ENR 2. AIR TRAFFIC SERVICES AIRSPACE

ENR 2.1 Flight Information Regions, Upper Flight Information Regions, Terminal Control Areas

2.1.1   Flight Information Regions and Upper Flight Information Regions

A FIR is an airspace of defined dimensions extending upwards from the surface of the earth, within which a flight information service (FIS) and an alerting service are provided. The Canadian Domestic Airspace (CDA) is divided into the Vancouver, Edmonton, Winnipeg, Toronto, Montréal, Moncton and Gander domestic FIRs. Gander Oceanic is an additional FIR allocated to Canada by ICAO for the provision of an FIS and an alerting service over the high seas.

Canadian FIRs are described in the *Designated Airspace Handbook* (TP 1820E), available in portable document format (PDF) on the Aeronautical Information Products section of the NAV CANADA website:

> <www.navcanada.ca>
> Products & Services
> Aeronautical Information Products
> *Designated Airspace Handbook*
> Current Issue

Upper flight information regions (UIR) are not used in Canada.

2.1.2   Terminal Control Areas

A TCA is a controlled airspace of defined dimensions, normally established in the vicinity of a major aerodrome, designated to serve arriving, departing and enroute aircraft.

TCAs are described in the *Designated Airspace Handbook* (TP 1820E), available in PDF on the Aeronautical Information Products section of the NAV CANADA website:

> <www.navcanada.ca>
> Products & Services
> Aeronautical Information Products
> *Designated Airspace Handbook*
> Current Issue

2.1.3   Units Providing the Service

There is an ACC providing service for each FIR. The telephone numbers for the ACCs are provided in Table 1.9, "ACC Contact Numbers."

2.1.4   Call Sign of Aeronautical Stations

The call signs for the ACCs are as follows: Gander Centre, Moncton Centre, Montréal Centre, Toronto Centre, Winnipeg Centre, Edmonton Centre, and Vancouver Centre. For information on the language used by the aeronautical station, refer to GEN 3.4.3, "Types of Service."

2.1.5   Frequencies Supplemented by Indications for Specific Purposes

For frequencies supplemented by indications for specific purposes, see the enroute low altitude, enroute high altitude and terminal area charts (see Figure 3.1, "Index to Low Altitude Charts," and Figure 3.2, "Index to High Altitude Charts").

2.1.6   Control Zones Around Military Air Bases

For information on control zones around military air bases, refer to the following publications:

> *Canada Flight Supplement* or *Water Aerodrome Supplement*, Section B, "Aerodrome/Facility Directory," and *Canada Flight Supplement*, Section E, "Military Flight Data and Procedures"

2.1.7   Emergency Locator Transmitter Requirements

For information on emergency locator transmitter (ELT) requirements, refer to GEN 1.5.4, "Emergency Locator Transmitter."

ENR 2.2 Other Regulated Airspace

2.2.1   Required Navigation Performance Capability Airspace

Required navigation performance capability (RNPC) airspace is defined as a controlled airspace within the Canadian Domestic Airspace (CDA) in the *Designated Airspace Handbook* (TP 1820E; see Figure 2.2.2, "RNPC, CMNPS and CMNPS Transition Airspace"). RNPC airspace accommodates area navigation (RNAV) operations and is contained within the Southern Domestic Airspace (SDA) and Northern Control Area (NCA). The latest version of the *Designated Airspace Handbook* is available in portable document format (PDF) on the Aeronautical Information Products section of the NAV CANADA website:

> <www.navcanada.ca>
> Products & Services
> Aeronautical Information Products
> *Designated Airspace Handbook*
> Current Issue

Reduced ATC separation criteria can be applied in RNPC airspace. To conduct RNAV operations (fixed or random routes) in the RNPC airspace, the required aircraft navigation equipment must be certified as capable of navigating within specified tolerances. Aircraft that have the required navigation equipment for operations in Canadian minimum navigation performance specifications (CMNPS) airspace and the minimum navigation performance specifications (MNPS) authorization required in the North Atlantic (NAT) high level airspace (HLA) satisfy all requirements for RNPC.

