CZEG RNAV STAR PROCEDURES

A Pilots guide and Controllers overview to RNAV STAR Procedures Within CZEG - Edmonton FIR, in particular, the Edmonton (CYEG) and Calgary (CYYC) Airports. What we expect from pilots when flying in our FIR. What you should expect from us and the meanings of RNAV STAR ATC Instructions

Revision Listing As Follows			
DATE	REVISION BY	VER	NOTES
Jan 7, 2018	Owen Kane	0.35	Initial Document Creation
Jan 10, 2018	Owen Kane	1.0	Release With Phraseology to Align With RNAV Stars - CYEG/CYYC

OVERVIEW

There are two technical versions of RNAV STARS present in the CZEG or Edmonton FIR, the Closed and the Open STAR. Both of these STAR types exist at the Calgary and Edmonton International Airports. Both STARS are similar in that they connect to enroute facilities and contain lateral transitions, speed and altitude restrictions. The difference is in how they terminate.

- **Open STARS** are not directly connected to an ILS Approach, rather they are connected to a Downwind Terminating Waypoint or DTW. Pilots flying an ILS approach should expect vectors to intercept the localizer for an ILS approach either just prior or at the DTW. In some extreme circumstances, usually a result of traffic or separation issues the pilot may be required to extend the downwind leg.

- **Closed STARS** are connected to the ILS approach by means of a transition fix usually the Initial Approach Fix. The pilot should expect to be cleared to intercept the localizer 3 minutes prior to IA Fix.

- **Hybrid Open STARS** a term we've coined ourselves are Open Starts which allow Controllers the increased flexibility of issuing Vectors or a Transition to intercept the ILS Approach. Hybrid Open STARS are available at the Edmonton CYEG International Airport.

Pilots upon initial contact with either our approach or centre controller at any airport you're arriving at state your **Approach Choice** that being **RNAV X, RNP-Y, ILS or VISUAL**. If you have a specific runway in mind indicate that as well. If you are landing at Calgary and do not have scenery for **RWY 17L 35R** please advise us. Depending on traffic we will attempt to accommodate your requests. For those who are unaware, **Runway 35 approaches are our standard Noise Abatement Runways.**

Please Note: Pilots arriving from the east, northeast and south-east must use the BIRKO, TOTUB, EBGAL and TUDUK Arrivals and expect runway 17L or 35R. Reference figure 1 and 2. Pilots arriving from the west, northwest and southwest must use the ADVOX, FLAAM, IGVEP and VESGA Arrivals and expect runway 17R or 35L. Reference figure 1 and 2.

Phrase Structure - (ATC CallSign),(Aircraft Callsign), Inbound (Airport Name), (Arrival Name) (Transition), Requesting (Approach), (Runway) With (ATIS ID)

Phrase Example - Calgary Approach, JAZZ123, Inbound Calgary, Birko3, DUDNI, Requesting ILS, Runway 17L, With Hotel.

