

Pilot Briefing: Climb Via, Descend Via, Speed Adjustments

NBAA Access Committee – Airspace, ATC, & Flight Technologies Working Group

Acknowledgments

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- Jeppesen, Inc.
 - Jeppesen navigation data and charts furnished for this program are for training & familiarization purposes only. They are not to be used for navigation purposes
- Performance-Based Aviation Rulemaking Committee (PARC)
Pilot and Controller Procedures & System Integration (PCPSI)
Working Group
- FAA's PBN Policy and Support Group
- FAA Flight Standards - Performance Based Flight Systems
Branch (AFS-470)
- Nav Canada

New & Revised Air Traffic Procedures

Climb Via, Descend Via, & Speed Adjustments

- United States: Effective April 3, 2014
- **ICAO: Effective November 10, 2016**
- Introduces the “Climb Via” clearance
- Updates the “Descend Via” clearance
- Revises & expands on ATC clearance phraseology supporting speed adjustments
- Provides ATC with new clearance/phraseology options
- Reduces frequency congestion
- Reduction in hear-back/read-back errors

ICAO Climb Via & Descend Via

10 November 2016

- Adopted to further world-wide harmonization of ATC clearance
- Allows ATC and aircrew to communicate and understand detailed clearance information that would otherwise require long and potentially complex transmissions

Overview:

- Simple, intuitive phraseology for issuing a clearance to laterally & vertically navigate a departure or an arrival
- Pilots must be familiar with the application of these types of clearances:
 - “**Climb Via/Descend Via**”
 - Climb/Descend Via “**Except Maintain**”
 - Climb/Descend “**and Maintain**”
 - “**Climb and Maintain**” or “**Descend and Maintain**”
 - Speed Phraseology
- Purpose of this program is to provide this familiarization
 - Definitions
 - Examples of operational application
 - U.S. Quick Reference Card

Pilots Need To Know

FAA “Climb Via” & “Descend Via”

- ***“Climb Via”:***
 - An abbreviated ATC clearance that requires compliance with a procedure’s lateral path, associated speed restrictions and altitude restrictions along the cleared route or procedure until climbing to the “Top Altitude” published on the SID
- ***“Descend Via”:***
 - An abbreviated ATC clearance that requires compliance with a published procedure’s lateral path and associated speed restrictions and provides a pilot-discretion descent to comply with published altitude restrictions until descending to the “Bottom Altitude” published on the STAR

Pilots Need To Know

FAA “Climb Via/Descend Via Except Maintain”

- Execute the Climb Via clearance to an ATC assigned “Top Altitude”
- Execute a Descend Via clearance to an ATC assigned “Bottom Altitude”

Pilots Need To Know

FAA “Climb and Maintain” or “Descend and Maintain”

- Pilot is expected to vacate current altitude and commence an **unrestricted climb/descent** to comply with the clearance
- For aircraft already climbing via a SID, or descending via a STAR, published altitude restrictions **are deleted** unless re-issued by ATC
- Speed restrictions always **remain in effect** unless the controller explicitly cancels or amends the speed restrictions

Pilots Need To Know

FAA Speed Phraseology

- ***“Climb Via” or “Descend Via” :***
 - Absent any qualifying instructions, issuance of a climb or descend via clearance **cancels** a previously issued ATC speed adjustment and provides pilot discretion to adjust speed while requiring compliance with upcoming restrictions
 - ATC **may require** compliance with a previous ATC-issued speed adjustment using phraseology:
 - *“Proceed direct FNCHR, maintain three zero zero knots until FNCHR , **then** descend via the FNCHR one arrival, landing north”*
 - Where there are no upcoming speed restrictions, issuance of a *“Proceed direct (WP name), climb/descend via”* cancels a previously issued speed adjustment and authorizes speed at pilot's discretion as appropriate for the phase of flight, ensuring compliance with 14 CFR 91.117
- ***“Resume Normal Speed”:***
 - Cancels ATC issued speed restrictions and instructs pilot to return to normal aircraft speed where no restrictions are published on the procedure/route currently being flown
 - It does not delete speed restrictions on upcoming segments of flight (e.g. a STAR later in the flight)
 - This does not relieve the pilot of those speed restrictions which are applicable to 14 CFR Section 91.117
- ***“Resume Published Speed” :***
 - Cancels ATC issued speed restrictions; pilot is expected to comply with speeds published on the SID/STAR
- ***“Delete Speed Restrictions” :***
 - Cancels ATC assigned, and
 - Cancels all published speed restrictions on a charted procedure

Pilot/Controller Phraseology

- Pilots shall respond to “Climb Via” or “Descend Via” clearances by repeating the clearance verbatim; phrases such as “on the SID” or “descending on the arrival” are not acceptable and can create additional workload with unnecessary controller queries
- When changing frequencies or on initial contact advise ATC of current altitude, “Climbing/Descending Via” procedure name, and runway transitions if assigned; if issued an altitude or speed not contained on the SID/STAR, advise ATC of restrictions issued by the prior controller



Pilot/Controller Phraseology

Examples:

“Cactus Seven Eleven leaving two thousand climbing via the Laura Two departure.”

“Delta Fifty Eight climb via SID except cross MKALA at or above seven thousand.”

“American One Twenty proceed direct ROCKR, cross ROCKR at or above one zero thousand, climb via the BIZEE Two departure.”

“United Thirty Five cleared to Johnston Airport, Scott One departure, JONEZ transition, Q-one forty five, climb via SID except maintain flight level one eight zero.”

“JetBlue Six Zero Two leaving flight level two one zero descending via the IVANE two arrival landing south.”

“Delta One Twenty One leaving flight level one niner zero, descending via the EAGUL Five arrival runway two-six transition.”

Pilot/Controller Initial Contact Phraseology

Proper Phraseology Conveys Intent

Do not use non-standard phraseology with a “Climb Via” or “Descend Via” clearance:

“On the SID”

“Climbing on the SID”

“On the RUUDY Five”

“Descending on the arrival”

“On the EAGUL arrival”

Use Standard Phraseology

Informs ATC That The Aircraft Will Comply With Published Restrictions On The SID Or STAR

“Leaving two thousand, eight hundred climbing via the Cowboy Six”

“Leaving flight level two, two zero, descending via the SEEV Four...”

Informs ATC That The Aircraft Will Not Comply With Published Restrictions SID Or STAR

“Leaving two thousand, eight hundred, climbing to one four thousand”

“Leaving one seven thousand, eight hundred, descending to one zero thousand”

ICAO Climb Via SID & Descend Via STAR

- Cleared Level is expectedly stated:
 - *“FASTAIR 345 DESCEND VIA STAR TO 3 000 FEET”*
 - *“FASTAIR 345 CLIMB VIA SID TO FL 100”*
- Climb Via SID & Descend Via STAR are not “at pilot’s discretion”. Pilots must vacate altitude upon receipt and acknowledgment of clearance
 - Exception: Canada – remains a “when ready” climb or descent clearance
- Climb/Descend Unrestricted cancels both level and speed restrictions:
 - *“FASTAIR 345 CLIMB UNRESTRICTED TO FL 070”*
 - *“FASTAIR 345 DESCEND UNRESTRICTED TO 4 000 FEET”*
- Provision for tactical cancelation of level and/or speed restrictions
 - *“FASTAIR 345 DESCEND VIA STAR TO 2 000 FEET CANCEL LEVEL RESTRICTION AT BATON”*
 - *“FASTAIR 345 CLIMB VIA SID TO FL 080 CANCEL SPEED RESTRICTION AT TRUNK”*

ICAO Climb Via SID & Descend Via STAR

- Speed control instructions remain in effect unless explicitly cancelled or amended by the controller:
 - ATC-assigned speed restrictions are not canceled with a Climb Via SID or Descend Via STAR clearance as long as the speed does not contradict State rules
 - Maintain last assigned speed until State rules require a speed reduction
- **Canada Only:** Unless specifically stated by ATC, an instruction to “*Resume Normal Speed*” does not cancel speed restrictions that are applicable to published procedures of upcoming segments of flight
 - Upcoming speed restrictions on the SID or STAR will be adhered to. However, the speed is at the pilot’s discretion until the next published speed restriction

ICAO Climb Via SID & Descend Via STAR

Summary of Differences:

