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## ENR 3. ATS ROUTES

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For route descriptions, distances are in nautical miles and tracks are magnetic, except in the Northern Domestic Airspace (NDA) where tracks are referenced to true north.

### ENR 3.1 Lower ATS Routes

#### 3.1.1 Route Descriptions

For detailed descriptions of specific lower altitude ATS routes, refer to current editions of the following publications:

The appropriate enroute low altitude chart (see Figure 3.1, “Index to Low Altitude Charts”)

[\*Designated Airspace Handbook\*](#) (TP 1820E), Part 4, “Designations of Low Level Airways and Fixed Area Navigation Routes,” available in PDF on the Aeronautical Information Products section of the NAV CANADA website:

<[www.navcanada.ca](http://www.navcanada.ca)>

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Aeronautical Information Products

*Designated Airspace Handbook*

Current Issue

*Canada Flight Supplement*, Section C, “Planning”

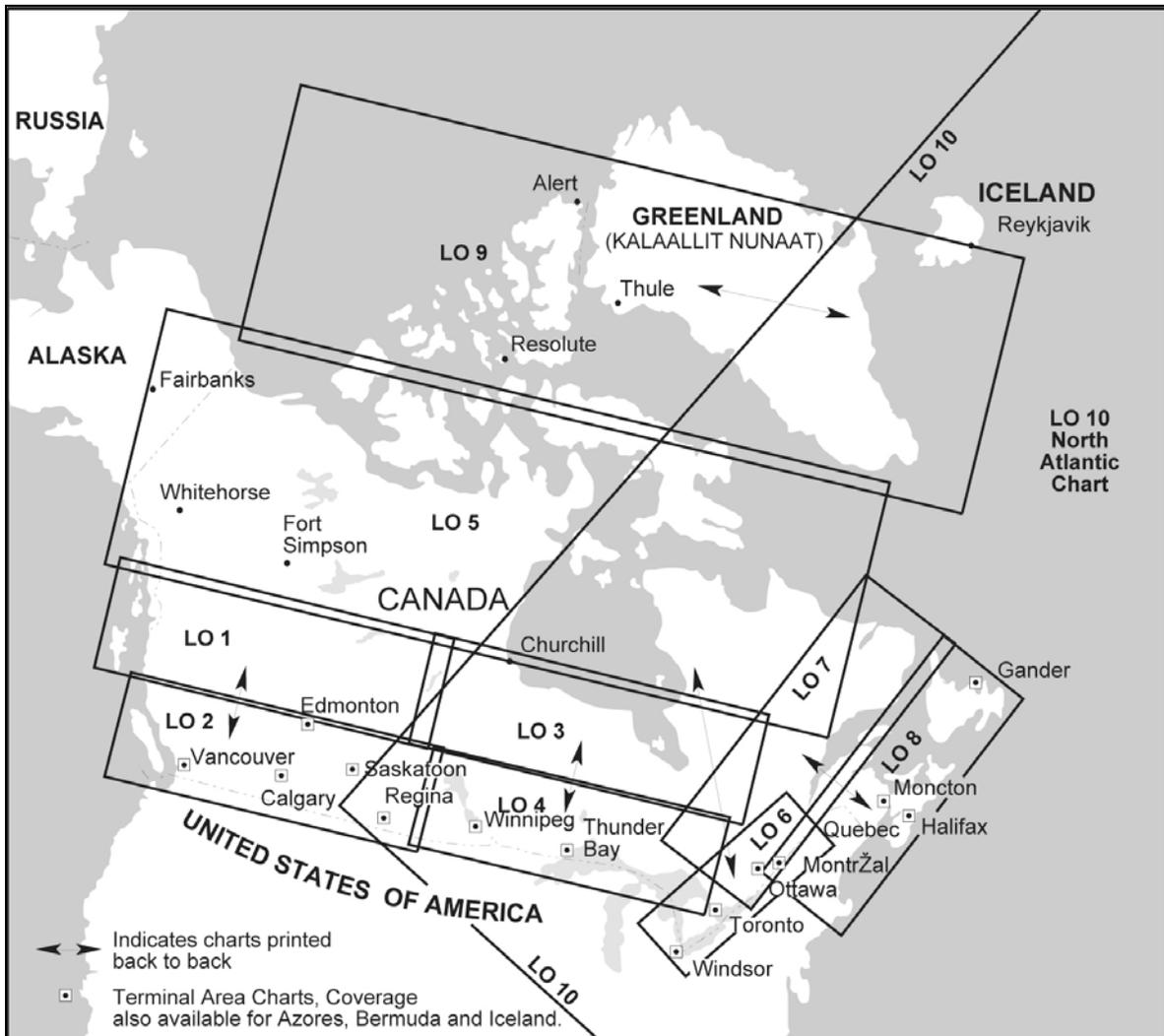


Figure 3.1, Index to Low Altitude Charts

### 3.1.2 Tracks or VOR Radials

For information on tracks or very high frequency (VHF) omnidirectional range (VOR) radials, including changeover points, for low altitude ATS routes, see the appropriate enroute low altitude chart.

