RNAV
PHRASEOLOGY

NAV CANADA

NAV CANADA would like to thank all those from across the industry that contributed to the creation of this document.

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Contents

Introduction

As the air navigation system in Canada becomes more modernised through the use of Performance-Based Navigation (PBN) instrument flight procedures, Air Traffic Services (ATS) and Industry stakeholders require an alignment and standardisation of procedures and phraseology for PBN operations. As a key enabler of PBN, RNAV-based instrument departure and arrival procedures are being developed and published across the entire Canadian airspace system.

The *RNAV Phraseology* Guide has been created by NAV CANADA through extensive consultation and collaboration between ATS and key Airline Operators. The guide is intended to be used by ATS personnel and pilots as a means to provide a description of how RNAV SID, STAR and instrument approach procedures are flown, as well provide a common source for the phraseology to be used by ATS and pilots for these procedures.

This Guide is to be used as guidance for ATS and pilots, and is intended to supplement direction contained in the NAV CANADA *Manual of Air Traffic Services* (MATS) as well as in the Transport Canada *Aeronautical Information Manual* (TC AIM).

Terminology

IAWP or IAF
Initial Approach Waypoint or Initial Approach Fix

IWP or IF
Intermediate Waypoint or Intermediate Fix

FACF
Final Approach Course Fix

FAWP
Final Approach Waypoint

FLY-BY WAYPOINT
A waypoint that requires the use of turn anticipation to avoid an overshoot of the next route segment.

FLY-OVER WAYPOINT
A waypoint that precludes any turn until the waypoint is overflown and is followed by an intercept manoeuvre of the next route segment.

TRANSITION
A published procedure used to connect the basic SID to one or more enroute airways, to connect one or more enroute airways to the basic STAR, or to connect an IF or IAWP to the final approach course of an RNAV or ILS approach. More than one transition may be published in the associated SID, STAR, or RNAV approach.

APPROACH INTERFACE WAYPOINT
Waypoint common to an RNAV STAR and an instrument approach. It allows the linking of the two procedures after an approach clearance is received from ATC.

Icons

	Note	Supplementary information
	Phraseology	The rules for constructing the appropriate phraseology (syntax) for use by air traffic services
	Example	An example of how phraseology might be spoken by air traffic services
	Pilot Phraseology	The rules for constructing the appropriate phraseology (syntax) for use by pilots
	Pilot Example	An example of how phraseology might be spoken by pilots

Typographic Conventions

In the rules for constructing **phraseology**, some characters have special meaning:

UPPERCASE	Indicates words that are to be spoken exactly as written
lowercase	Describes variable information
- hyphens between letters	Inserted between letters, indicate that they are to be spoken individually
( ) parentheses	Groups information for clarity
[ ] square brackets	Surrounds optional information that may be necessary in specific instances
/ slash	Separates alternative information in a phrase; only one of the alternates is used

RNAV STAR

Features

An RNAV STAR is an assembly of successive route segments leading to a location where a transition to an approach is possible. The transition could be an approach interface waypoint common to the STAR and the approach procedure or a location where a radar vector to the approach is normally provided.

An altitude and/or speed restriction can be associated to an RNAV STAR waypoint.

Onboard Flight Management Computers (FMC) automate the aircraft lateral and vertical navigation based on the waypoint location and charted altitude/speed restrictions.

Pilot Actions under an RNAV STAR Clearance

DESCEND

- Follow the lateral path of the STAR procedure

- Unless "when ready" is part of the clearance, descend now to the ATC cleared altitude while complying with the STAR-charted altitude restrictions at or above the cleared altitude and additional ATC altitude restrictions, if any

- Comply with the STAR-charted airspeed or the ATC-assigned speed restriction, if any.

- Comply with speed in the following priority:
    1. CARs 602.32 Airspeed Limitations
    2. ATC assigned speed
    3. Charted speed

DESCEND – Cancellation of Altitude Restriction

- Follow the lateral path of the STAR procedure

- Unless "when ready" is part of the clearance, descend now to the ATC cleared altitude while complying with the STAR-charted altitude restrictions at or above the cleared altitude except for the cancelled altitude restrictions

- Comply with the STAR-charted airspeed or the ATC-assigned speed restriction, if any.

- Comply with speed in the following priority:
    1. CARs 602.32 Airspeed Limitations
    2. ATC assigned speed
    3. Charted speed

DESCEND – Cancellation of Speed Restriction

- Follow the lateral path of the STAR procedure

- Unless "when ready" is part of the clearance, descend now to the ATC cleared altitude while complying with the STAR-charted altitude restrictions at or above the cleared altitude and additional ATC altitude restrictions, if any

    - Comply with the STAR-charted airspeed restrictions except for the cancelled speed restrictions.

    - Comply with speed in the following priority:
        1. CARs 602.32 Airspeed Limitations
        2. ATC assigned speed
        3. Charted speed

DESCEND UNRESTRICTED – Cancellation of All Remaining Altitude and Speed Restrictions

- Follow the lateral path of the STAR procedure

- Descend now to the ATC cleared altitude

📌 *All STAR altitude and speed restrictions between the aircraft's current altitude and the cleared altitude no longer apply.*

RNAV STAR–Altitude Clearance
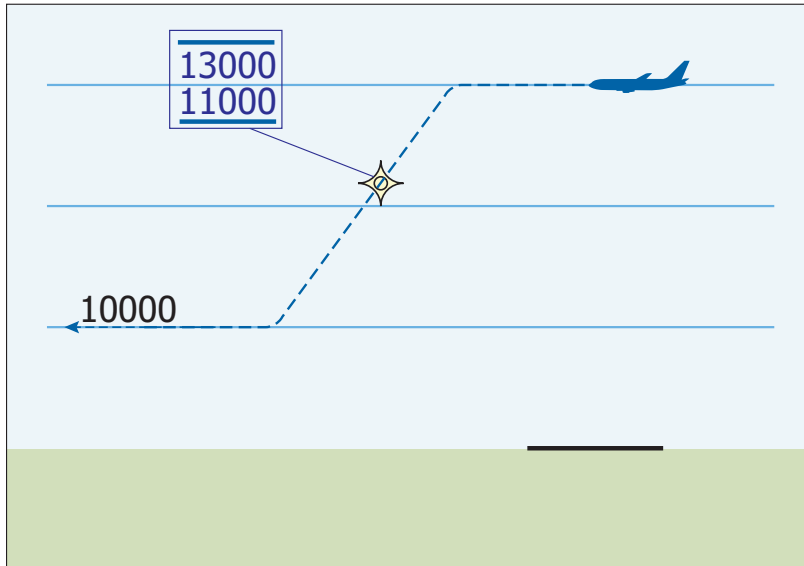
Figure 1 RNAV STAR–Altitude Clearance

DESCEND

Phraseology

(aircraft id) DESCEND [TO] (altitude)

Example

INUIT ONE–TWO–THREE DESCEND TO ONE–ZERO THOUSAND.