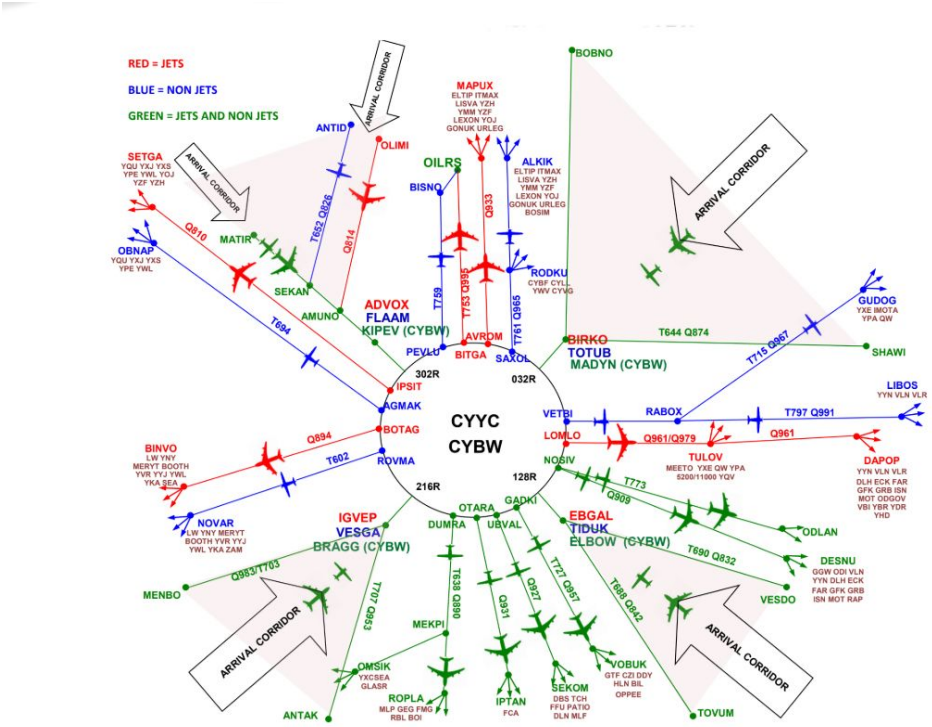

Figure 1 - Approach and Departure Corridors By Aircraft Type

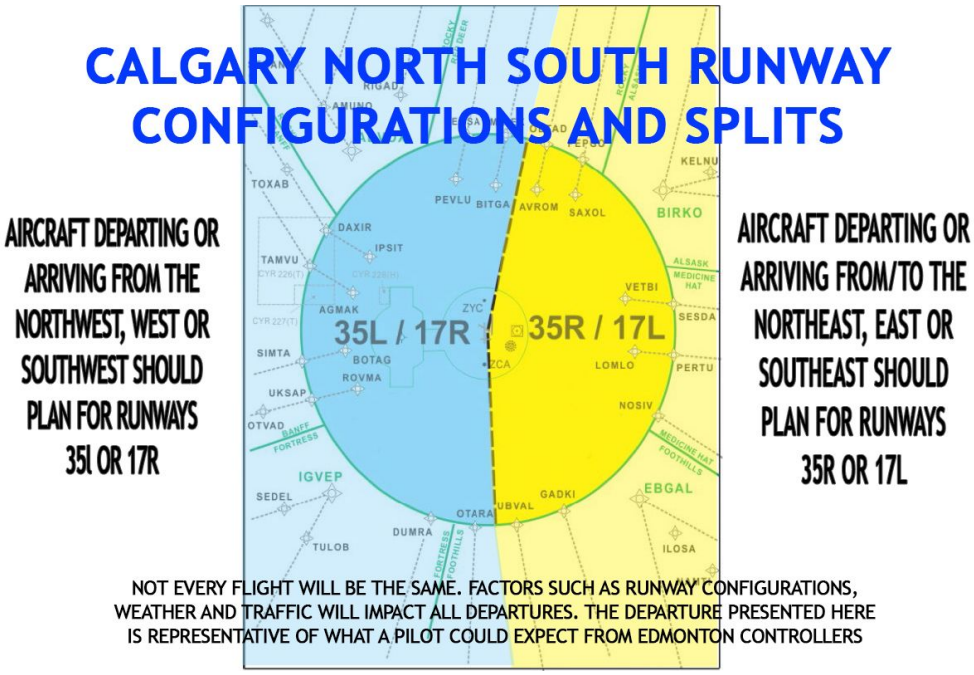

Figure 2 - Calgary North-South Runway Configurations

SECTION 1 - CENTRE INSTRUCTIONS APPROACH CONTROLLER OFFLINE

Phrase Structure -[Callsign], ,Descend [Altitude], Cross [Transition] at [Altitude], Altimeter [Altimeter], Expect the [Approach], [Runway]

Phrase Example - JAZZ123 when ready descend 8,000, cross OVEBI at 8,000, Altimeter 29.89, expect ILS Approach Runway 17R

Controllers expectation are that the pilot will at top of descent being a descent via the STAR to approach OVEBI at an altitude of 8,000 feet. The pilot is expected to respect the lateral profile and all altitude and speed restrictions as published for the RNAV STAR.

***Pilots Note:* If at any time you experience issues and are unable to continue Flying The STAR Or RNAV Approach as published please proceed as follows:**

Phrase Structure: [ATC Position] [Callsign] Unable [STAR or RNAV TRANSITION] Request [Proposed Course Of Actions]

Phase Example: Calgary Approach, JAZZ123, Unable VESGA Transition, Request Vectors For Final

Controller Will Respond Similar:

Phrase Structure: [Callsign], Star Cancelled, Vectors for The [Approach] Approach, Runway [Number] Turn[Left/Right, Fly Heading [Heading]

Phrase Structure: JAZZ123, Star Cancelled, Vectors For The ILS Approach Runway 17R, Fly Heading 031

Centre Controllers and Pilots Go To Section Section 5

SECTION 2 - CENTRE INSTRUCTIONS APPROACH CONTROLLER ONLINE

Phrase Structure - JAZZ123 when ready descend (Bed Post Altitude), Altimeter [Altimeter]

Phrase Example - Jazz123 when ready descend 14,000, Altimeter 29.89

Controllers expectation are that the pilot will at top of descent being a descent via the referenced STAR to Bedpost Altitude. The pilot is expected to respect the lateral profile and all altitude and speed restrictions as published for the star.

With the pilot established and descending on the star and prior to the bedpost the centre controller will handoff the aircraft to the approach controller. Note the handoff procedure will be initiated first and only when the approach controller accepts the handoff will the centre controller inform the pilot to contact approach controller.