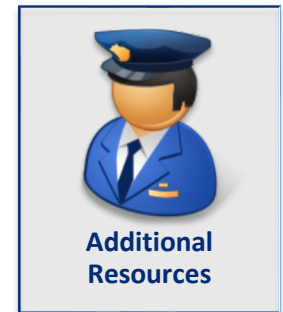
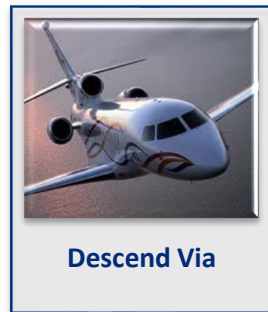
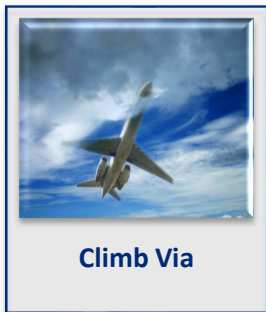
USA	ICAO/Canada
Top/Bottom altitudes are charted <i>DESCEND VIA EAGUL6 ARRIVAL</i>	Always assign an altitude. <i>DESCEND VIA STAR [TO] (altitude)</i>
<i>DESCEND AND MAINTAIN (altitude) = DELETE RESTRICTIONS</i>	<i>DESCEND UNRESTRICTED [TO] (altitude)= DELETE RESTRICTIONS ABOVE THE CLEARANCE ALTITUDE</i>
<i>DELETE SPEED RESTRICTION</i>	<i>SPEED RESTRICTION CANCELLED</i>
<i>DELETE ALTITUDE RESTRICTION</i>	<i>ALTITUDE RESTRICTION CANCELLED</i>
DESCEND/CLIMB VIA – Cancels previously issued speed – comply with published speeds	DESCEND/CLIMB VIA – Does not cancel a previously issued speed

ICAO Climb Via SID & Descend Via STAR

Summary of Differences:

USA	ICAO/Canada
<i>DESCEND VIA</i> – pilot's discretion descent to meet speed & altitude constraints	<i>DESCEND VIA</i> – pilot to begin descent immediately to comply with altitude constraints NOTE: Canada plans to make DV clearance discretionary to harmonize with US
Uses the STAR/SID name and number with descend/climb via clearances	Does not use specific STAR/SID name with descend/climb via clearances

Briefing Topics



Please click on the above picture to access the program pertaining to “Climb Via”, “Descend Via” and ATC speed adjustments. Within each briefing, you will have the option to return to this menu.

Exit Program

DEDICATED TO HELPING BUSINESS ACHIEVE ITS HIGHEST GOALS.



**DEDICATED TO THE HELPING BUSINESS
ACHIEVE ITS HIGHEST GOALS**

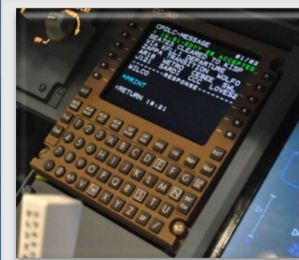
Briefing Topics – Climb Via (CV)



Terminology



**Operational
Application**



**Predeparture
Clearance (PDC)**

CLIMB VIA OPERATIONAL PROCEDURES			
SCENARIO	ACTION	PROBABLE OUTCOME	PILOT
1. Climb Via clearance is received.	1. Verify the clearance is for the correct flight.	1. The clearance is for the correct flight.	1. The clearance is for the correct flight.
2. Climb Via clearance is received.	2. Verify the clearance is for the correct flight.	2. The clearance is for the correct flight.	2. The clearance is for the correct flight.
3. Climb Via clearance is received.	3. Verify the clearance is for the correct flight.	3. The clearance is for the correct flight.	3. The clearance is for the correct flight.
4. Climb Via clearance is received.	4. Verify the clearance is for the correct flight.	4. The clearance is for the correct flight.	4. The clearance is for the correct flight.
5. Climb Via clearance is received.	5. Verify the clearance is for the correct flight.	5. The clearance is for the correct flight.	5. The clearance is for the correct flight.
6. Climb Via clearance is received.	6. Verify the clearance is for the correct flight.	6. The clearance is for the correct flight.	6. The clearance is for the correct flight.
7. Climb Via clearance is received.	7. Verify the clearance is for the correct flight.	7. The clearance is for the correct flight.	7. The clearance is for the correct flight.
8. Climb Via clearance is received.	8. Verify the clearance is for the correct flight.	8. The clearance is for the correct flight.	8. The clearance is for the correct flight.
9. Climb Via clearance is received.	9. Verify the clearance is for the correct flight.	9. The clearance is for the correct flight.	9. The clearance is for the correct flight.
10. Climb Via clearance is received.	10. Verify the clearance is for the correct flight.	10. The clearance is for the correct flight.	10. The clearance is for the correct flight.

Briefing Card



**FAA "Climb Via"
Video**

Return To Briefing Topic Main Menu

Briefing Topics – Descend Via (DV)



Terminology



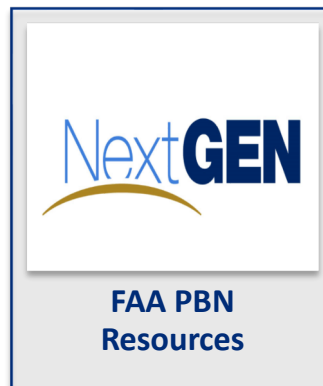
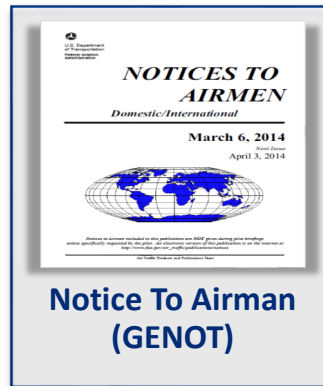
**Operational
Application**

DESCEND VIA ARRIVAL PHRASEOLOGY		
CONTROLLER		
ACTION	PHRASEOLOGY	ACTION
• None required	NA	• Track the lateral path of the DVAS. • Comply with published power restrictions. • Monitor and maintain altitude.
• Clear aircraft to a specific altitude. • Assign the DVAS.	"Descend Two, Phased Descend Clearance (VORTAC, Cleared To/Drop Two Altitude)"	• Track the lateral path of the DVAS. • Comply with published power restrictions. • Monitor and maintain altitude.
• Advise the pilot to maintain the altitude to clearance with descent at pilot discretion.	"Descend Two, Phased Descend Clearance (VORTAC, Cleared To/Drop Two Altitude)"	• Track the lateral path of the DVAS. • Comply with published power restrictions. • Monitor and maintain altitude.
• Issue Descend Via Clearance. • (Optional) Advise of landing runway.	"Descend Two, Descend Via The T/DAS Two Altitude (Two Altitude)"	• Track the lateral path of the DVAS. • Comply with published power restrictions. • Monitor and maintain altitude.
• Issue the altitude crossing clearance. • Issue Descend Via Clearance.	"Descend Two, Descend Via The T/DAS Two Altitude (Two Altitude)"	• Track the lateral path of the DVAS. • Comply with published power restrictions. • Monitor and maintain altitude.
• Issue Descend Via Clearance to a specific altitude. • Advise the pilot to maintain the altitude to clearance with descent at pilot discretion.	"Descend Two, Descend Via The T/DAS Two Altitude (Two Altitude)"	• Track the lateral path of the DVAS. • Comply with published power restrictions. • Monitor and maintain altitude.
• Advise the pilot to descend to the DVAS, and power restrictions apply.	"Descend Two, Descend Via The T/DAS Two Altitude (Two Altitude)"	• Track the lateral path of the DVAS. • Comply with published power restrictions. • Monitor and maintain altitude.