Pilot Actions

- Begin the descent to the ATC-cleared altitude

- Comply with the altitude and speed restrictions charted on the STAR

- Comply with speed in the following priority:

1. CARs 602.32 Airspeed Limitations

2. ATC assigned speed

3. Charted speed

DESCEND with Tactical Cancellation of Altitude Restriction

Phraseology

(aircraft id) DESCEND [TO] (altitude)
ALTITUDE RESTRICTION AT (waypoint) CANCELLED

Example

*WESTJET ONE-TWO-THREE DESCEND TO ONE-ZERO THOUSAND ALTITUDE
RESTRICTION AT ZABEL CANCELLED.*

Pilot Actions

- Begin the descent to the ATC-cleared altitude

- Comply with the altitude and speed restrictions charted on the STAR with the exception of the altitude restriction at ZABEL

- Comply with speed in the following priority:

1. CARs 602.32 Airspeed Limitations

2. ATC assigned speed

3. Charted speed

DESCEND with Tactical Cancellation of Speed Restriction

Phraseology

(aircraft id) DESCEND [TO] (altitude)
SPEED RESTRICTION AT (waypoint) CANCELLED

Example

*WESTJET ONE-TWO-THREE DESCEND TO ONE-ZERO THOUSAND
SPEED RESTRICTION AT ZABEL CANCELLED.*

Pilot Actions

- Begin the descent to the ATC-cleared altitude

- Comply with the altitude and speed restrictions charted on the STAR with the exception of the speed restriction at ZABEL

DESCEND UNRESTRICTED – Cancellation of All Remaining Altitude and Speed Restrictions

Phraseology

(aircraft id) DESCEND UNRESTRICTED [TO] (altitude)

Example

WESTJET ONE–TWO–THREE DESCEND UNRESTRICTED TO ONE–ZERO THOUSAND.

Pilot Action

- Begin an unrestricted descent now to the ATC–cleared altitude.

All STAR altitude and speed restrictions between the aircraft's current altitude and the cleared altitude no longer apply.

Proceed Direct to a Point on a STAR

Figure 2 Direct to a Point

Phraseology

(aircraft id) PROCEED DIRECT (waypoint name) REJOIN STAR

Example

AIR CANADA ONE–TWO–THREE PROCEED DIRECT PENPA REJOIN STAR.

Pilot Actions

- Proceed direct to PENPA

- Comply with all charted altitude and speed restrictions at and after PENPA

The pilot is not required to comply with the published altitude or speed restrictions at waypoints being bypassed.

Proceed Direct to a Point (which is an approach interface waypoint) on a STAR
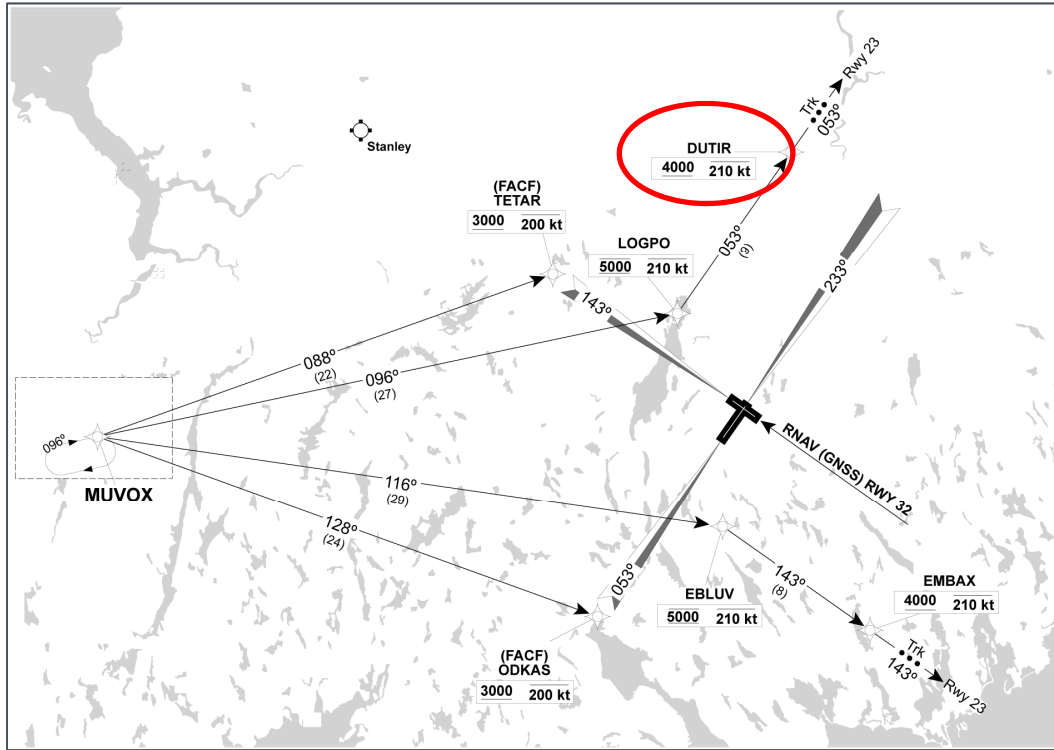
Figure 3 STAR Way Point
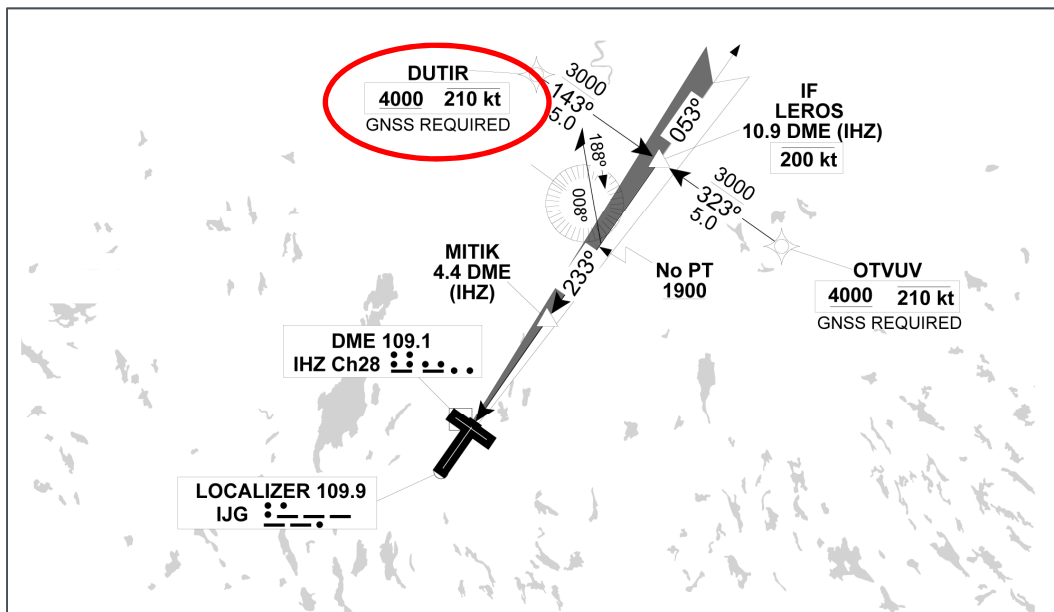
Figure 4 Approach Waypoint

The STAR may include an approach interface waypoint common to the STAR and the approach procedure. In such cases, the navigation system displays the waypoint twice: in the STAR waypoint list and in the approach waypoint list. If the controller instructs the pilot to proceed direct the approach interface waypoint, the pilot is expected to select it from the STAR waypoint list to prevent the aircraft from flying the lateral profile of the approach without clearance.