CTR ATC - JAZZ123 Contact Calgary Approach 119.20 - Good Day

PIC - Calgary Approach Jazz123 Descending IGVEP4 (Altitude) (Speed)

SECTION 3 - APPROACH INSTRUCTIONS CTR ACC OFFLINE

Phrase Structure - JAZZ123 Squawk (Code)

Phrase Example - JAZZ123 Squawk 6356

Note - The above phraseology is omitted when the upline Centre Controller is online

Phrase Structure - [Callsign], ,Descend [Altitude], Altimeter [Altimeter], Expect the [Approach], [Runway]

Phrase Example - **JAZZ123 descend 8,000, Altimeter 29.89, Expect ILS Approach Runway 17R**

Or

Phrase Structure - [Callsign], ,Descend [Altitude], cross [Transition] at [Altitude], Altimeter [Altimeter]Expect the [Approach], [Runway]

Phrase Example - **JAZZ123 descend 8,000, cross OVEBI at 8,000, Altimeter 29.89, expect ILS Approach Runway 17R**

Controllers expectations are that the pilot will continue to fly the star respecting all altitude and speed restrictions as published for the STAR until such time as ATC issues an approach clearance.

SECTION 4 - APPROACH - OPEN OR HYBRID STAR TREATED AS OPEN (CYEG)

Pilots will be expecting vectors to the approach prior to the DTW. Pilots are expected to continue flying the star until an approach clearance is issued prior to the DTW.

> **Phrase Structure** - [Callsign], Turn Right/Left Fly (Heading) To Intercept the Localizer, Cleared ILS Approach (Runway)
> **Phrase Example** - JAZZ123 Turn Right, Fly Heading 140 To Intercept the Localizer, Cleared ILS Approach Runway 17L

Pilots will be expecting vectors to the approach after passing the DTW. Pilots are expected to continue flying downwind until an approach clearance is issued as follows

> **Phrase Structure** - [Callsign], Turn [Left/Right], Direct [FACP], To Intercept The Localizer, Cleared straight in approach ILS Approach Runway [Runway]
>
> **Phrase Example** - "Transat 345, Turn right direct ELERO, To Intercept The Localizer, On Intercept Cleared Straight in ILS Approach Runway 17R"
>
> Or
>
> **Phrase Structure -** [Callsign], Turn [Left/Right] Fly Heading [Heading], To Intercept The Localizer, Cleared ILS Approach Runway [Runway]
>
> **Phrase Example** - Transat 345, Turn Right Fly Heading 140 To Intercept the Localizer, Cleared ILS Approach Runway 17L

SECTION 5 - APPROACH - OPEN OR HYBRID STAR TREATED AS CLOSED (CYEG)

ILS/RNAV-Z/RNP-Y Approach - Pilots are expected to continue flying the star until an approach clearance is issued prior to the transition. Controllers are expected to clear the aircraft for the approach a minimum of 3 NM prior to the transition.

> **Phrase Structure** - (Callsign) Cross (Transition) at altitude {Altitude], Cleared [ILS/RNAV-Z/RNP-Y Approach, Runway (Number)
>
> **Phrase Example** - JAZZ123, Cross SUVAT at 5,000, Cleared ILS Approach Runway 30
>
> **PIC** - Cross Suvat at 5,000, Cleared ILS Approach Runway 11

SECTION 6 - CENTRE OR APPROACH CONTROLLER HANDOFF TO TOWER

Approach Controller Transfer to Tower

The approach controller should watch as the pilot approaches the tower control zone. If the pilot is descending on the ILS as expected only then transfer to Tower.

APP CTR - Over to Tower 118.40

SECTION 7 - PILOT AND TOWER COMMUNICATION EXAMPLES AFTER HANDOFF

PIC - Calgary Tower, JAZZ123, On the ILS Runway 17R
TWR ATC - JAZZ123, Your Number 2, Behind 737, Min App Speed.
PIC - Number 2, Reduce Speed
TWR ATC - JAZZ123, Winds 190 at 4, Cleared to Land Runway 17L.
PIC - Copy Winds, Cleared to Land Runway 17L
TWR ATC - Jazz123, If Able Exit C4, Which Gate
PIC, Exit C4, Gate 12
TWR ATC - Jazz123, Taxi C4, HB, Apron to Gate 12
PIC, Taxi C4, HB, Apron to Gate 12