### 3.1.3 Upper and Lower Limits of Routes and Airspace Classification

The airspace up to but not including 18 000 feet ASL within CDA and that airspace over international waters and foreign territory in which Canada accepts responsibility for the provision of ATC services is for use by low altitude routes.

For information on the upper and lower limits of low altitude ATS routes and airspace classification, see the appropriate enroute low altitude chart.

### 3.1.4 Lateral Limits

For information on the lateral limits of low altitude ATS routes, see the appropriate enroute low altitude chart.

**3.1.5 Direction of Cruising Levels**

For information on the direction of cruising levels for low altitude ATS routes, see the appropriate enroute low altitude chart and refer to the following publications:

*Canada Flight Supplement* or *Water Aerodrome Supplement*, Section C, “Planning – Characteristics of Airspace – Cruising Altitudes and Flight Levels Appropriate to Aircraft Track”

**3.1.6 Controlling Unit and Operating Frequency**

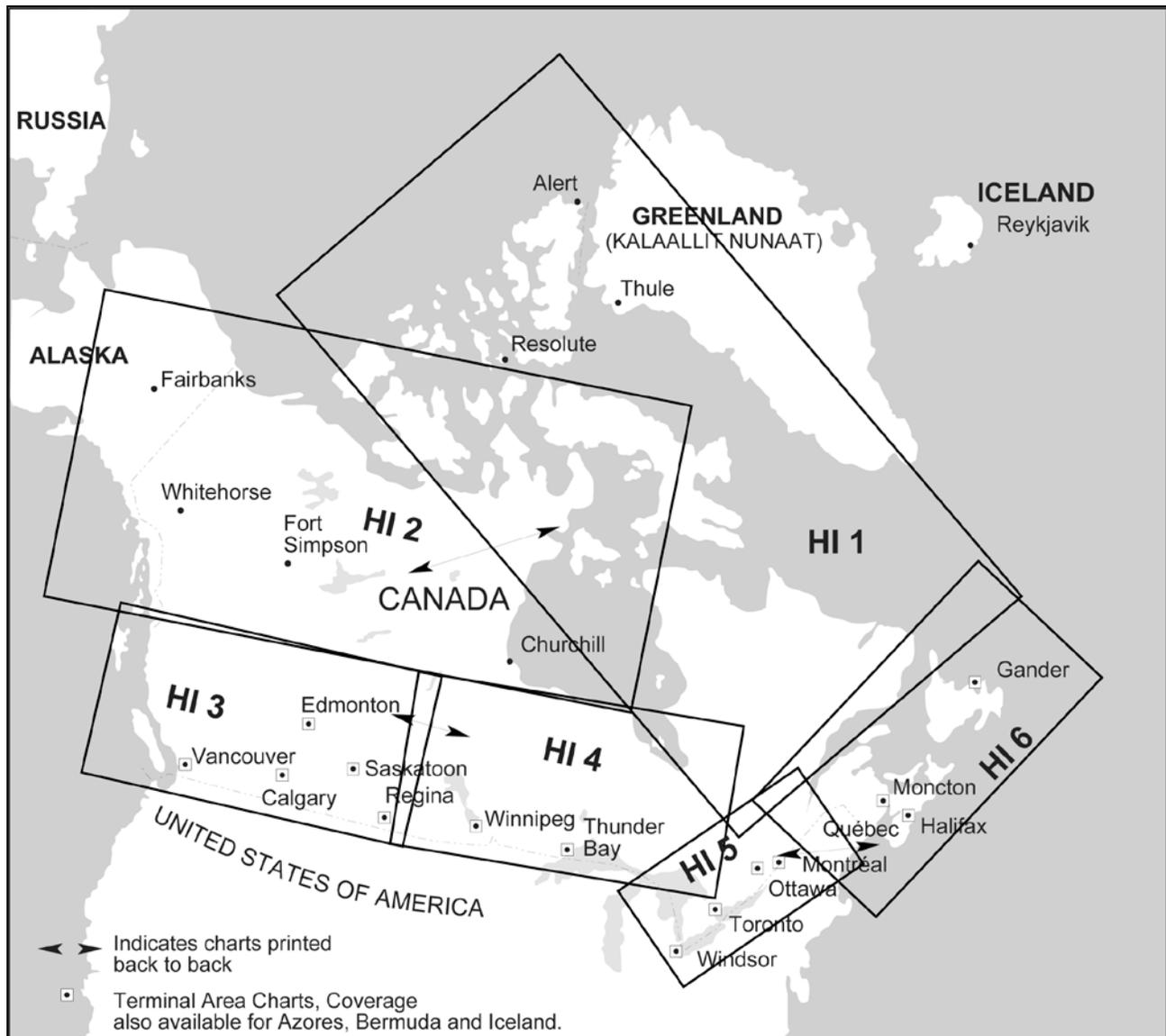
For further information, including an indication of the controlling unit and its operating frequency for low altitude ATS routes, see the appropriate enroute low altitude chart.