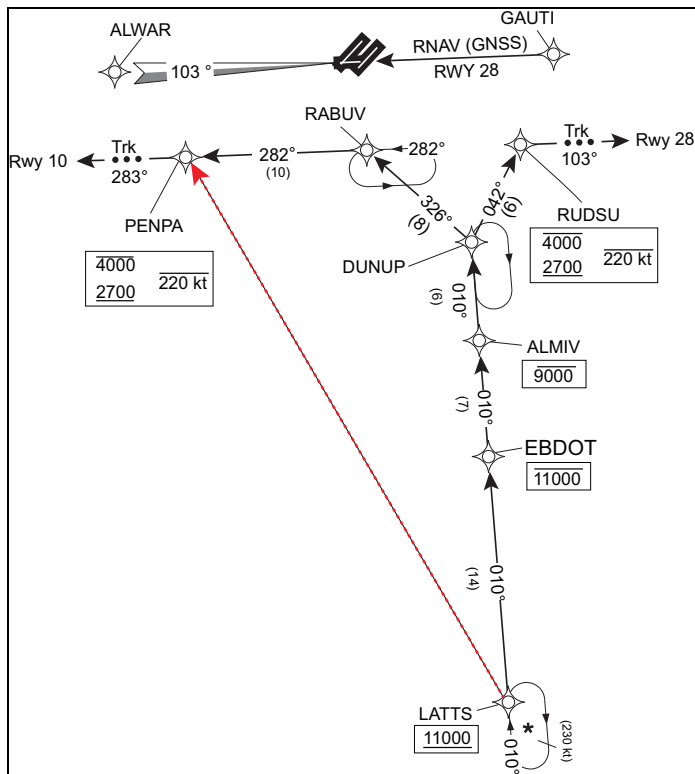### Phraseology

(aircraft id) PROCEED DIRECT (waypoint name) REJOIN STAR

Example

AIR CANADA ONE-TWO-THREE PROCEED DIRECT DUTIR REJOIN STAR.

Pilot Actions

■ Proceed direct to DUTIR, selected from the STAR waypoint list

■ Comply with all charted altitude and speed restrictions at and after DUTIR

Vector Flight off an RNAV STAR then Re-establishment on the Same STAR Transition
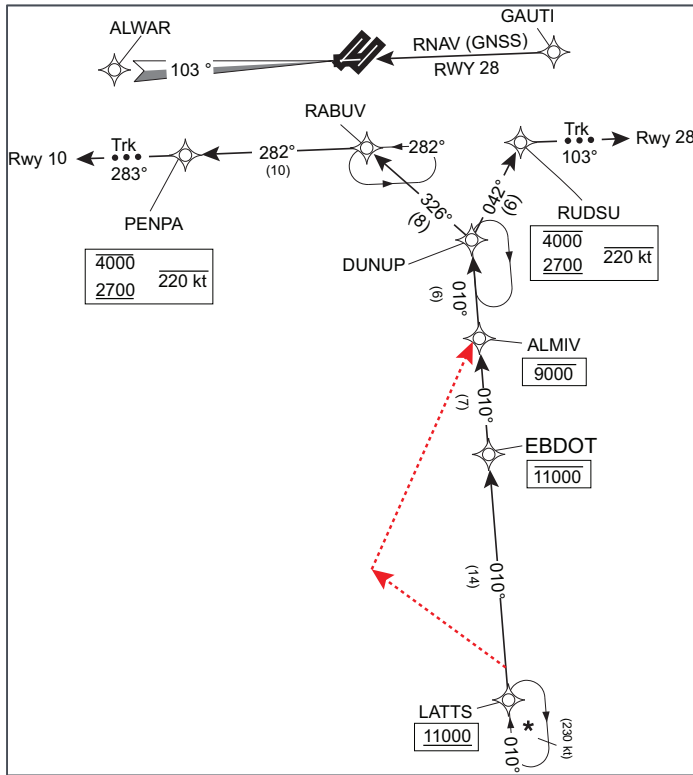
Figure 5 Vector Off then Re-establish

Phraseology

(aircraft id) VECTORS FOR (reason) FLY HEADING / TURN RIGHT / LEFT HEADING (number)

EXPECT DIRECT (waypoint name) IN (number) MILES

Rejoin STAR

(aircraft id) PROCEED DIRECT (waypoint name) REJOIN STAR

Example

AIR CANADA ONE-TWO-THREE VECTORS FOR SEQUENCING TURN LEFT HEADING THREE-ONE-ZERO, EXPECT DIRECT ALMIV IN ONE-FIVE MILES.

Rejoin STAR;

AIR CANADA ONE-TWO-THREE PROCEED DIRECT ALMIV REJOIN STAR.

Pilot Actions

- Turn the aircraft to the assigned heading

- Await clearance to proceed direct to ALMIV and retain the STAR in the navigation system

When rejoining STAR,

- Proceed direct ALMIV to rejoin the STAR

- Comply with the remaining STAR charted restrictions including ALMIV.

RNAV STAR – Change of Transition
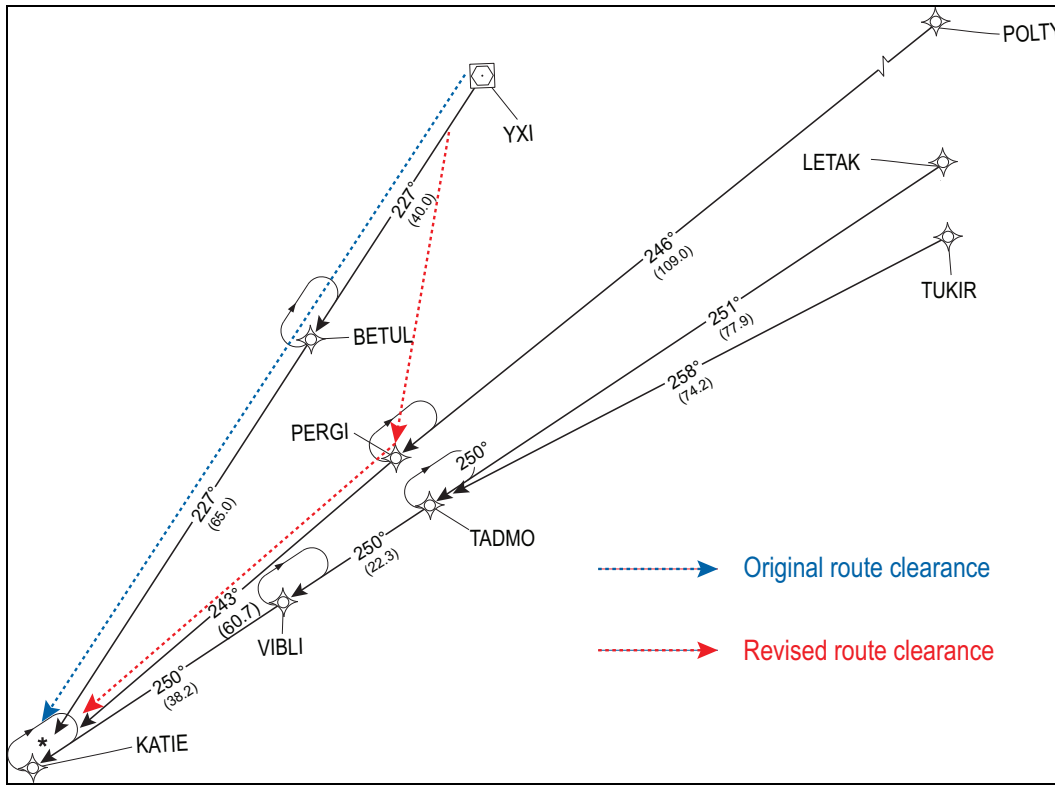
Figure 6 Change RNAV STAR Transition

Phraseology

Change of STAR transition:

> (aircraft id) RECLEARED (procedure name), (transition name),
> PROCEED DIRECT (waypoint name) REJOIN STAR

Example

Change of STAR transition:

> *AIR CANADA ONE–TWO–THREE RECLEARED KATIE TWO ARRIVAL, POLTY*
> *TRANSITION, PROCEED DIRECT PERGI REJOIN STAR*

Pilot Actions

- Proceed direct PERGI to join the new STAR transition

- Comply with the STAR charted restrictions including PERGI

Termination of Vectoring between Waypoints for RNAV STAR
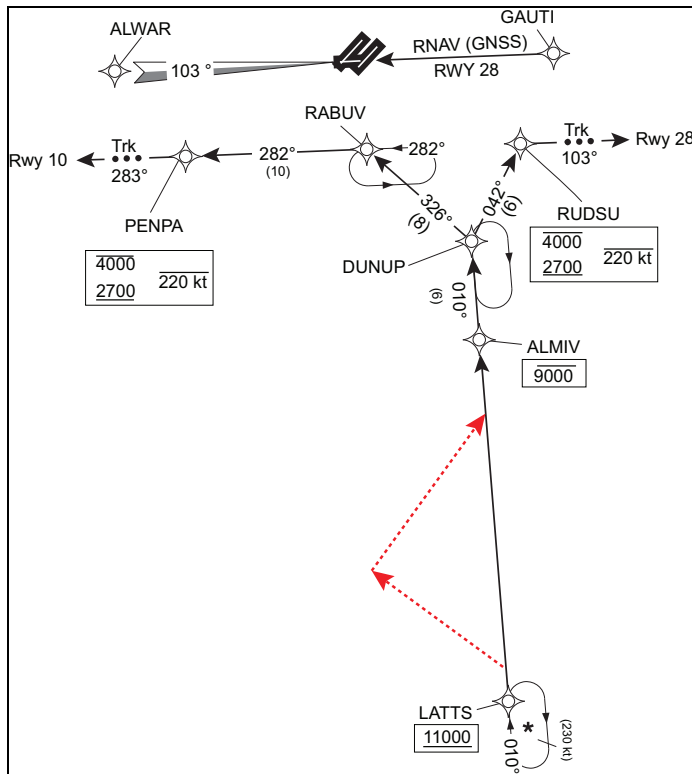
Figure 7 Termination of Vectoring between Waypoints

Phraseology

Vector intercept of STAR

(aircraft id) FLY HEADING / TURN LEFT / RIGHT
HEADING (number), REJOIN (STAR name)

Example

Vector intercept of STAR

*AIR CANADA ONE–TWO–THREE TURN RIGHT HEADING ZERO–THREE–ZERO REJOIN
LATTS TWO ARRIVAL.*

Pilot Actions

- Maintain the assigned heading to join the STAR

- Comply with the remaining STAR charted restrictions

General – RNAV (GNSS) Approach
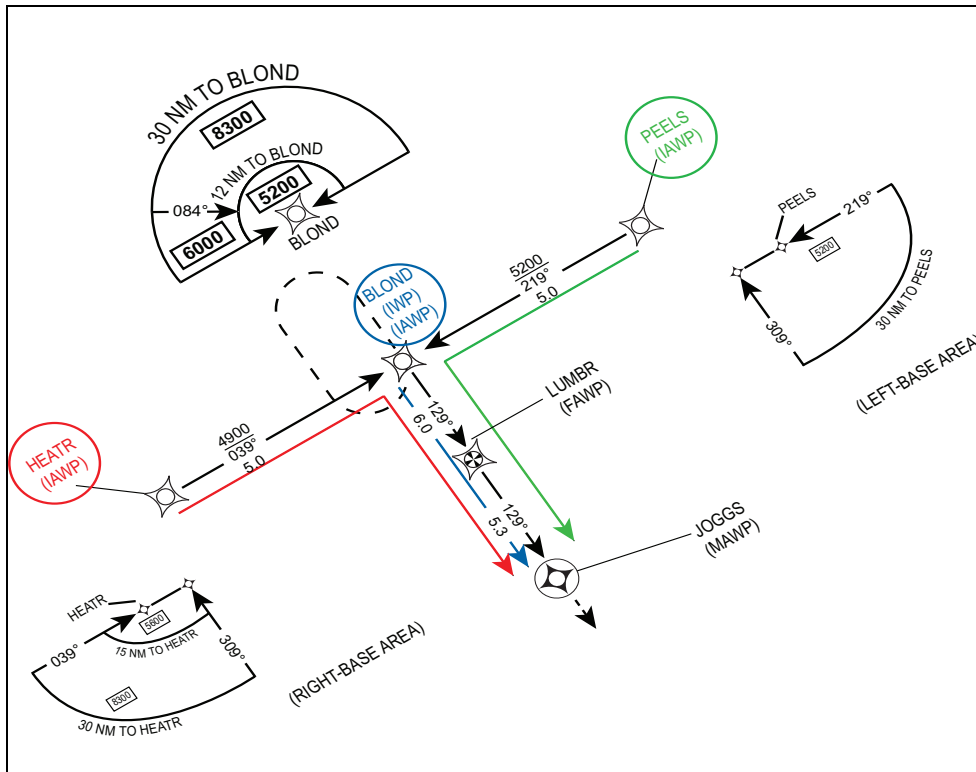
Figure 8 RNAV (GNSS) Approach: HEATR, BLOND, PEELS

Features

- IAWP: initial approach waypoint
- IWP: intermediate waypoint
- FAWP: final approach waypoint
- MAWP: missed approach waypoint

The final approach course can be intercepted through three different "transitions": HEATR, BLOND, or PEELS. All three are listed separately in the GPS/FMC and defined as follows:

HEATR Transition	BLOND Transition	PEELS Transition
HEATR	BLOND	PEELS
BLOND	LUMBR	BLOND
LUMBR	JOGGS	LUMBR
JOGGS		JOGGS

Pilot Action

Fly the RNAV approach fix sequence of the transition name included in the approach clearance.

General – RNAV (GNSS) ILS Approach
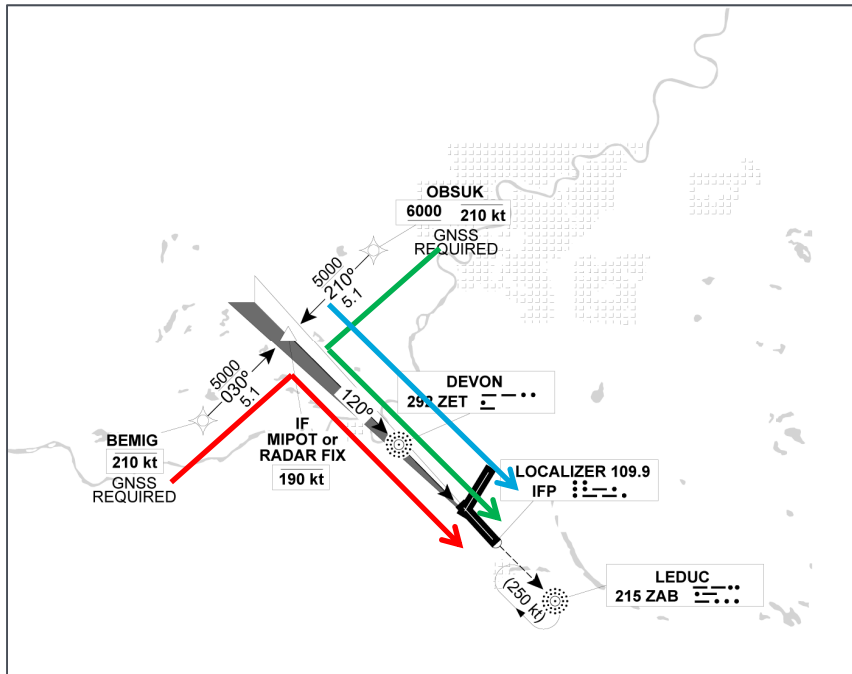
Figure 9 RNAV (GNSS) ILS Approach: BEMIG, MIPOT, OBSUK

Features

- IAWP
- IWP/IF
- FACF

The final approach course can be intercepted through three different "transitions": BEMIG, MIPOT, or OBSUK. All three are listed separately in the GPS/FMC and defined as follows:

BEMIG Transition	MIPOT Transition	OBSUK Transition
BEMIG	MIPOT	OBSUK
MIPOT	DEVON	MIPOT
DEVON		DEVON

Pilot Action

Fly the approach fix sequence of the transition name included in the approach clearance.