Separation in accordance with RNPC may be applied for flights within those portions of the Gander Oceanic and New York Oceanic flight information regions (FIRs) that are designated as being part of the Gander Domestic or Moncton Domestic control area (CTA).

RNAV operations require the following additional certifications:

- The aircraft must be certified by the State of Registry or the State of the Operator as meeting the RNPC permitted to conduct RNAV operations.

- Long-range RNAV systems must be certified and capable of navigation performance that permits position determination within ±4 NM. Such navigation performance capability must be verified by the State of Registry or the State of the Operator, as appropriate.

- One long-range RNAV system, plus a short-range navigation system (VHF omnidirectional range (VOR)/distance measuring equipment (DME), or automatic direction finder (ADF)), must be certified to meet the minimum navigation equipment requirement for RNPC operation.

2.2.2   Canadian Minimum Navigation Performance Specifications Airspace

CMNPS airspace is defined as a controlled airspace within CDA, between flight levels (FL) 330 and FL 410 in the *Designated Airspace Handbook* (TP 1820E) (see Figure 2.2.2, "RNPC, CMNPS and CMNPS Transition Airspace"). This airspace is contained for the most part in the Arctic Control Area (ACA) and the NCA, with a small portion in the Southern Control Area (SCA). The *Designated Airspace Handbook* is available in PDF on the Aeronautical Information Products section of the NAV CANADA website:

> <www.navcanada.ca>
> Products & Services
> Aeronautical Information Products
> *Designated Airspace Handbook*
> Current Issue

Reduced ATC separation criteria can be applied in the CMNPS airspace. To conduct RNAV operations in CMNPS airspace, aircraft must be certified as being capable of navigating within specified tolerances. A transition area underlying the lateral limits of CMNPS airspace exists from FL 270 to below FL 330 to permit both CMNPS-certified and non-certified aircraft to operate above FL 270.
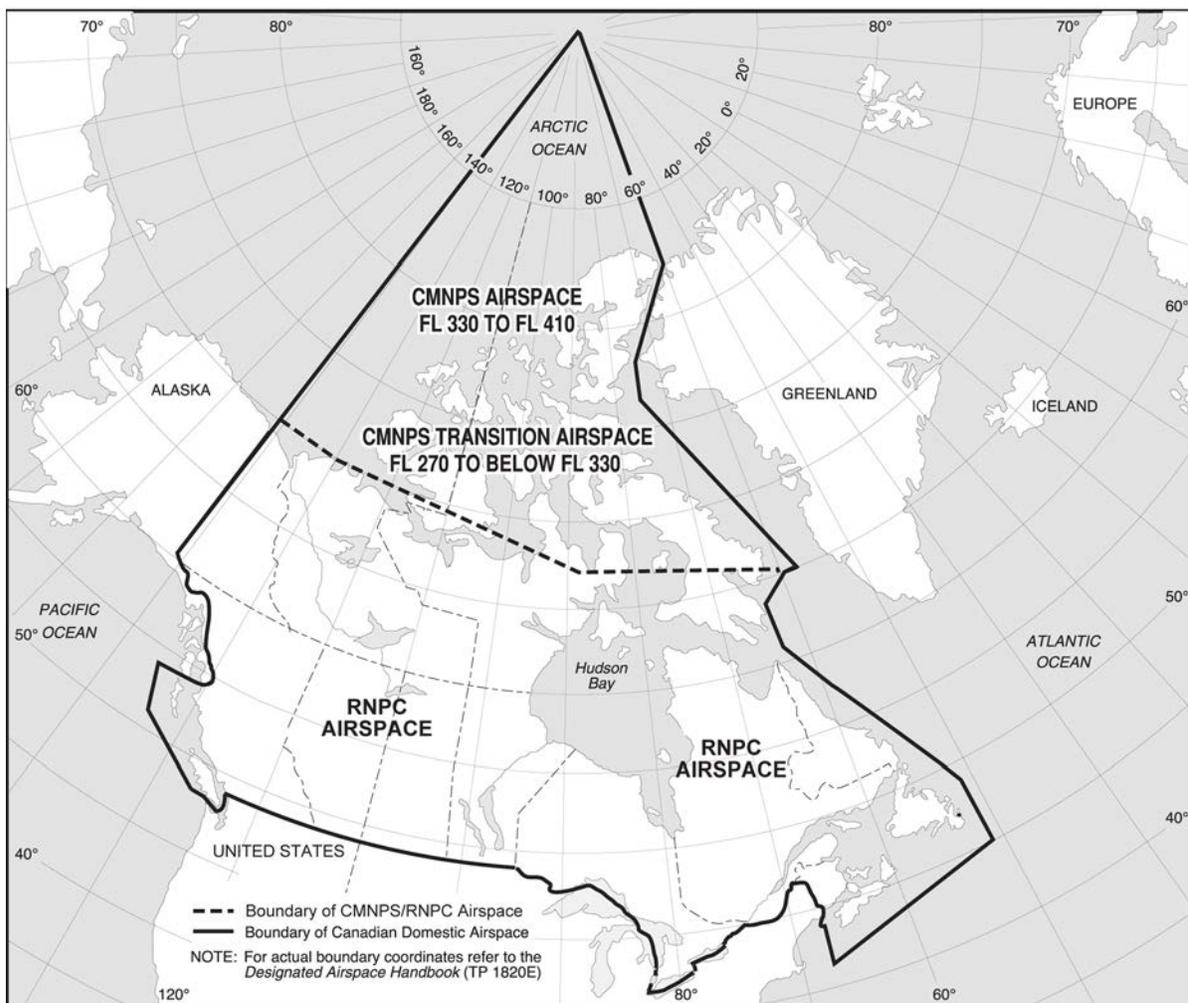