Briefing Card

[Return To Briefing Topic Main Menu](#)

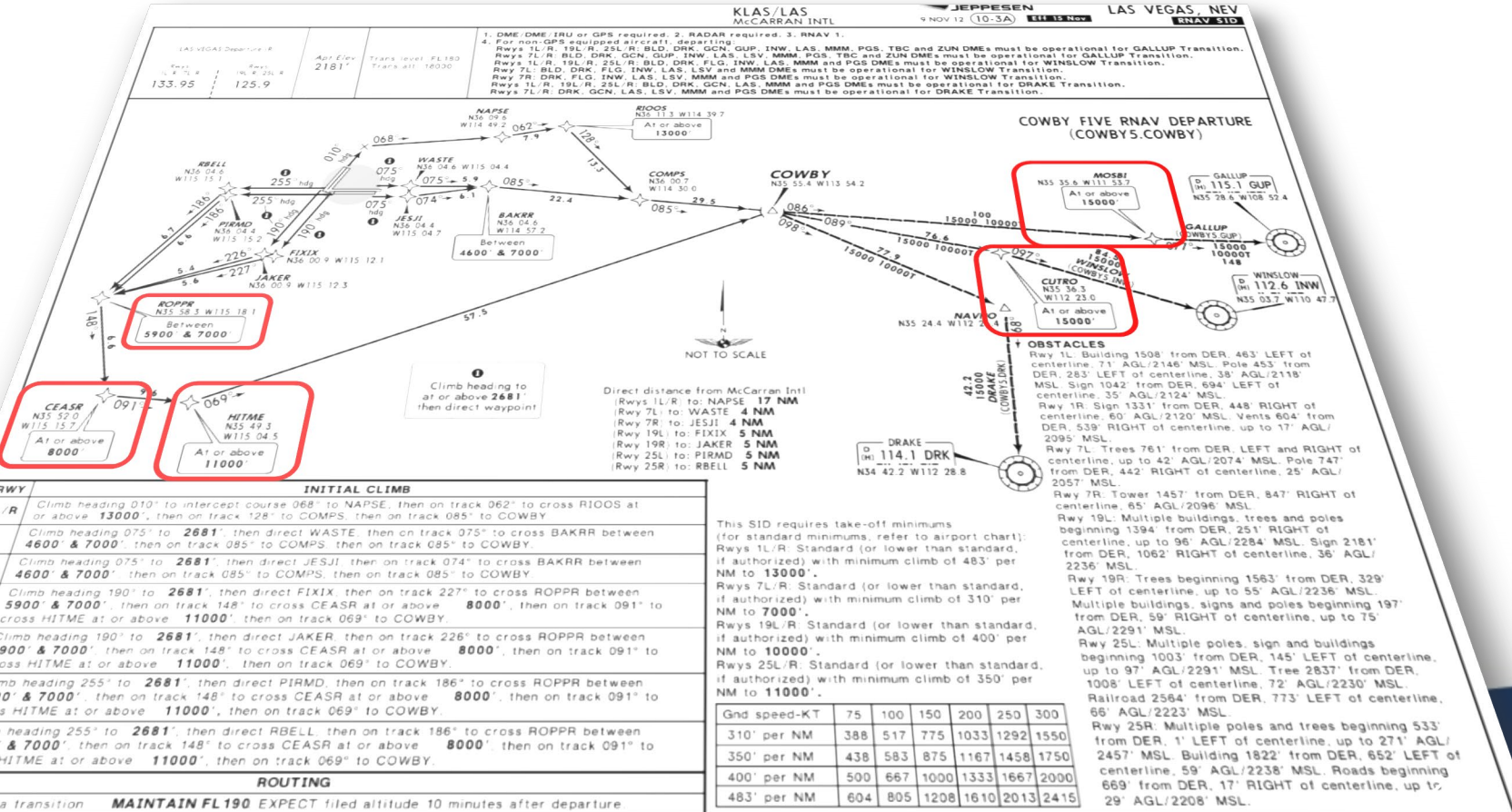
Briefing Topics – Additional Resources



[Return To Briefing Topic Main Menu](#)

Climb Via:

An abbreviated ATC clearance that requires compliance with the procedure lateral path, associated speed restrictions, and altitude restrictions along the cleared route or procedure.



Climb Via (AIM 5-2-8 e 4)

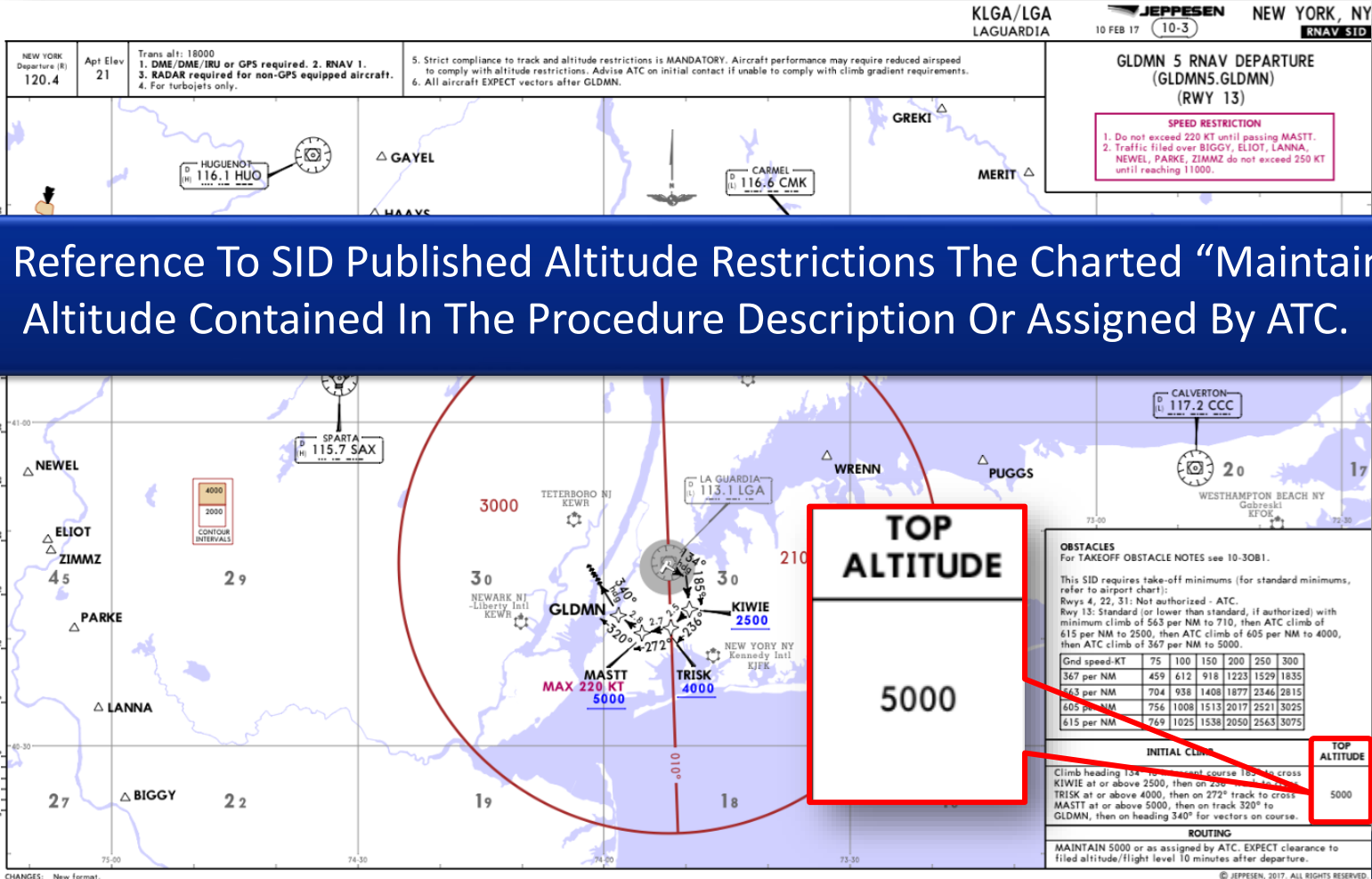
Authorizes Pilot To:

- When used in the IFR departure clearance, in a PDC, DCL*, or when subsequently cleared after departure to a waypoint depicted on a SID, to join a procedure after departure or resume a procedure
- When vertical navigation is interrupted and an altitude is assigned to maintain which is not contained on the published procedure, to climb from that previously assigned altitude at pilot's discretion to the altitude depicted for the next waypoint
 - ATC must ensure obstacle clearance until the aircraft is established on the lateral and vertical path of the SID
- Once established on the depicted departure, to climb and to meet all published or assigned altitude and speed restrictions

*DCL = Departure Clearance Via Data Link FANS 1/A Aircraft/Operators

Top Altitude:

In Reference To SID Published Altitude Restrictions The Charted “Maintain” Altitude Contained In The Procedure Description Or Assigned By ATC.