**ENR 3.2 Upper ATS Routes****3.2.1 Route Descriptions**

For detailed descriptions of specific high altitude ATS routes, refer to current editions of the following publications:

The appropriate enroute high altitude chart (see Figure 3.2, “Index to High Altitude Charts”)

*Canada Flight Supplement*, Section C, “Planning”



**Figure 3.2, Index to High Altitude Charts**

### 3.2.2 Tracks or VOR Radials

For information on tracks or VOR radials, including changeover points, for high altitude ATS routes, see the appropriate enroute high altitude chart.

### 3.2.3 Upper and Lower Limits of Routes and Airspace Classification

The airspace at 18 000 feet ASL and above within CDA and that airspace over international waters and foreign territory in which Canada accepts responsibility for the provision of ATC services is for use by high altitude routes.

For information on the upper and lower limits of high altitude ATS routes and airspace classification, see the appropriate enroute high altitude chart.

### 3.2.4 Lateral Limits

For information on the lateral limits of high altitude ATS routes, see the appropriate enroute high altitude chart.

### 3.2.5 Direction of Cruising Levels

For information on the direction of cruising levels for high altitude ATS routes, see the appropriate enroute high altitude chart and refer to the following publications:

*Canada Flight Supplement* or *Water Aerodrome Supplement*, Section C, “Planning – Characteristics of Airspace – Cruising Altitudes and Flight Levels Appropriate to Aircraft Track”

### 3.2.6 Controlling Unit and Operating Frequency

For further information, including an indication of the controlling unit and its operating frequency for high altitude ATS routes, see the appropriate enroute high altitude chart.

## ENR 3.3 Area Navigation Routes

### 3.3.1 Description of Area Navigation Routes

For a description of area navigation (RNAV) routes, refer to the following publication:

*Canada Flight Supplement*, Section C, “Planning – Mandatory IFR Routes – Fixed RNAV Routes” and Section E, “Military Flight Data and Procedures”

### 3.3.2 Waypoints Defining VOR/DME Area Navigation Routes

For station identification of the reference VOR/distance measuring equipment (DME) defining an RNAV route, refer to the following publications:

*Canada Flight Supplement*, Section D, “Radio Navigation and Communications – Radio Navigation Aids by Location,” or *Canada Flight Supplement* and *Water Aerodrome Supplement*, Section D, “Radio Navigation Aids by Indicator”

For bearing and distance from the reference VOR/DME, if the waypoint defining an RNAV route is not collocated with it, refer to the following publication:

*Canada Flight Supplement*, Section C, “Planning – Mandatory IFR Routes – Fixed RNAV Routes”

For elevation of the transmitting antenna of the DME defining an RNAV route, refer to the following publications:

*Canada Flight Supplement*, Section D, “Radio Navigation and Communications – Radio Navigation Aids by Location,” or *Canada Flight Supplement* and *Water Aerodrome Supplement*, Section D, “Radio Navigation Aids by Indicator”

### 3.3.3 Distance Between Defined End Points and Designated Significant Points

For geodesic distance between defined end points and distance between each successive designated significant point for RNAV routes, refer to the following publication:

*Canada Flight Supplement*, Section C, “Planning – Mandatory IFR Routes – Fixed RNAV Routes”

### 3.3.4 Upper and Lower Limits of Routes and Airspace Classification

For information on the upper and lower limits of RNAV routes and airspace classification, see the appropriate enroute low altitude chart, enroute high altitude or terminal area chart (see Figure 3.1, “Index to Low Altitude Charts,” and Figure 3.2, “Index to High Altitude Charts”).

### 3.3.5 Direction of Cruising Levels

For information on the direction of cruising levels for RNAV routes, see the appropriate enroute low altitude chart, enroute high altitude or terminal area chart.

