

AERONAUTICAL INFORMATION CIRCULAR 17/23

ADS-B WITHIN CANADIAN DOMESTIC AIRSPACE

(Replaces AIC 24/22, 30/22 and 10/23)

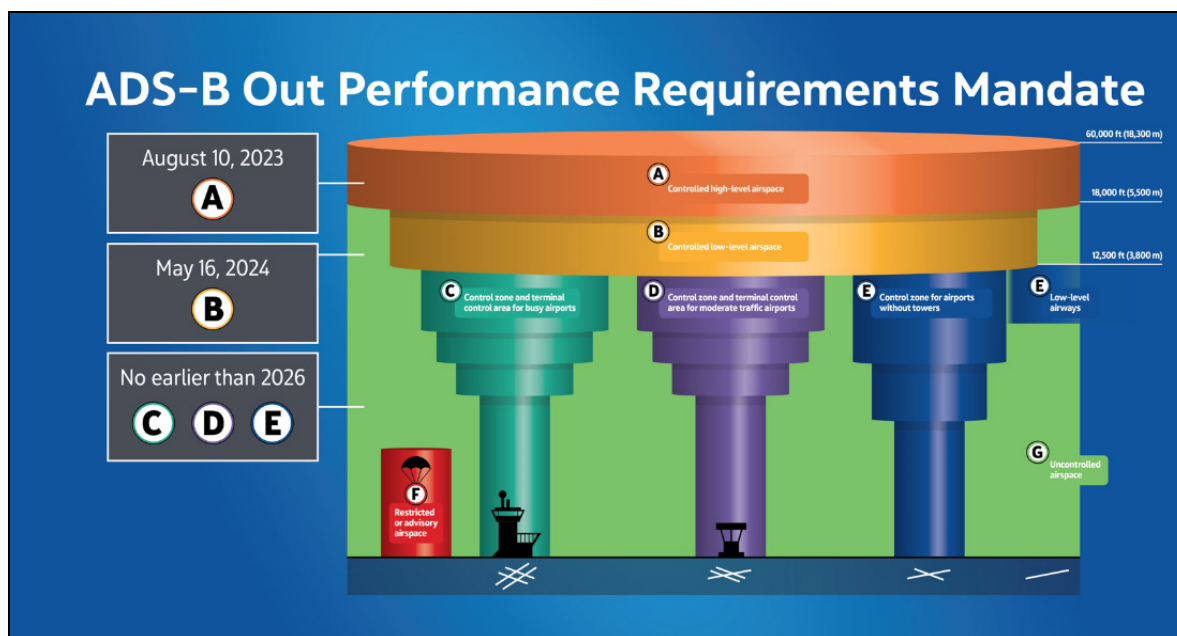
Introduction

Effective 10 August 2023, Canada implemented the first phase of an automatic dependent surveillance – broadcast out (ADS-B Out) Performance Requirements Mandate in Canadian domestic airspace. This first phase mandates ADS-B Out throughout Class A airspace. This aeronautical information circular (AIC) consolidates information previously available in various AICs and provides links to relevant source material.

Background

The Canadian ADS-B Out mandate puts forward a phased approach to expand the safety and efficiency benefits made possible by the availability of space-based ADS-B surveillance. Implementation occurs over multiple phases:

- Class A airspace became effective 10 August 2023
- Class B airspace will commence 16 May 2024
- Class C, D and E will commence no earlier than 2026, although the approach and timing for implementation in class C, D and E will be determined pending further assessment and stakeholder engagement



The ADS-B Out mandate is enabled through airspace classification designation and amendment to transponder airspace requirements, as described in the Designated Airspace Handbook, which is available on the NAV CANADA website: <https://www.navcanada.ca/en/aeronautical-information/operational-guides.aspx>.

Equipage Requirements

To demonstrate compliance with the Canadian ADS-B Out mandate, aircraft are required to:

- be equipped with an appropriate transponder with ADS-B Out capabilities that performs to the Minimum Operational Performance Standards of RTCA DO-260B, or newer; and
- have antenna capability for broadcast toward both ground-based as well as space-based ADS-B receivers. This requirement can be met either through antenna diversity (the use of a top and bottom antenna) or with a single antenna capable of transmitting both towards the ground and up towards satellites.

Aircraft equipment and installation requirements are defined in Airworthiness Chapter 551 – Aircraft Equipment and Installation – Canadian Aviation Regulations (CARs), section 551.103 – Transponder and Automatic Pressure Altitude Reporting Equipment, which is available at the Transport Canada website: https://tc.canada.ca/en/corporate-services/acts-regulations/list-regulations/canadian-aviation-regulations-sor-96-433/standards/airworthiness-chapter-551-aircraft-equipment-installation-canadian-aviation-regulations-cars#551_103

Aircraft that do not meet these criteria in airspace where ADS-B has been mandated will be filtered from Air Traffic Services (ATS) surveillance displays. Therefore in areas where ADS-B is the only available form of surveillance, ADS-B surveillance services will not be available.

Public ADS-B Performance Report

Aircraft owners and operators can request a Public ADS-B Performance Report (PAPR) that outlines the performance of ADS-B Out equipment installed on aircraft. Once the request has been submitted, the PAPR system will search through its inventory of past aircraft operations for a matching flight. If one is found, a report will be sent within 60 minutes. Items highlighted within this report indicate where the ADS-B system failed to meet certain corresponding performance requirements.