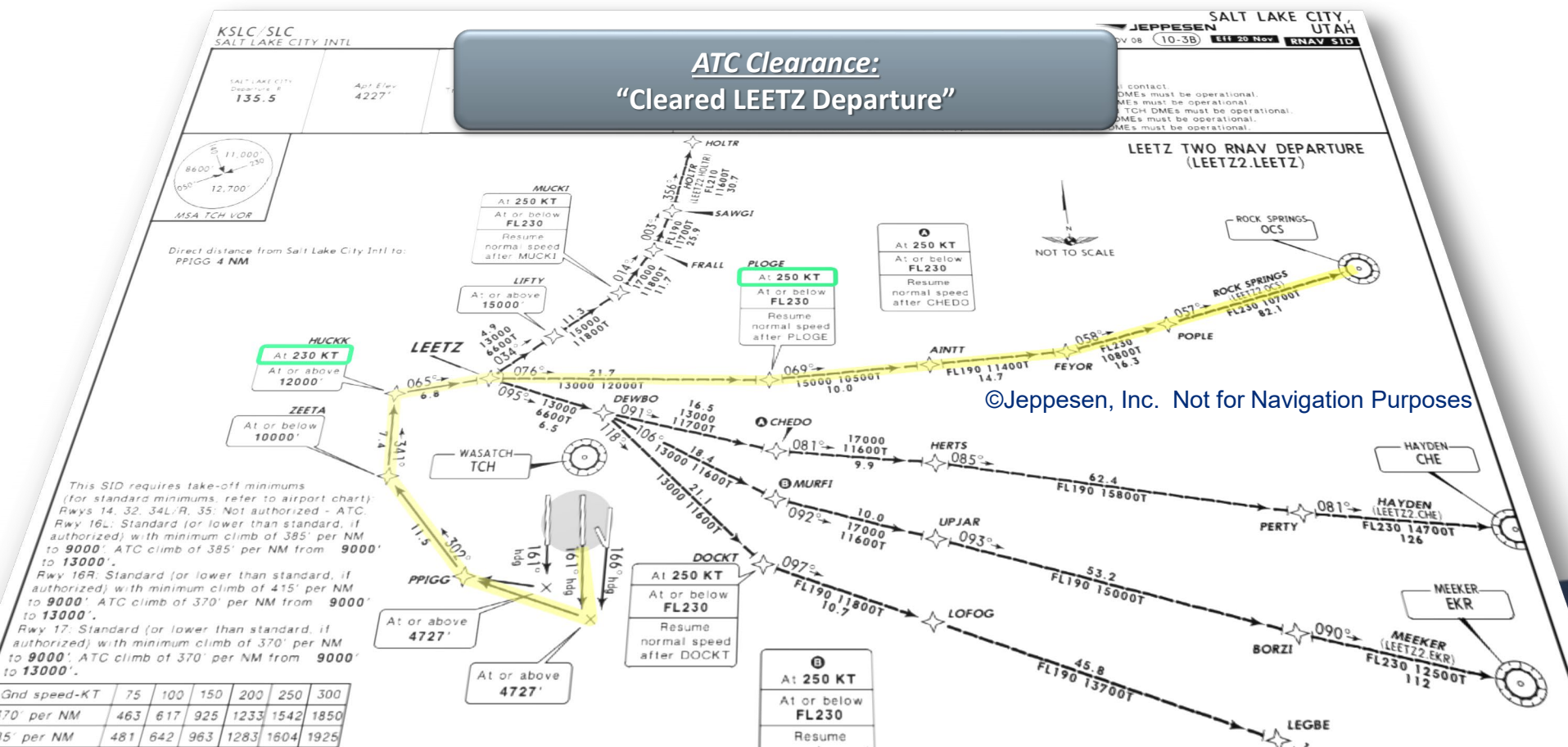
Top Altitude

- May be published for all runways & transitions
- May be runway/transition specific
- May be departure airport specific
- It is not:
 - The altitude filed in the IFR flight plan
 - The “expect” altitude in the IFR clearance or published on the SID

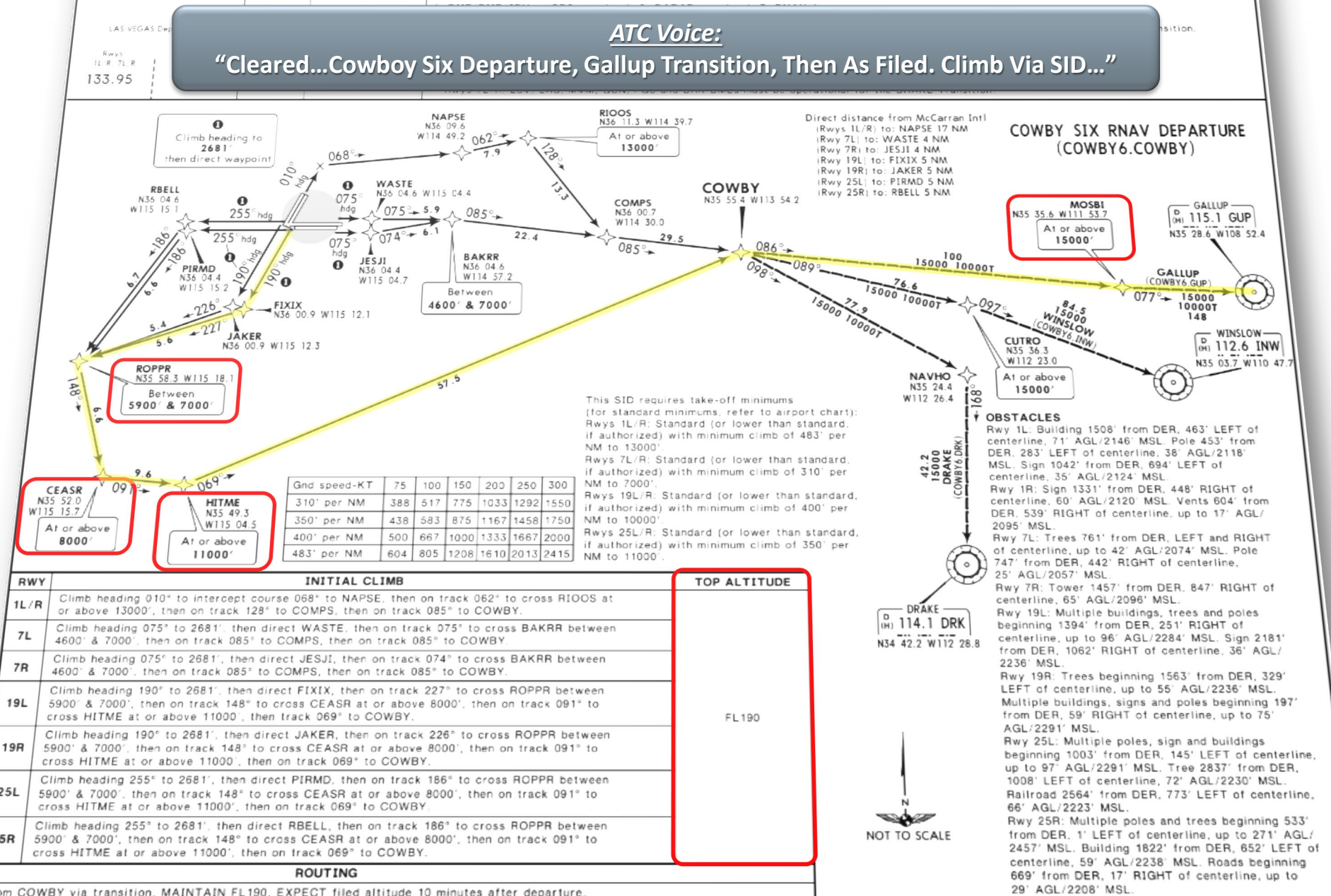
RWY	INITIAL CLIMB	TOP ALTITUDE
17C	Climb heading 176° to intercept course 157° to NAVYE, then on track 107° to cross JGIRL at or above 5000', then on depicted route to GRABE.	10000'
17R	Climb heading 176° to intercept course 155° to NAVYE, then on track 107° to cross JGIRL at or above 5000', then on depicted route to GRABE.	
18L	Climb heading 176° to intercept course 193° to BPARK, then on track 255° to cross YAMEL at or above 5000', then on depicted route to GRABE.	
18R	Climb heading 176° to intercept course 192° to BPARK, then on track 255° to cross YAMEL at or above 5000', then on depicted route to GRABE.	
31L/R	Climb heading assigned by ATC, EXPECT RADAR vectors to GRABE, MAINTAIN 5000'.	5000'
35L/C	Climb heading 356° to 1120', then direct CUZEN, cross CUZEN at or above 5000', then on track 004° to cross YUNGG at or above 7000', then on depicted route to GRABE.	10000'
36L/R	Climb heading 356° to 1120', then direct HAZKL, cross HAZKL at or above 5000', then on track 349° to cross RYNNE at or above 7000', then on depicted route to GRABE.	

