AERONAUTICAL INFORMATION CIRCULAR 005/2026

OPERATIONS IN CANADIAN NORTHERN DOMESTIC AIRSPACE

Introduction

Canadian Domestic Airspace is geographically divided into two volumes: Southern Domestic Airspace and Northern Domestic Airspace, found in Canada's Designated Airspace Handbook on page M1:

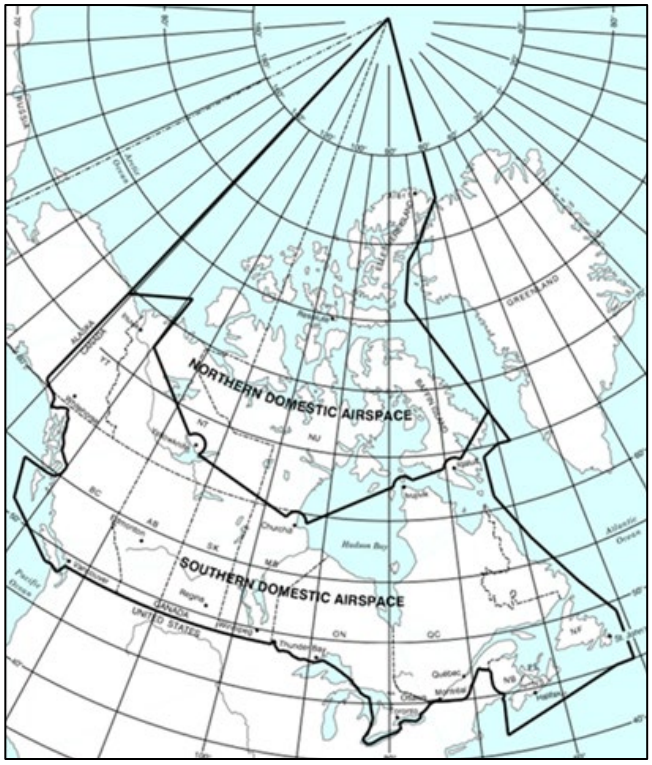

Figure 1. Canadian Domestic Airspace

The horizontal component of the earth's magnetic field diminishes in proximity to the magnetic north pole, impacting magnetic compass systems. As a result, operations in Northern Domestic Airspace (NDA) differ from other airspaces.

This Aeronautical Information Circular (AIC) consolidates information aircraft operators should know for operations in NDA, but this AIC is not announcing any new operational procedures.

The content for this AIC comes from several sources, such as the Designated Airspace Handbook, AIP CANADA, Transport Canada's Aeronautical Information Manual (TC AIM), NAV CANADA's Phraseology Guides, etc, but the consolidated information is planned to be re-published as a new section in AIP CANADA and TC AIM in the fall of 2026.

Degrees True and/or True Track

In NDA, using magnetic azimuth can be problematic – magnetic variation can be large and change relatively rapidly over short distances, magnetic compasses can be erratic within regions of NDA, and lines of longitude noticeably converge north of 70° latitude (converging rapidly north of 80° latitude) requiring constant heading changes to maintain great circle tracks/routes over the ground.

To solve these issues in Canadian NDA, runway heading is published in degrees true, and true track is used in lieu of magnetic track for several operations including:

- True track is used to determine cruising altitude or flight level for direction of flight.
- All airports are referenced to True North and runway designators are aligned to True North.
- All ground-based navigation aids are aligned to True North with 0° declination.
- All PBN-based procedures are aligned to and published as True North based procedures.
- All conventional airways and routes are depicted with reference to True North on enroute charts.
- Wind direction for take-off and landing is provided in degrees True.
    - Example phraseology: “WIND ZERO FOUR ZERO TRUE AT EIGHT”

Standard Pressure (29.92 inches of mercury)

In addition to the use of degrees true, all cruising altitudes in NDA are flown with reference to Standard Pressure (29.92 inches of mercury) and stated as flight levels. Local Altimeter settings (referred to as QNH in some countries) are only used for take-off, initial climb, final descent and landing.

Base of Controlled Airspace

In NDA, the base of controlled airspace is higher than in other parts of Canada. In the Northern Control Area, the base of controlled airspace is FL230 while in the Arctic Control Area it is FL270, found in Canada’s Designated Airspace Handbook on page M2:

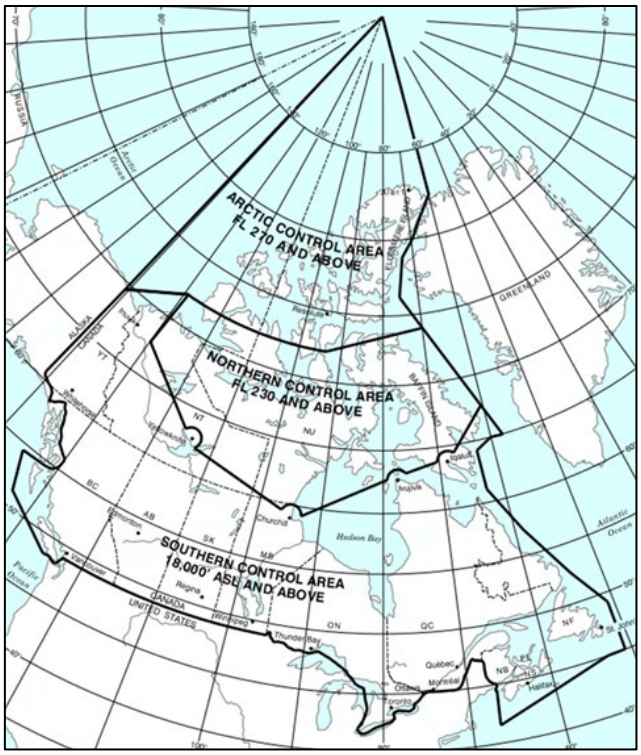

Figure 2. Arctic, Northern and Southern Control Areas

Depending on flight planned route and altitude, this could result in some operations taking place in uncontrolled airspace.

Aircraft Without a MAG/TRUE Display Mode Switch

Inertial Reference Unit (IRU) equipped aircraft normally change from magnetic to true operation by selecting "TRUE" as the display mode on the appropriate page in the Flight Management System.

Aircraft operators without this functionality should confirm how the aircraft will operate in accordance with degrees true and/or true tracks, and what procedures will remain available in the onboard navigation database. If PBN-based procedures are aligned to and published as True North based procedures, but the aircraft systems cannot operate in True, those procedures may not be available in the database.

ATC Vectoring

The introduction of Automatic Dependant Surveillance - Broadcast (ADS-B) along with the installation of VHF radio transmitters in NDA has permitted more efficient use of airspace, through the implementation of reduced separation standards supported by surveillance and communications.

Where surveillance systems and VHF communications exist, one of the primary methods of ensuring traffic separation is the application of vectors issued by air traffic control.

The use of vectors poses some unique challenges as aircraft in NDA are generally expected to be flying true tracks and headings, but there exists the possibility that some aircraft intermingle true and magnetic.

IRU equipped aircraft will typically be obligated to operate in True when inside the north polar cut-out, but in the remainder of NDA, some enroute aircraft may not be navigating using True, and could be using Magnetic headings and True tracks.

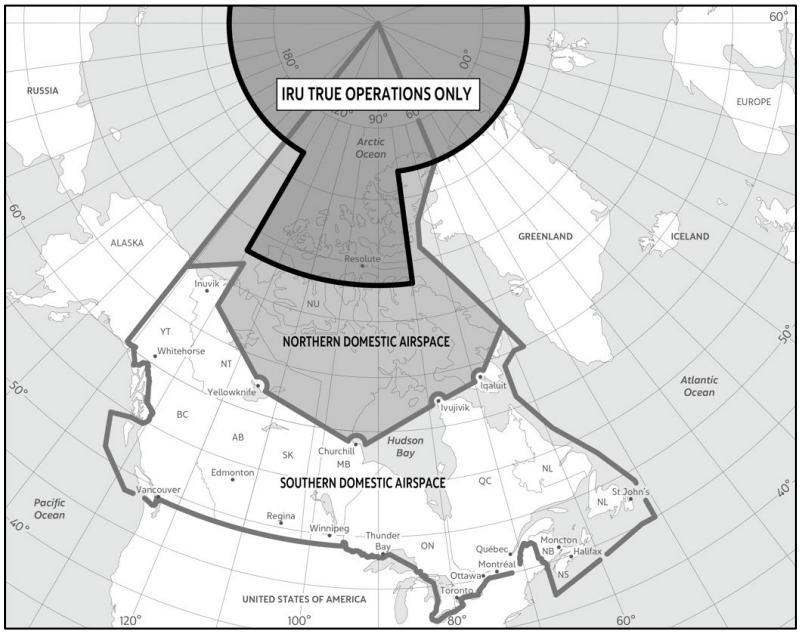

Figure 3.

To ensure aircraft separation, vectors with absolute headings will not be used in most of NDA to avoid confusion between True and Magnetic headings, and to prevent frequent heading adjustment to maintain the desired track over the ground.

Instead of identifying the direction of the turn and the direction to be flown after completion of the turn, ATC will instead identify the direction of the turn and the number of degrees to turn.

Example: “NAVCAN101 TURN LEFT 20 DEGREES”

Alternatively, ATC may amend a flight’s route in lieu of issuing a vector.

Further Information

Further information on Northern Domestic Airspace operations can be found in AIP CANADA, the Canada Flight Supplement, NAV CANADA’s Phraseology Manuals, Transport Canada’s Aeronautical Information Manual, the Canadian Designated Airspace Handbook, and the Canadian Aviation Regulations.

For further information, please contact:

NAV CANADA
Customer Service Centre
151 Slater Street
Ottawa, ON K1P 5H3

Tel.: 800-876-4693
E-mail: service@navcanada.ca

Chris Bowden
Director, Aeronautical Information Management and Flight Operations