The following information is required to submit a PAPR request:

- The ICAO Aircraft Address in hexadecimal format (available at the bottom of any Canadian Certificate of Registration)
- The flight's start date and time
- The flight's end date and time
- A valid email address to send the report

The PAPR can be found on NAV CANADA's website here: <https://www.navcanada.ca/en/air-traffic/space-based-ads-b/public-ads-b-performance-report.aspx>

Flight Planning Requirements

Aircraft operators are expected to file the following ADS-B equipage in item 10b of the ICAO flight plan:

- B1 ADS-B with dedicated 1090 MHz ADS-B Out capability; or
- B2 ADS-B with dedicated 1090 MHz ADS-B Out and In capability.

In addition to the B1 or B2 code, aircraft equipped in accordance with the Canadian ADS-B Out mandate will also need to include the following new entry in item 18 of the flight plan:

- SUR/CANMANDATE

Aircraft operators planning flights in Canadian domestic Class A airspace require this new equipment identification in item 18 to indicate that the aircraft is equipped in accordance with the Canadian ADS-B Out mandate. However, even if the flight does not plan to enter airspace where ADS-B has been mandated,

aircraft operators are encouraged to always begin including SUR/CANMANDATE as soon as the aircraft is appropriately equipped.

Entry of Flight Identification (FLT ID)

ADS-B avionics transmit the Flight Identification (flight number or aircraft registration) set in the avionics or flight management system. ATS uses Flight Identification to correlate ADS-B position with the information contained in a filed flight plan. When entering the Flight Identification, pilots must ensure it exactly matches the Aircraft Identification in item 7 of the ICAO flight plan.

ADS-B Accommodation for Unequipped Aircraft

Due to supply-chain limitations experienced in the context of the global pandemic, some customers have identified that they may not be able to meet the equipage requirements in time for the mandate effective date and, in some cases, they may require additional time to comply. To help this small number of customers bridge the gap, so long as system capacity permits, NAV CANADA will strive to accommodate aircraft unable to transmit ADS-B in accordance with the Canadian ADS-B Out mandate, in a similar fashion as accommodations are handled today for aircraft without functioning transponders in transponder mandatory airspace.

The three principles NAV CANADA will apply for ADS-B accommodation requests will be: safety, type of ATC separation service available in a given airspace, and impacts to other airspace users.

Assessing ADS-B accommodation requests will be a manual process and will take time for each flight. NAV CANADA will need to assess alternative surveillance means for each flight and determine if all the affected air traffic control specialties will be able to adequately handle the procedural-separation needs of unequipped aircraft on requested routes and altitudes.

To provide enough time to perform each of these assessments, NAV CANADA will require ADS-B accommodation requests to be submitted at least three business days in advance. ADS-B accommodations for unequipped flights will generally be issued on a first-come, first-served basis, although NAV CANADA will ensure that requests for unequipped priority flights (such as MEDEVAC, VIP, Rescue, etc) will be prioritized.

NAV CANADA will always try to communicate the capability to accommodate the route and/or altitude as soon as possible, and in no case will it be later than four hours prior to the expected time of departure. In cases where routes and/or altitudes are not conducive to accommodate unequipped aircraft, NAV CANADA may be able to propose alternative flight planning options for the pilot to consider. For cases where NAV CANADA has agreed to accommodate a flight that is unequipped, details of what to include in item 18 of the flight plan will be provided. In-flight accommodation requests will not be considered and, if traffic conditions or other operational circumstances change, NAV CANADA may need to rescind already agreed upon ADS-B accommodations.

Individual ADS-B accommodation requests can be submitted online at the NAV CANADA website:

<https://aar.navcanada.ca>

Blanket accommodations may be made available to air operators with regularly scheduled flights. Air operators wishing to request a blanket accommodation agreement should contact service@navcanada.ca

90-day Implementation Transition

NAV CANADA and Transport Canada recognize the continuing supply chain challenges facing those that are in the process of equipping their aircraft to meet the Canadian ADS-B Out Mandate.

While the Class A mandate will be in effect on August 10, 2023, a 90-day transition period from August 10, 2023 to November 8, 2023 will be granted, in order to offer aircraft operators more time to acclimate. Aviation Occurrence Reports (AOR) will not be filed during this transition period in the event that an aircraft not equipped in accordance with the Canadian ADS-B Out mandate and has not received an accommodation agreement enters airspace where ADS-B is mandatory. During this 90-day period, NAV CANADA will

evaluate the removal of certain automation filters that may have previously prevented some ADS-B equipped aircraft from being visible to controllers below FL290.

Subsequent to this period, NAV CANADA will continue to assess accommodation requests and strive to accommodate aircraft unable to transmit ADS-B that is in accordance with Canada's ADS-B Out mandate.

Note: It is expected that aircraft operators will file SUR/CANMANDATE in the flight plan as soon as the aircraft is appropriately equipped, including during the 90-day transition period.

Further Expansion of ADS-B Surveillance Services

The Canadian ADS-B Out mandate is currently effective in Class A airspace, but NAV CANADA has also commenced offering space-based ADS-B surveillance services in areas where surveillance was previously not available, thereby providing greater situational awareness for air traffic controllers with safety and efficiency benefits for pilots.

To take advantage of space-based ADS-B outside of Class A domestic airspace, aircraft require traffic alert and collision avoidance system (TCAS) reporting that it is serviceable and enabled. TCAS is not an equipment requirement for the Canadian ADS-B mandate, but it is used as a proxy for the presence of a top-mounted antenna, for the purposes of filtering in airspace where no mandate for ADS-B is currently in effect. This approach to implementation has been undertaken to allow for ongoing evaluation and to gather air operator and ATS feedback prior to further phases of the ADS-B mandate coming into effect.

Further Information

Additional information on ADS-B can be found in AIP CANADA ENR section 1.6.3 available at the NAV CANADA website: <https://www.navcanada.ca/en/aeronautical-information/aip-canada.aspx>

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