General – RNAV RNP Approach
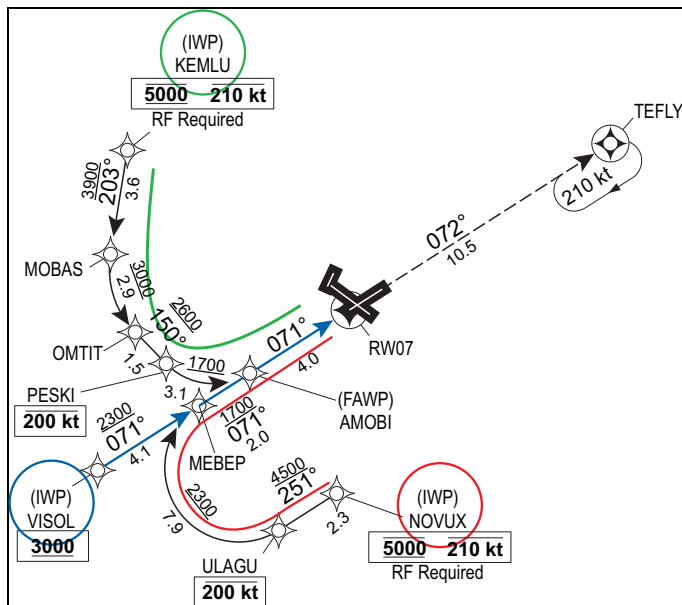
Figure 10 RNAV RNP Approach: NOVUX, VISOL, KEMLU

Features

- IAWP: initial approach waypoint

- IWP: intermediate waypoint

- FAWP: final approach waypoint

- MAWP: missed approach waypoint

The final approach course can be intercepted through three different "transitions": NOVUX, VISOL, or KEMLU. All three are listed separately in GPS/FMC and defined as follows:

NOVUX Transition	VISOL Transition	KEMLU Transition
NOVUX	VISOL	KEMLU
ILAGU	MEBEP	MOBAS
MEBEP	AMOBI	OMTIT
AMOBI	RWY07	PESKI
RWY07		AMOBI
		RWY07

Pilot Action

Fly the RNAV RNP approach fix sequence of the transition name included in the approach clearance.

RNAV STAR to RNAV (GNSS) Approach (STAR with an approach interface waypoint)
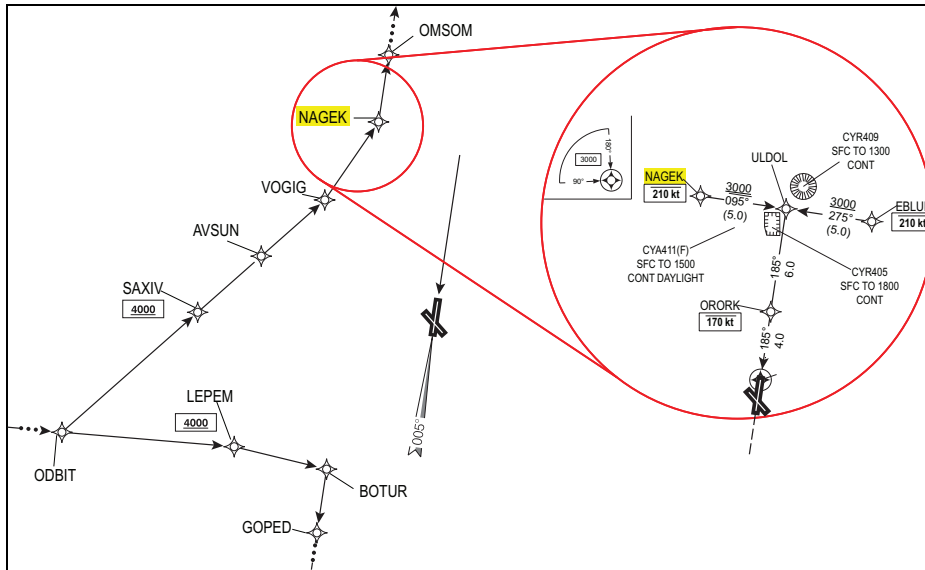
Figure 11 RNAV STAR to RNAV GNSS Approach

Phraseology

STAR to approach

> 🎧 (aircraft id) CLEARED (RNAV approach name) APPROACH (runway id) (approach transition name) TRANSITION

Example

STAR to approach

> 🎧 *JAZZ ONE–TWO–THREE CLEARED RNAV ZULU RUNWAY ONE–EIGHT APPROACH, NAGEK TRANSITION.*

Pilot Actions

STAR to approach

- ■ Before NAGEK,
    - — Follow the lateral path of the STAR procedure
    - — Descend and comply with the STAR charted altitude and speed restrictions if any

- ■ From NAGEK,
    - — Join the approach at NAGEK
    - — Follow the lateral and vertical profile of the RNAV approach procedure

RNAV STAR to RNAV (RNP) Approach (STAR with an approach interface waypoint)
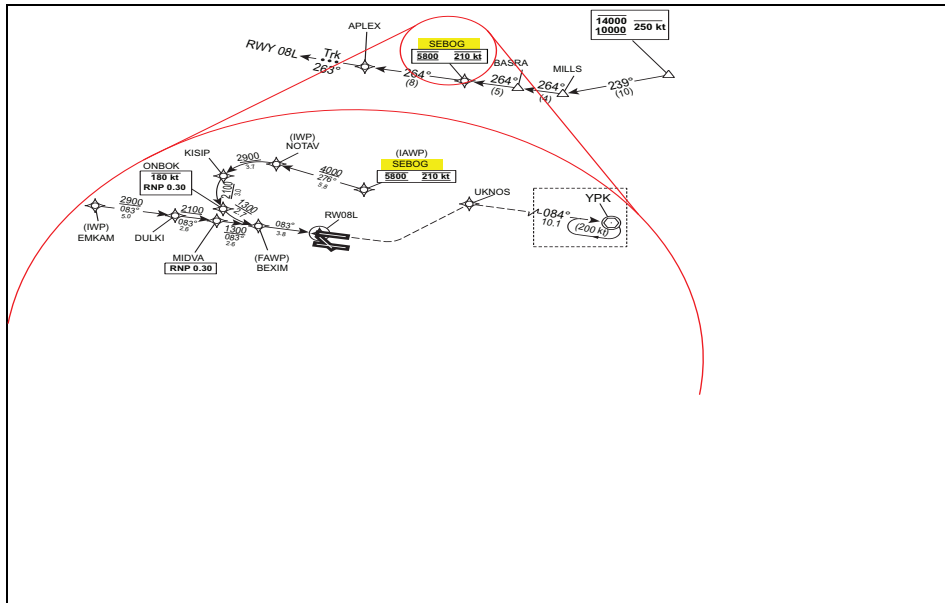
Figure 12 RNAV STAR to RNAV RNP Approach