### 3.3.6 Controlling Unit and Operating Frequency

For further information, including an indication of the controlling unit and its operating frequency for RNAV routes, see the appropriate enroute low altitude chart, enroute high altitude or terminal area chart.

## ENR 3.4 Helicopter Routes

There are no established helicopter routes in Canada.

## ENR 3.5 Other Routes

For information on other routes in Canada, refer to current editions of the following publications:

[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

*Canada Air Pilot*, Volumes 1–7, or *Restricted Canada Air Pilot*

*Canada Flight Supplement*, Section C, “Planning”

The appropriate enroute low altitude, enroute high altitude or terminal area chart (see Figure 3.1, “Index to Low Altitude Charts,” and Figure 3.2, “Index to High Altitude Charts”)

## ENR 3.6 Enroute Holding

### 3.6.1 Holding Identification and Holding Fix

For the holding identification and the holding fix for enroute holding patterns, see current editions of the following publications:

The appropriate enroute low altitude, enroute high altitude or terminal area chart (see Figure 3.1, “Index to Low Altitude Charts,” and Figure 3.2, “Index to High Altitude Charts”)

*Canada Air Pilot*, Volumes 1–7, or *Restricted Canada Air Pilot*

### 3.6.2 Inbound Track

For the inbound track for enroute holding patterns, see current editions of the following publications:

The appropriate enroute low altitude, enroute high altitude or terminal area chart

*Canada Air Pilot*, Volumes 1–7, or *Restricted Canada Air Pilot*

### 3.6.3 Direction of Procedure Turn

For the direction of the procedure turn for enroute holding patterns, see current editions of the following publications:

The appropriate enroute low altitude, enroute high altitude or terminal area chart

*Canada Air Pilot*, Volumes 1–7, or *Restricted Canada Air Pilot*

### 3.6.4 Maximum Indicated Airspeed

The size of the airspace that must be protected for a holding pattern is directly proportional to the speed of the aircraft. In order to limit the amount of airspace that must be protected, maximum holding speeds in knots indicated airspeed (KIAS) have been designated for specific altitude ranges. Unless otherwise noted on the chart or when a climb in the hold is specified, holding patterns must be entered and flown at or below the following airspeeds:

**Table 3.6.4, Maximum Indicated Airspeeds for Holding Patterns**

Altitude (ASL)	Maximum Holding Airspeed (KIAS)
At or below 6000 feet	200
Above 6000 feet up to and including 14000 feet	230
Above 14000 feet	265
Shuttle climbs (all altitudes)	310 (subject to CAR 602.32)

**Note 1:** At Canadian Military airfields, the size of the protected airspace is for a maximum of 310 KIAS, unless otherwise noted.

**Note 2:** For Copter procedures, the maximum airspeed is 90 KIAS for all altitudes, unless otherwise noted.

When a climb in the hold (shuttle climb) procedure is specified on a chart, an additional protected area has been provided to allow for greater airspeeds in the climb for those aircraft requiring them. This extra protected area is for a maximum of 310 KIAS, unless a maximum holding airspeed is noted on the chart, in which case that maximum airspeed is applicable.

In areas where turbulence is known to exist, the protected airspace is based on a maximum of 280 KIAS and will be noted on the chart.

Pilots are to advise ATC immediately if airspeeds in excess of those specified become necessary for any reason, including turbulence, or if they are unable to accomplish any part of the holding procedure.

**3.6.5 Minimum and Maximum Holding Level**

For minimum and maximum holding levels for enroute holding patterns, see current editions of the following publications:

The appropriate enroute low altitude, enroute high altitude or terminal area chart

**3.6.6 Time and Distance Outbound**

The still air time for flying the outbound leg of a holding pattern should not exceed one minute if at or below 14 000 feet ASL, or one and a half minutes if above 14 000 feet ASL. However, the pilot should make due allowance in both heading and timing to compensate for the wind effect.

After the initial circuit of the holding pattern, timing should begin abeam the holding fix or on attaining the outbound heading, whichever occurs later. The pilot should increase or decrease outbound times, in recognition of winds, to effect one minute or one and a half minutes still air time (appropriate to altitude) inbound to the holding fix.

When the pilot receives ATC clearance specifying the time of departure from the holding fix, adjustments should be made to the flight pattern within the limits of the established holding pattern to leave the holding fix as near as possible to the time specified.

**3.6.7 Controlling Unit and Operating Frequency**

For indication of the controlling unit and its operating frequency for enroute holding patterns, see current editions of the following publications:

The appropriate enroute low altitude, enroute high altitude or terminal area chart