RWY	INITIAL CLIMB	TOP ALTITUDE
34L	Climb heading 341° to 4727', then direct WETIK, then on depicted route to NSIGN.	FL230
34R	Climb heading 341° to 4727', then LEFT turn direct RATTO, then on depicted route to NSIGN.	
35	Climb heading 346° to 4727', then LEFT turn direct MELEC, then on depicted route to NSIGN.	

- Is a clearance to fly the depicted route & assigned transition
- Is a clearance requiring compliance with published speed restrictions
- **However, altitude assignment & vertical navigation is a separate clearance**



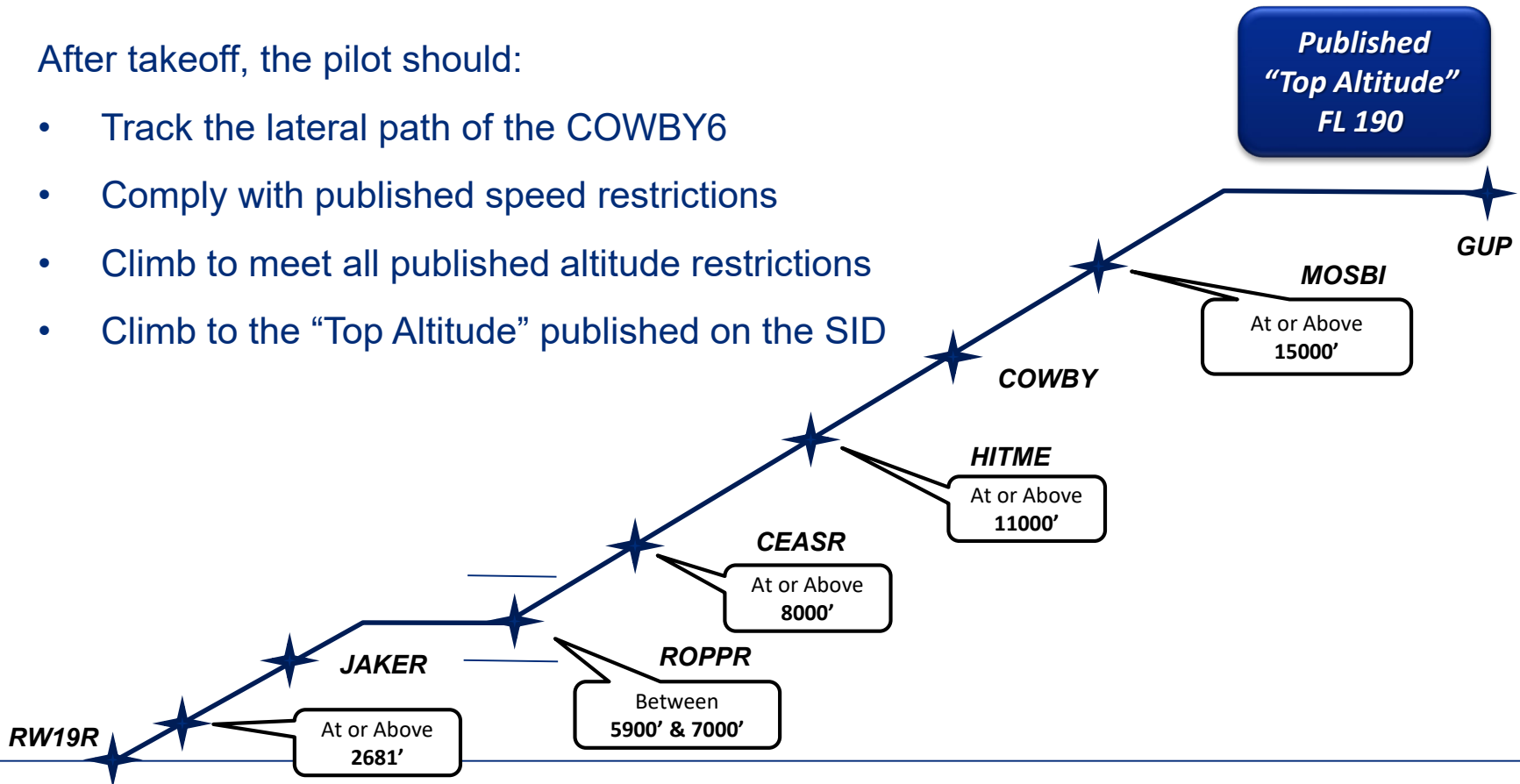
ATC Voice:
"Cleared...Cowboy Six Departure, Gallup Transition, Then As Filed. Climb Via SID..."



“Climb Via SID” Clearance

After takeoff, the pilot should:

- Track the lateral path of the COWBY6
- Comply with published speed restrictions
- Climb to meet all published altitude restrictions
- Climb to the “Top Altitude” published on the SID



Pilot/Controller Initial Contact Phraseology

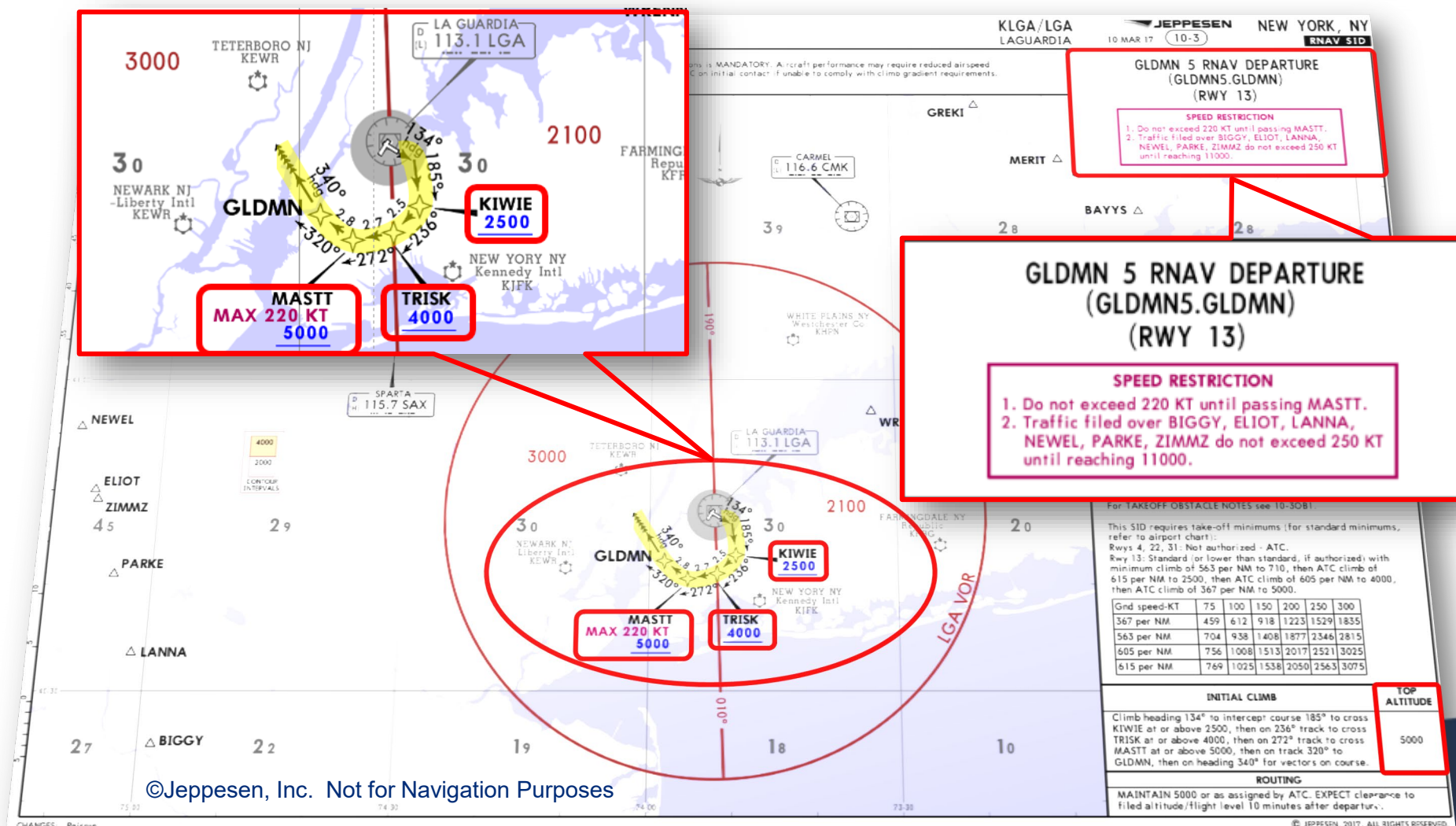
**“Las Vegas Departure,
Gulfstream Six Five Zero Golf Alpha,
Leaving Two Thousand Eight Hundred,
Climbing Via The Cowboy Six Departure”**