Phraseology

🎧 (aircraft id) CLEARED (RNAV approach name) APPROACH (runway id)
(approach transition name) TRANSITION

Example

STAR to approach

🎧 *JAZZ ONE–TWO–THREE CLEARED RNAV YANKEE RUNWAY ZERO–EIGHT LEFT APPROACH, SEBOG TRANSITION.*

Pilot Actions

STAR to approach

- ■ Before SEBOG,
    - — Follow the lateral path of the STAR procedure
    - — Descend and comply with the STAR–charted altitude and speed restrictions
- ■ From SEBOG,
    - — Join the approach at SEBOG
    - — Follow the lateral and vertical profile of the RNAV approach procedure

Direct Route to an Approach IF/IAWP/IWP (Non-STAR Scenario)
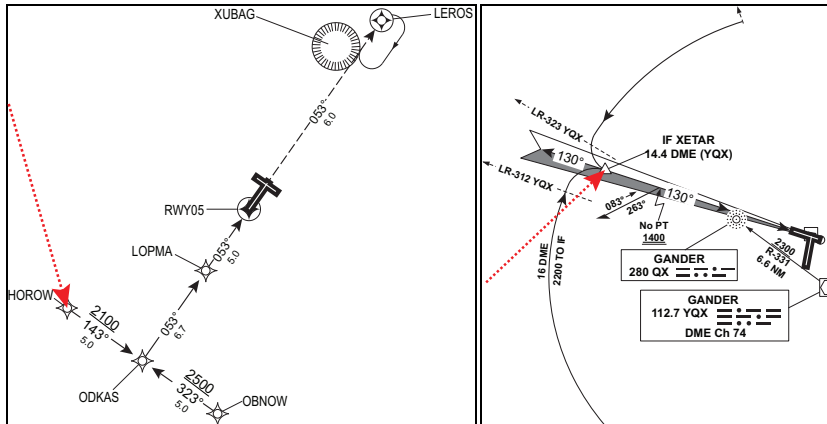
Figure 13 Direct Route to an Approach IF/IAWP/IWP (HOROW and XETAR)

Phraseology

(aircraft id) PROCEED DIRECT (approach waypoint / fix name),
CLEARED (approach name) (runway id) APPROACH [(transition name)
TRANSITION]

Example

WESTJET ONE–TWO–THREE PROCEED DIRECT HOROW, CLEARED RNAV ZULU RUNWAY ZERO-FIVE APPROACH, HOROW TRANSITION.

PORTER ONE–SEVEN–FIVE PROCEED DIRECT XETAR, CLEARED ILS RUNWAY ONE–THREE APPROACH.

Pilot Actions

- Follow the lateral path of direct trajectory to the approach waypoint/fix

- Descend not lower than a published minimum IFR altitude

- Fly the approach procedure starting at the approach waypoint/fix

Pilots Notifying ATC of Requested Approach Procedure

Pilots should plan their arrival based on the information on ATIS. Therefore, if RNAV is advertised as the primary approach, ATC expects the aircraft to be set up for the RNAV approach.

At some airports in Canada, more than one RNAV approach (RNAV GNSS or RNAV RNP) may be available for one or more runways. Based on this, the ATIS message at airports where multiple RNAV approaches are available must direct aircrews to inform ATC on initial contact of the requested approach procedure. ATC makes use of different control methods depending on the type of approach—failing to communicate the requested approach on initial contact may result in inefficient flight profiles, increased flying distances, and additional crew workload. When pilots inform ATC on initial contact of the requested approach, this assists ATC in planning and sequencing considerations, and reduces transmissions on the ATC frequency.

At airports where Terminal Control service is provided and RNAV approach procedures are being advertised as the primary approach on ATIS, the ATIS message must request pilots to inform the Arrival controller on initial contact of their requested approach. At airports without a designated Terminal or Arrival controller, the ATIS message may stipulate either an ATC unit or a frequency for pilots to inform ATC of their requested approach procedure.

Pilot Actions

- Where multiple RNAV approaches are available, pilots must request their intended approach on initial contact

Pilot Phraseology

(aircraft id), REQUEST (RNAV approach name) APPROACH (runway id)

Pilot Examples

WESTJET ONE-TWO-THREE FLIGHT LEVEL TWO-ZERO-ZERO FOR ONE-SIX THOUSAND, INFORMATION DELTA, REQUEST RNAV YANKEE RUNWAY THREE-TWO.

PORTER ONE-SEVEN-FIVE FLIGHT LEVEL TWO-ZERO-ZERO FOR ONE-SIX THOUSAND, INFORMATION DELTA, REQUEST ILS RUNWAY THREE-TWO.

Pilots Notifying ATC of an Inability to Conduct an Approach Procedure

If, at any stage of conducting an approach procedure, a flight is unable to comply with an ATC approach clearance due to an avionics malfunction, FMC input error, weather or other non-normal condition, crews must immediately advise ATC and request an alternate clearance or course of action.

Pilot Actions

- Inform ATC if a flight is unable to conduct an approach procedure as cleared by ATC

Pilot Phraseology

(aircraft id) UNABLE (approach), REQUEST (proposed course of action)

Pilot Example

WESTJET ONE–TWO–THREE UNABLE MUPUV TRANSITION, REQUEST VECTORS TO FINAL.

RNAV SID

Features

An RNAV SID is an assembly of successive route segments leading to a location where a transition to the enroute portion of a route is possible. The transition could be a waypoint common to the SID and the route or a location where a radar vector to the route is normally provided.

An altitude and/or speed restriction can be associated to an RNAV SID waypoint.

Onboard Flight Management Computers (FMC) automates the aircraft lateral and vertical navigation based on the waypoint location and charted altitude/speed restrictions.

Pilot Action under an RNAV SID Clearance

CLIMB

- Follow the lateral path of the SID procedure

- Climb to the ATC cleared altitude while complying with the SID-charted altitude restrictions at or below the cleared altitude and additional ATC altitude restrictions, if any

- Comply with the SID-charted speed or the ATC-assigned speed restrictions, if any.

- Comply with speed in the following priority:

1. CARs 602.32 Airspeed Limitations

2. ATC assigned speed

3. Charted speed

CLIMB – Cancellation of Altitude Restriction

- Follow the lateral path of the SID procedure

- Climb to the ATC cleared altitude while complying with the SID-charted altitude restrictions at or below the cleared altitude except for the cancelled altitude restrictions

- Comply with the SID-charted speed or the ATC-assigned speed restriction, if any.

- Comply with speed in the following priority:

1. CARs 602.32 Airspeed Limitations

2. ATC assigned speed

3. Charted speed

CLIMB – Cancellation of Speed Restriction

- Follow the lateral path of the SID procedure

- Climb to the ATC cleared altitude while complying with the SID-charted altitude restrictions at or below the cleared altitude and additional ATC altitude restrictions, if any

- Comply with the SID-charted speed restrictions except for the cancelled speed restrictions

CLIMB UNRESTRICTED – Cancellation of All Remaining Altitude and Speed Restrictions

- Follow the lateral path of the SID procedure

- Climb to the ATC cleared altitude

All SID altitude and speed restrictions between the aircraft's current altitude and the cleared altitude no longer apply.

