage of space-based ADS, aircraft will need an appropriate transponder with ADS-B Out capabilities and performance. The ADS-B Out avionics performance standards required to take advantage of space-based ADS-B services is RTCA DO-260B or newer.

   The aircraft system will require an antenna able to broadcast out toward space-based ADS-B receivers emitting 1090 MHz Extended Squitter. Bottom mount transponders alone are insufficient. An antenna that emits the signal toward the satellites is required for space-based ADS-B receivers to acquire a reliable signal. The aircraft must have TCAS reporting serviceable and enabled.

2. **Is antenna diversity a requirement?**

   In order for our space-based ADS-B receivers to acquire a reliable signal, an antenna is required to emit the signal toward the satellites. This requirement can be met either through antenna diversity (the use of a top and bottom antenna) or with a single antenna that is capable of transmitting both towards the ground and up towards satellites.

3. **I am equipped with ADS-B but controllers are telling me I am not showing up. Why could that be?**

   - Your aircraft is not DO-260B compliant, or
   - Your aircraft does not have a top antenna installed or the top antenna is faulty, or
   - Your aircraft GPS is not performing correctly or with the level of accuracy required, or
   - Your ADS-B transponder is not programmed correctly

4. **Previous ATC saw me, and now I am not showing up. Why?**

    - You may have been filtered out if you are not DO-260B or not TCAS serviceable/enabled
    - You may not have a working top antenna
    - You may have been seen by the previous ATC person on radar not ADS-B

5. **What are some of safety benefits of ADS-B?**

    The safety benefits of implementing space-based ADS-B surveillance through the performance requirements mandate include:

    - increased ATC situational awareness through improved accuracy of aircraft position and trajectory;
    - increased pilot situational awareness for aircraft equipped with ADS-B In and Out capability;
    - earlier warnings/alerts of unexpected aircraft deviations;
    - support of Remotely Piloted Aircraft System (RPAS) detect-and-avoid capabilities installed by several leading drone manufacturers;
    - implementation of common surveillance technology to current and new airspace for a more seamless operating environment; and
    - improved emergency response for tracking and locating aircraft in distress. It is estimated that the use of ADS-B has the potential to reduce search and rescue times by an average of 85 minutes.

    There have been multiple instances in which space-based ADS-B data — provided by Aireon, the operator of the space-based ADS-B system — has contributed to the faster location and rescue of downed aircraft, including small airplanes. For example, in August 2021 a Cessna T206 Turbo Stationair crashed in an Idaho wilderness area while on a sightseeing tour. Rescuers indicated that the data was “extremely helpful” and saved a life in the crash that was found about 100 metres from the last data point.

    Space-based ADS-B has already helped make 2020 one of the safest years on record to fly over the North Atlantic Ocean. For more information, read our Blog post “Space-based ADS-B helps NAV CANADA reach new safety milestone”.

6. **How Do I input my flight ID into my aircraft?**

Entry of Flight Identification (FLTID)

ADS-B avionics transmit the Flight Identification (flight number) set in the avionics or flight management system. The ATC system uses that identification to correlate ADS-B position with the information contained in a filed flight plan. When entering the Flight Identification (flight number), pilots should ensure it exactly matches the Aircraft Identification in the ATS flight plan. (FPL-ABC201-IS)

Example Transponder Flight Identification

Common ERRORS when entering the Flight ID

The following are some commonly seen Flight ID entry errors:

- Using IATA 2 letter airline designator, instead of ICAO 3 letter airline designator (AB201 instead of ABC201)
- Entering of wrong flight number (eg from a previous leg) (ABC201 instead of ABC203)
- Entering leading zeros (ABC0201 instead of ABC201)
- Entering spaces (ABC_201 instead of ABC201)
- Entering departure/destination points/alternate (YOWYVR)
- Entering ABC when flight planned as CGABC