Figure 2.2.2, RNPC, CMNPS and CMNPS Transition Airspace

Aircraft navigation equipment for flights in CMNPS airspace must meet the following conditions and certifications:

- Navigation equipment must be certified by the State of Registry or the State of the Operator as meeting the MNPS of either the NAT or Canada to operate within CMNPS airspace, unless the ATC unit concerned indicates that the non-certified aircraft can be accommodated without penalty to certified aircraft.

- Required long-range RNAV systems must be certified and shown capable of navigation performance within the following specifications:

    - The standard deviation of lateral track errors is less than 6.3 NM;

    - The proportion of total flight time spent by aircraft 30 NM or more off the cleared track is less than 5.3×10^{-4} (i.e., less than 1 hr in about 2,000 flight hours); and

    - The proportion of total flight time spent by aircraft between 50 and 70 NM off the cleared track is less than 13×10^{-5} (i.e., less than 1 hr in about 8,000 flight hours).

- Navigation performance capability must be verified by the State of Registry or the State of the Operator, as appropriate. Aircraft that operate within designated airways and company-approved routes, which are completely in signal coverage of ground-based navigation aids, satisfy CMNPS requirements when operating within the protected airspace for airways and company-approved routes.

- At a minimum, aircraft are required to use the following navigation systems in the CMNPS airspace, depending on the route operated:

    - Aircraft transiting CDA to or from another continent must be equipped with two long-range RNAV systems or one navigation system using the inputs from one or more sensor systems, plus one short-range navigation system (ADF, VOR/DME).

    - Aircraft operating within North America on routes that lie within reception of ground-based navigation aids must be equipped with a single long-range RNAV system plus a short-range navigation system (ADF, VOR/DME).

    - Aircraft operating on high-level airways or company-approved routes must be equipped with dual short-range navigation systems (ADF, VOR/DME).

For a description of other types of regulated airspace and airspace classification, refer to the *Designated Airspace Handbook* (TP 1820E), available in PDF on the Aeronautical Information Products section of the NAV CANADA website:

        <www.navcanada.ca>
        Products & Services
        Aeronautical Information Products
        Designated Airspace Handbook
        Current Issue