RNAV SID–Altitude Clearance

16000

13000
11000
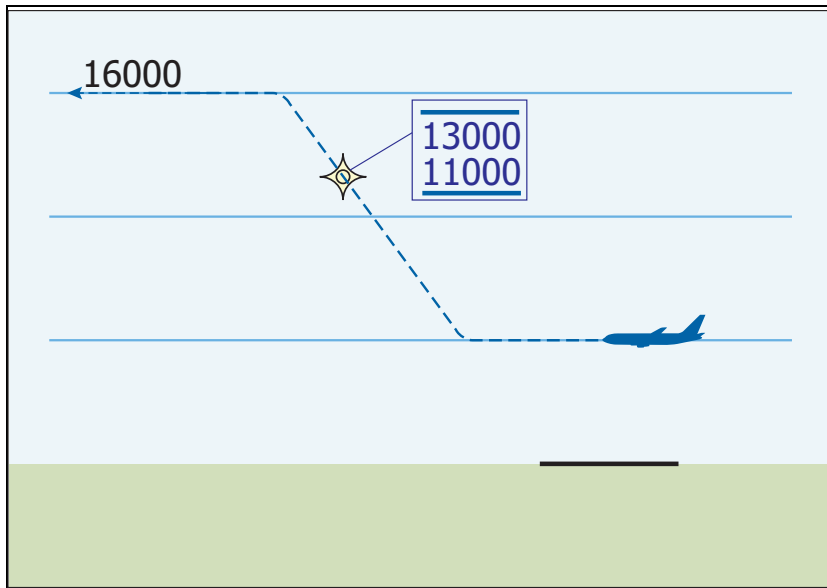
Figure 14 RNAV SID–Altitude Clearance

CLIMB

Phraseology

(aircraft id) CLIMB [TO] (altitude)

Example

WESTJET FOUR–FIVE–SIX CLIMB TO ONE–SIX THOUSAND.

Pilot Action

- Climb to the ATC cleared altitude
- Comply with the altitude and speed restrictions charted on the SID

CLIMB with Tactical Cancellation of Altitude Restriction

Phraseology

(aircraft id) CLIMB [TO] (altitude) ALTITUDE RESTRICTION AT (waypoint) CANCELLED

Example

WESTJET FOUR-FIVE-SIX CLIMB TO ONE-SIX THOUSAND ALTITUDE RESTRICTION AT PICAR CANCELLED.

Pilot Action

- Climb to the ATC cleared altitude

- Comply with the altitude and speed restrictions charted on the SID with the exception of the altitude restriction at PICAR

CLIMB with Tactical Cancellation of Speed Restriction

Phraseology

(aircraft id) CLIMB [TO] (altitude) SPEED RESTRICTION AT (waypoint) CANCELLED

Example

WESTJET FOUR-FIVE-SIX CLIMB TO ONE-SIX THOUSAND SPEED RESTRICTION AT PICAR CANCELLED.

Pilot Action

- Climb to the ATC cleared altitude

- comply with the altitude and speed restrictions charted on the SID with the exception of the speed restriction at PICAR

CLIMB UNRESTRICTED – Cancellation of All Remaining Altitude and Speed Restrictions

Phraseology

(aircraft id) CLIMB UNRESTRICTED [TO] (altitude)

Example

WESTJET FOUR-FIVE-SIX CLIMB UNRESTRICTED TO ONE-SIX THOUSAND.

Pilot Action

- Begin an unrestricted climb to the ATC-cleared altitude.

All SID altitude and speed restrictions between the aircraft's current altitude and the cleared altitude no longer apply.
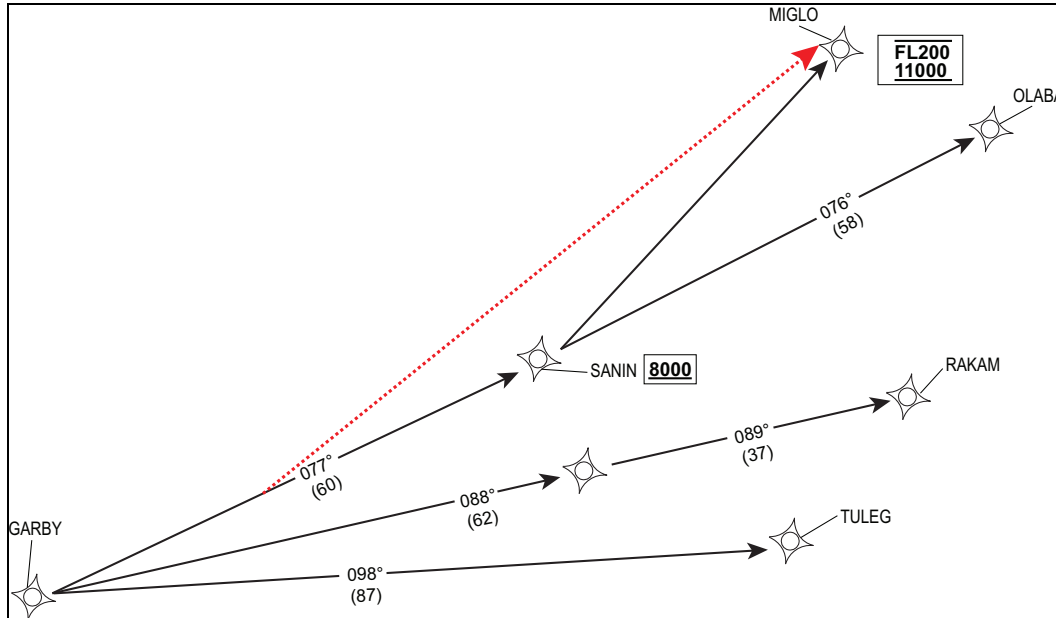
Proceed Direct to a Point on a SID

Figure 15 Proceed Direct to a Point on a SID

Phraseology

(aircraft id) PROCEED DIRECT (waypoint name) REJOIN SID

Example

AIR CANADA ONE-TWO-THREE PROCEED DIRECT MIGLO REJOIN SID.

Pilot Actions

- Proceed direct to MIGLO

- Comply with all published altitude and speed restrictions at and after MIGLO.

The pilot is not required to comply with the published altitude or speed restrictions at waypoints being bypassed.

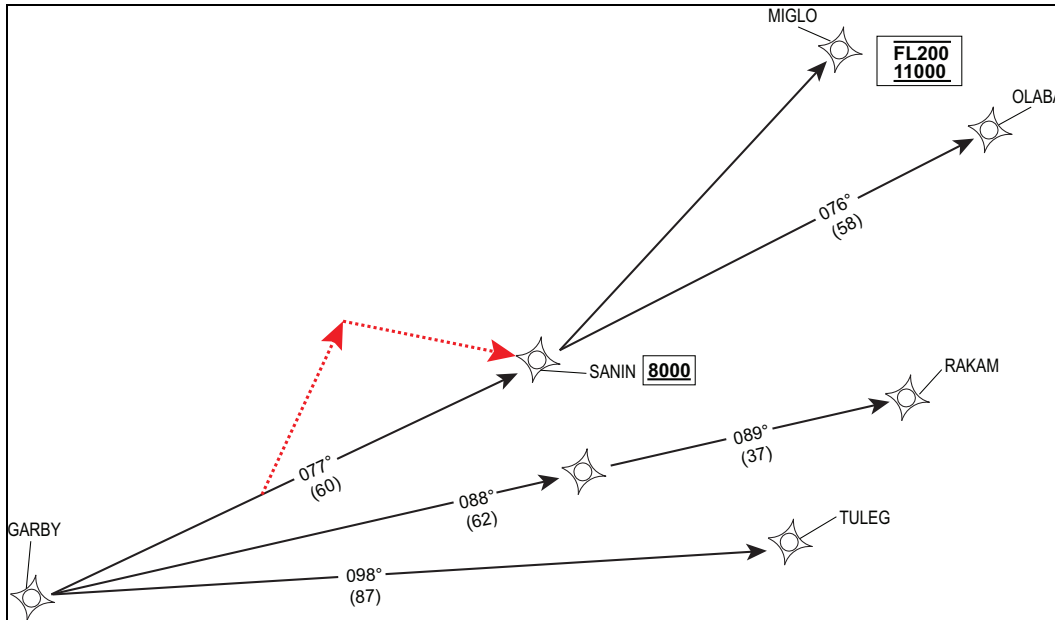# Vector Flight off an RNAV SID Then Re-establishment on the Same SID Transition