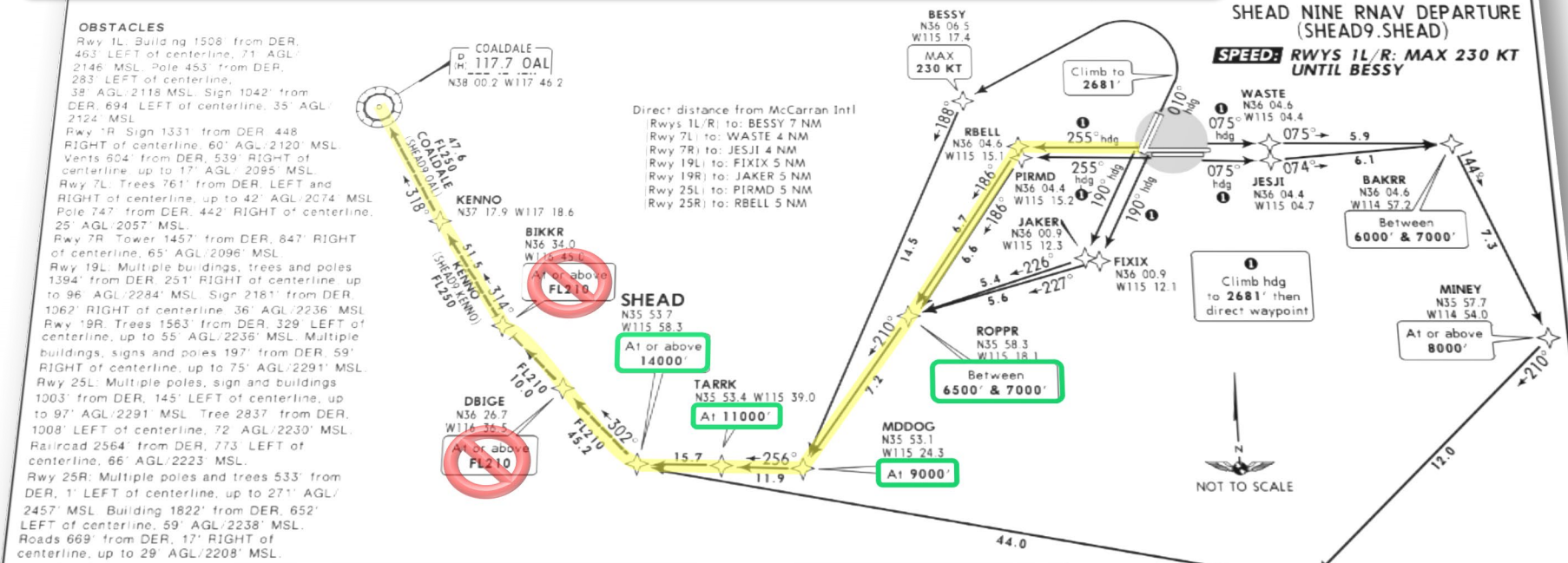
**“Gulfstream Six Five Zero Golf Alpha,
Las Vegas Departure, Radar Contact”**



"Cleared...GLDMN Five Departure, Radar Vectors ZIMMZ, Then As Filed. Climb Via SID..."



ATC Voice:
“Cleared...SHEAD Nine Departure, Coaldale Transition, Then As Filed. Climb Via SID...”



RWY	INITIAL CLIMB	TOP ALTITUDE
1L/R	Climb heading 255° to 2681', then direct PIRMD, then on track 186° to cross ROPPR between 6500' and 7000', then on track 210° to cross MDDOG at 9000', then on track 256° to cross TARRK at 11000', then on track 254° to cross SHEAD at or above 14000'.	FL 190
7L	Climb heading 255° to 2681', then direct RBELL, then on track 186° to cross ROPPR between 6500' and 7000', then on track 210° to cross MDDOG at 9000', then on track 256° to cross TARRK at 11000', then on track 254° to cross SHEAD at or above 14000'.	
7R	Climb heading 255° to 2681', then direct RBELL, then on track 186° to cross ROPPR between 6500' and 7000', then on track 210° to cross MDDOG at 9000', then on track 256° to cross TARRK at 11000', then on track 254° to cross SHEAD at or above 14000'.	
19L	Climb heading 255° to 2681', then direct RBELL, then on track 186° to cross ROPPR between 6500' and 7000', then on track 210° to cross MDDOG at 9000', then on track 256° to cross TARRK at 11000', then on track 254° to cross SHEAD at or above 14000'.	
19R	Climb heading 255° to 2681', then direct RBELL, then on track 186° to cross ROPPR between 6500' and 7000', then on track 210° to cross MDDOG at 9000', then on track 256° to cross TARRK at 11000', then on track 254° to cross SHEAD at or above 14000'.	
25L	Climb heading 255° to 2681', then direct RBELL, then on track 186° to cross ROPPR between 6500' and 7000', then on track 210° to cross MDDOG at 9000', then on track 256° to cross TARRK at 11000', then on track 254° to cross SHEAD at or above 14000'.	
25R	Climb heading 255° to 2681', then direct RBELL, then on track 186° to cross ROPPR between 6500' and 7000', then on track 210° to cross MDDOG at 9000', then on track 256° to cross TARRK at 11000', then on track 254° to cross SHEAD at or above 14000'.	