APPENDIX "A" - CALGARY RNAV STAR HEADINGS AND TRANSITION TABLES - YYC

Table 1 - RNAV STAR Headings And Transitions Runway 11

A-Type	Name	Type	ILS/CAT	RNAV GNSS - Z	RNAV RNP-Y
Jet	ADVOX6	Closed	Dct/KISIL/6500	Dct/KISIL/6500	Dct/KISIL/6500
Jet	BIRKO3	Open	Left/140/8000	Dct/KISIL/6500	Dct/LETUT/6500
Jet	EBGAL4	Open	Right/080/8000	Dct/ITPAK/6500	Dct/PIDLA/8000
Prop	FLAAM5	Closed	Dct/KISIL/6500	Dct/KISIL/6500	Dct/KISIL/6500
Jet	IGVEP4	Open	Right/080/8000	Dct/ITPAK/6500	Dct/PIDLA/8000
Prop	TIDUK4	Open	Left/140/8000	Direct To BOTAX	Dct/LETUT/6500
Prop	TOTUB3	Open	Left/140/8000	Direct To BOTAX	Dct/LETUT/6500
Jet	VESGA4	Open	Left/140/8000	Dct/ITPAK/6500	Dct/PIDLA/8000

Table 2 - RNAV STAR Headings And Transitions Runway 29

A-Type	Name	Type	ILS Hdg	RNAV GNSS - Z	RNAV RNP-Y
Jet	ADVOX6	Open	260	PENDL	DEMLO
Jet	BIRKO3	Open	260	PENDL	TOTUB
Jet	EBGAL4	Closed	HENRI	HENRI	HENRI
Prop	FLAAM5	Open	260	PENDL	DEMLO
Jet	IGVEP4	Open	80	TEXIT	AVTIS
Prop	TIDUK4	Closed	HENRI	HENRI	HENRI
Prop	TOTUB3	Open	260	PENDL	TOTUB
Jet	VESGA4	Open	80	TEXIT	AVTIS

Table 3 - RNAV STAR Headings And Transitions Runway 17L

A-Type	Name	Type	ILS Hdg	RNAV GNSS - Z	RNAV RNP-Y
Jet	ADVOX6	Open	RIGHT/140/8000	UBVEG	N/A*
Jet	BIRKO3	Open	LEFT/200/8000	ELSOG	TOTUB
Jet	EBGAL4	Open	LEFT/200/8000	ELSOG	MUPUV
Prop	FLAAM5	Open	RIGHT/140/8000	UBVEG	N/A*
Jet	IGVEP4	Open	RIGHT/140/8000	UBVEG	OVEBI
Prop	TIDUK4	Open	LEFT/200/8000	ELSOG	MUPOV
Prop	TOTUB3	Open	LEFT/200/8000	ELSOG	TOTUB
Jet	VESGA4	Open	RIGHT/140/8000	UBVEG	OVEBI

No published transition from the STAR - Not Available

Table 4 - RNAV STAR Headings And Transitions Runway 17R

A-Type	Name	Type	ILS Hdg	RNAV GNSS - Z	RNAV RNP-Y
Jet	ADVOX6	Open	RIGHT/140/8000	UBTON	LEXOK
Jet	BIRKO3	Open	LEFT/200/8000	VOBAR	N/A*
Jet	EBGAL4	Open	LEFT/200/8000	VOBAR	MUPUV
Prop	FLAAM5	Open	RIGHT/140/8000	UBTON	LEXOK
Jet	IGVEP4	Open	RIGHT/140/8000	UBTON	OVEBI
Prop	TIDUK4	Open	LEFT/200/8000	VOBAR	MUPUV
Prop	TOTUB3	Open	LEFT/200/8000	VOBAR	N/A*
Jet	VESGA4	Open	RIGHT/140/8000	UBTON	OVEBI

No published transition from the STAR - Not Available

Table 5 - RNAV STAR Headings And Transitions Runway 35L

A-Type	Name	Type	ILS Hdg	RNAV GNSS - Z	RNAV RNP-Y
Jet	ADVOX6	Open	20	MESKA	SELEV
Jet	BIRKO3	Open	320	BARIE	LIBUX
Jet	EBGAL4	Open	320	BARIE	N/A*
Prop	FLAAM5	Open	20	MESKA	SELEV
Jet	IGVEP4	Open	20	MESKA	MIDVI
Prop	TIDUK4	Open	320	BARIE	N/A*
Prop	TOTUB3	Open	320	BARIE	LIBUX
Jet	VESGA4	Open	20	MESKA	MIDVI

Table 6 - RNAV STAR Headings And Transitions Runway 35R

A-Type	Name	Type	ILS Hdg	RNAV GNSS - Z	RNAV RNP-Y
Jet	ADVOX6	Open	20	MUTRA	SELIV
Jet	BIRKO3	Open	320	MATAV	LIBUX
Jet	EBGAL4	Open	320	MATAV	TIDUK
Prop	FLAAM5	Open	20	MUTRA	SELIV
Jet	IGVEP4	Open	20	MUTRA	N/A*
Prop	TIDUK4	Open	320	MATAV	TIDUK
Prop	TOTUB3	Open	320	MATAV	LIBUX
Jet	VESGA4	Open	20	MUTRA	N/A*