Figure 16 Vector off RNAV SID then Re-establish

Phraseology

🎧 (aircraft id) VECTORS FOR (reason) FLY HEADING / TURN RIGHT / LEFT HEADING (number) EXPECT DIRECT (waypoint name) IN (number) MILES

Rejoin SID

🎧 (aircraft id) PROCEED DIRECT (waypoint name) REJOIN SID

Example

🎧 *AIR CANADA ONE-TWO-THREE VECTORS FOR SPACING TURN LEFT HEADING ZERO-ONE-ZERO EXPECT DIRECT SANIN IN ONE-FIVE MILES.*

Rejoin SID

🎧 *AIR CANADA ONE-TWO-THREE PROCEED DIRECT SANIN REJOIN SID.*

Pilot Actions

- Turn the aircraft to the assigned heading and altitude
- Await clearance to proceed direct to SANIN and retain the SID in the navigation system

When rejoining the SID:

- Proceed direct SANIN to rejoin the SID
- Comply with the remaining SID-charted restrictions including SANIN
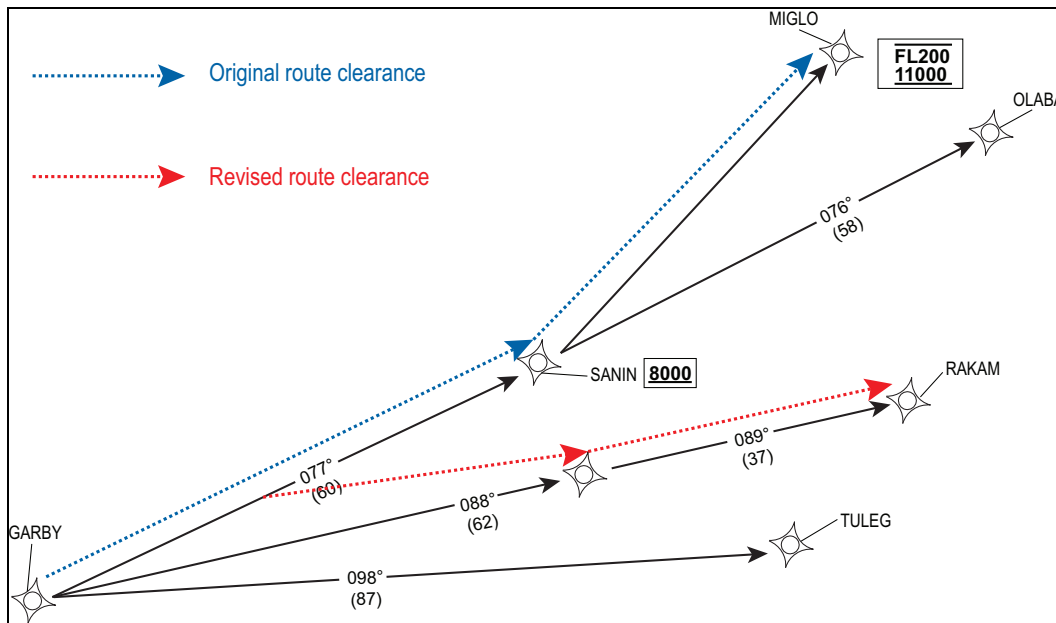
Change RNAV SID Transition

Figure 17 Change RNAV SID Transition

Phraseology

Change of SID transition

> 🎧 (Aircraft id) RECLEARED (procedure name), (transition name), PROCEED DIRECT (waypoint name) REJOIN SID

Example

Change of SID transition

> 🎧 *AIR CANADA ONE-TWO-THREE RECLEARED GARBY ONE DEPARTURE, RAKAM TRANSITION, PROCEED DIRECT RAKAM REJOIN SID*

Pilot Actions

When joining the new SID transition,

- Proceed direct RAKAM to join the new SID transition

- Comply with the SID-charted restrictions

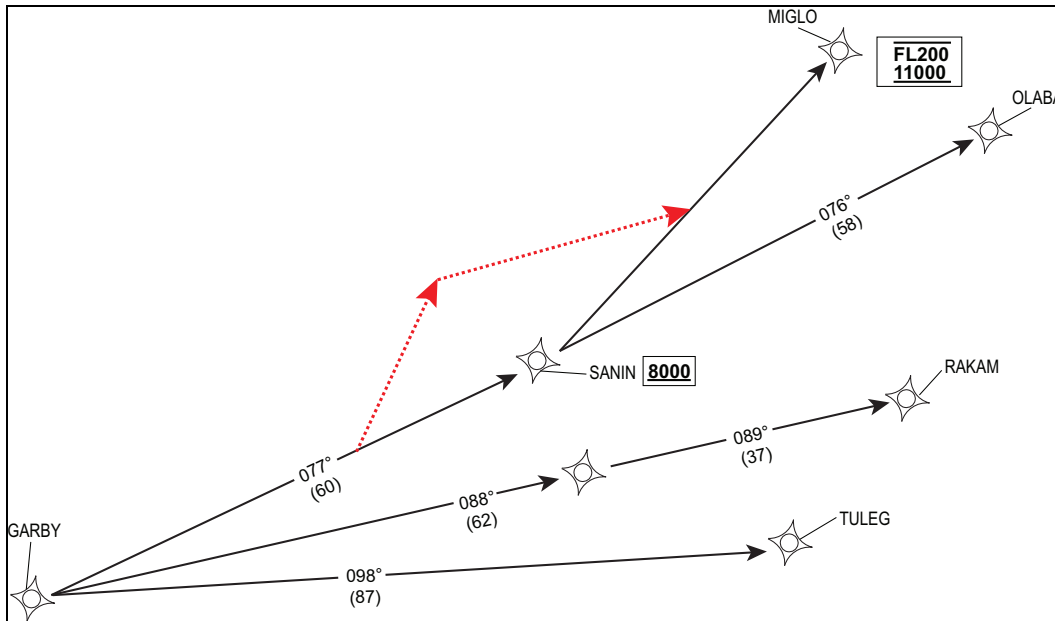# Termination of Vectoring between Waypoints for RNAV SID

Figure 18 Terminate Vector between Waypoints for RNAV SID

Phraseology

Vector intercept of SID

> (aircraft id) FLY HEADING/TURN RIGHT/LEFT HEADING (number) INTERCEPT
> (SID name) REJOIN SID

Example

Vector intercept of SID

> *WESTJET TWO-THREE-FOUR FLY HEADING ZERO-SIX-ZERO INTERCEPT GARBY ONE DEPARTURE REJOIN SID .*

Pilot Actions

When intercepting the SID,

- Maintain the assigned heading to join the SID

- Comply with the SID-charted restrictions

Remember

If you have not clearly heard a transmission, reply "say again."
The transmission will be repeated.

If you did not understand a transmission, reply "I do not understand."
The transmission will be explained.

Questions, comments and feedback can be directed to:
service@navcanada.ca

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