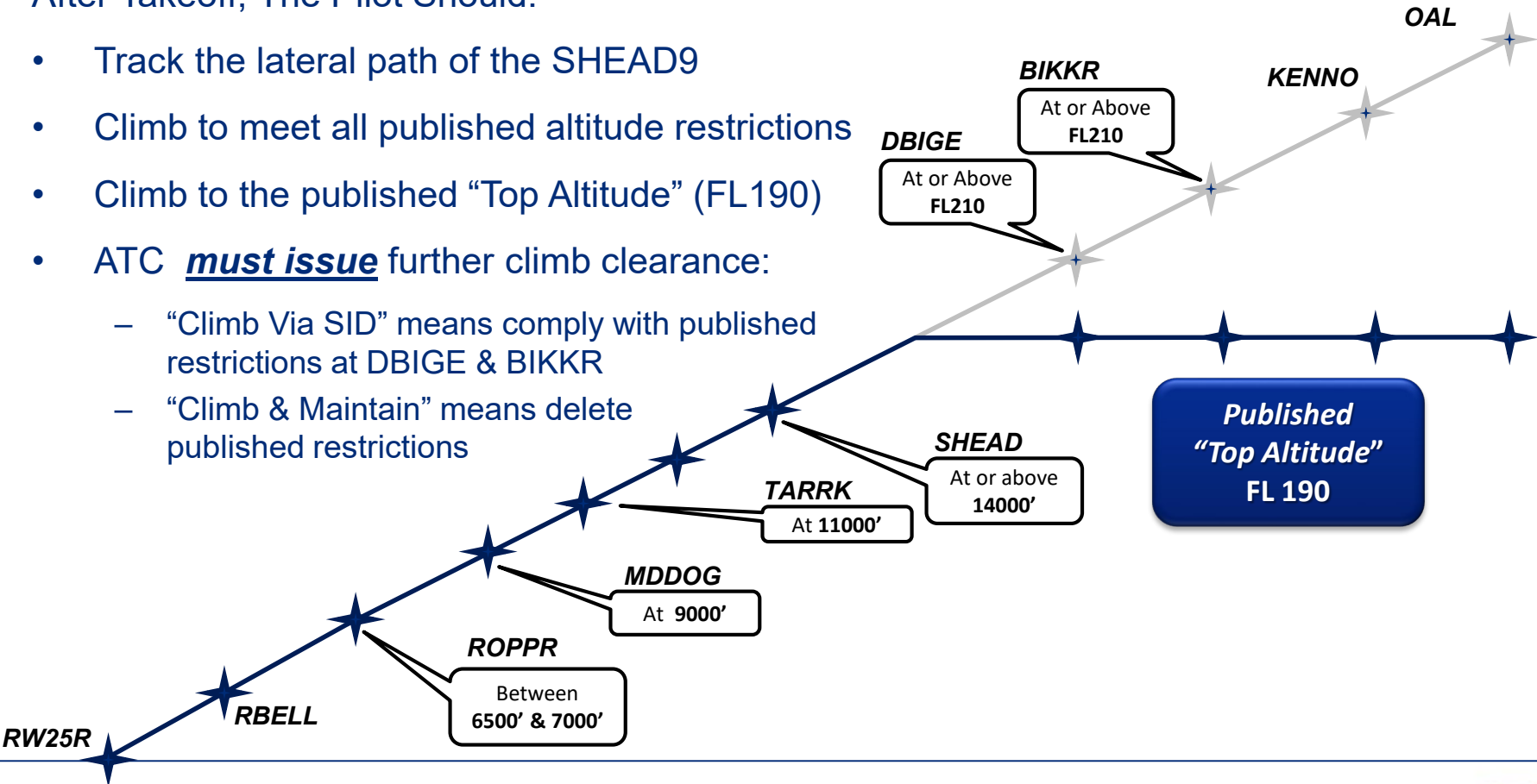
This SID requires take-off minimums (for standard minimums, refer to airport chart):
Rwy 1L/R: Standard, 400' per NM
Rwy 7L: Standard, 470' per NM
Rwy 7R: Standard, 483' per NM
Rwy 19L: Standard, 483' per NM
Rwy 19R: Standard, 483' per NM
Rwy 25L/R: Standard (or lower than standard, if authorized) with minimum climb of 470' per NM to 9000'.

Gnd speed-KT	75	100	150	200	250	300
400' per NM	500	667	1000	1333	1667	2000
470' per NM	588	783	1175	1567	1958	2350
483' per NM	604	805	1208	1610	2013	2415
500' per NM	625	833	1250	1667	2083	2500

“Climb Via SID”

After Takeoff, The Pilot Should:

- Track the lateral path of the SHEAD9
- Climb to meet all published altitude restrictions
- Climb to the published “Top Altitude” (FL190)
- ATC **must issue** further climb clearance:
 - “Climb Via SID” means comply with published restrictions at DBIGE & BIKKR
 - “Climb & Maintain” means delete published restrictions



Climb Via, Except Maintain...

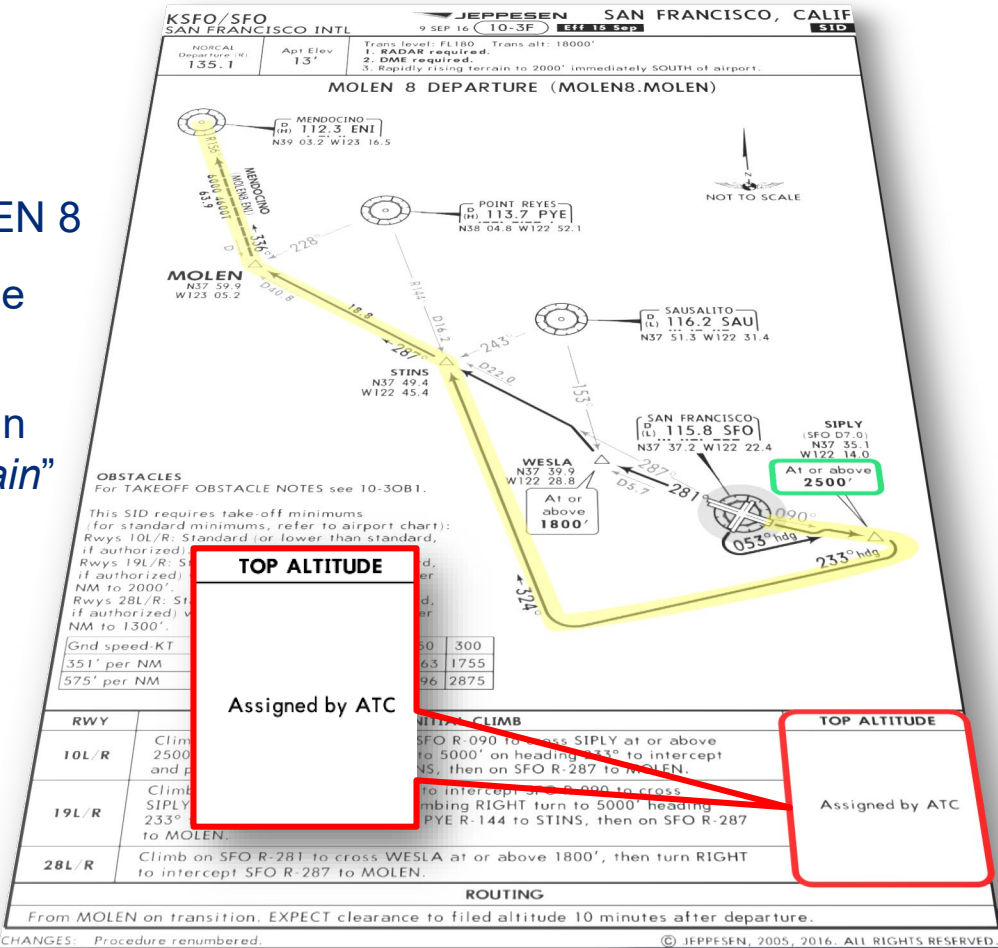
Used By ATC to Assign Or Amend The Top Altitude

- When the “Top Altitude” is published as “Assigned by ATC”
- When ATC must assign a “Top Altitude” that differs from that published on a chart

Climb Via, Except Maintain...

After Takeoff, The Pilot Should:

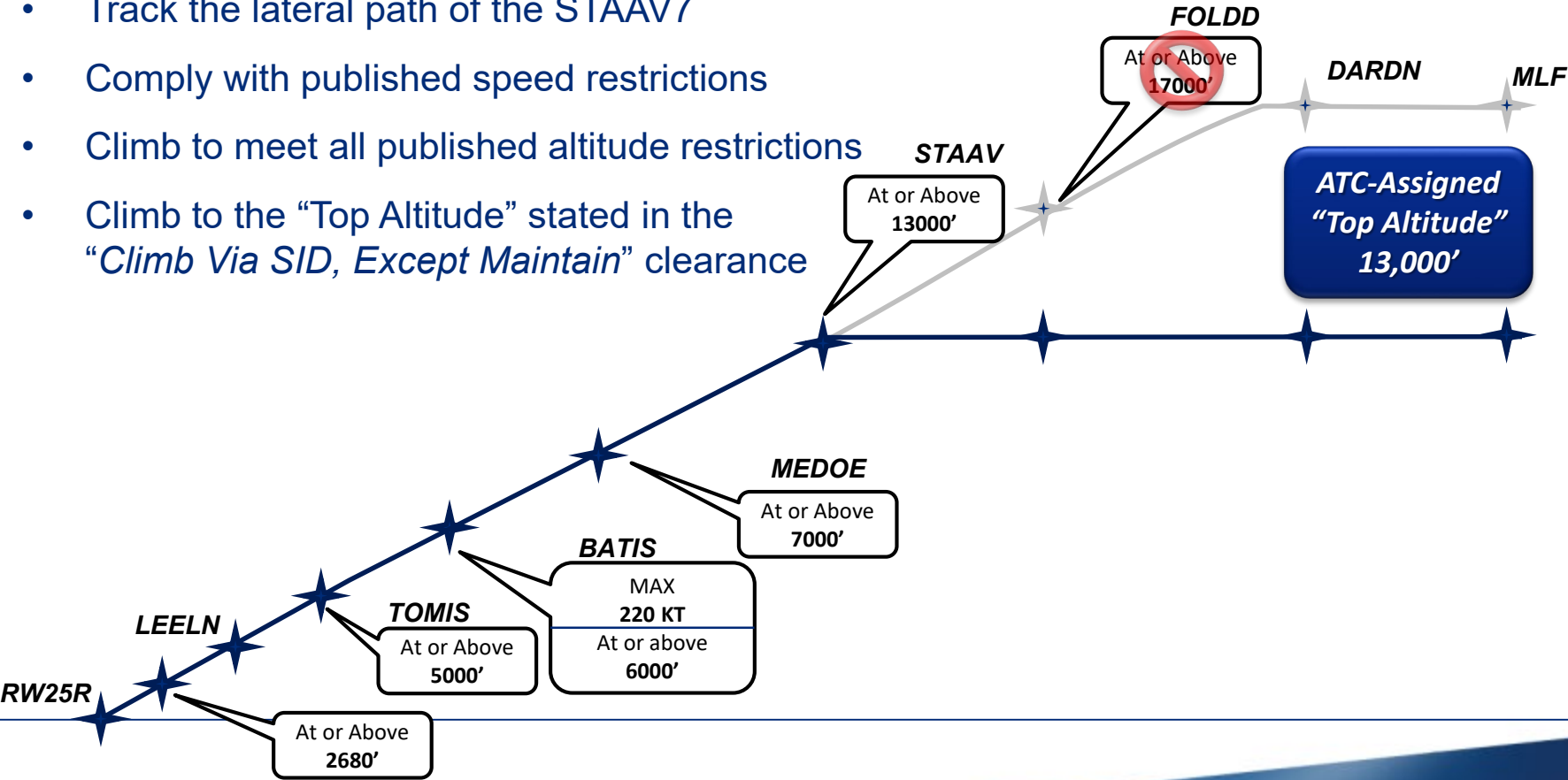
- Track the lateral path of the MOLEN 8
- Climb to meet all published altitude restrictions
- Climb to the “Top Altitude” stated in the “*Climb Via SID, Except Maintain*” clearance



“Climb Via SID, Except Maintain...”

After Takeoff, The Pilot Should:

- Track the lateral path of the STAAV7
- Comply with published speed restrictions
- Climb to meet all published altitude restrictions
- Climb to the “Top Altitude” stated in the “Climb Via SID, Except Maintain” clearance



Pilot/Controller Initial Contact Phraseology

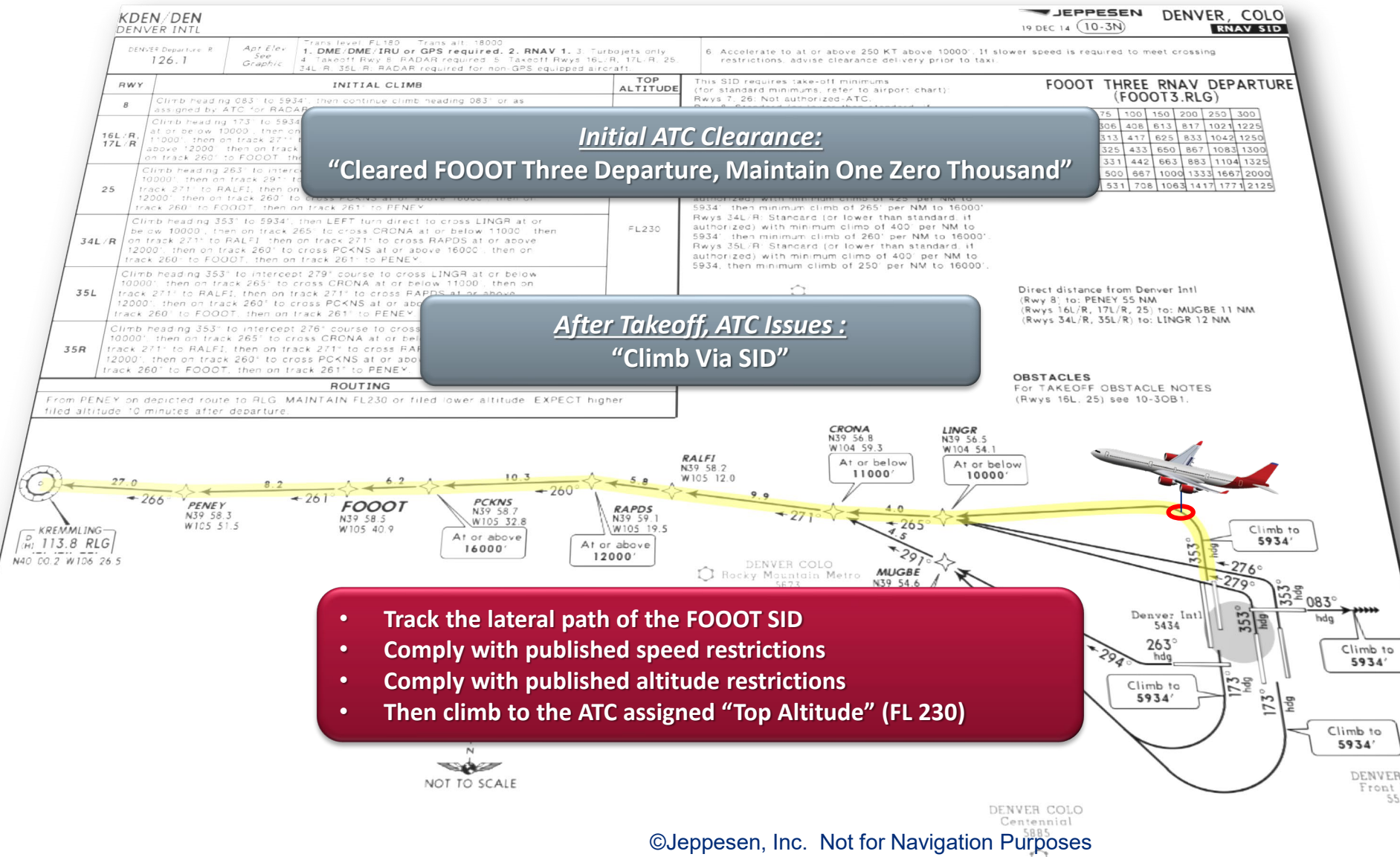
Pilot Must Provide The “Top Altitude” On Initial Contact
When Climbing With A “*Climb Via, Except Maintain*” Altitude Assignment

“Las Vegas Departure, Gulfstream November One,
Leaving Two Thousand Seven Hundred
For One-Three Thousand,
Climbing Via The STAAV Seven Departure”

“Gulfstream November One,
Las Vegas Departure, Radar Contact”



“Climb Via” – Applications After Takeoff



KDEN / DENVER INTL

JEPPESEN DENVER, CO
19 DEC 14 (10-3N) **RNAV SID**

DENVER Departure R 126.1	App Elev See Graphic	Trans level: FL180 Trans alt: 18000 1. DME/DME/IRU or GPS required. 2. RNAV 1. 3. Turbojets only. 4. Takeoff Rwys 16L/R, 17L/R, 25L/R, 35L/R. RADAR required. 5. Takeoff Rwys 16L/R, 17L/R, 25L/R, 35L/R. RADAR required for non-GPS equipped aircraft.	6. Accelerate to at or above 250 KT above 10000'. If slower speed is required to meet crossing restrictions, advise clearance delivery prior to taxi.
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RWY	INITIAL CLIMB	TOP ALTITUDE
B	Climb heading 083° assigned by ATIS.	
16L/R, 17L/R	Climb heading 173° at or below 10000' then on track 271° to cross RAPDS at or above 12000' then on track 260° to cross PCKNS at or above 16000' then on track 261° to FOOOT.	
25	Climb heading 263° to 10000' then on track 271° to cross RAPDS at or above 12000' then on track 260° to cross PCKNS at or above 16000' then on track 261° to FOOOT.	
35R	Climb heading 353° to 5934', then LEFT turn direct to cross LINGR at or below 10000', then on track 265° to cross CROWN at or below 11000' then on track 271° to cross RAPDS at or above 12000' then on track 260° to cross PCKNS at or above 16000' then on track 261° to FOOOT.	FL230

This SID requires take-off minimums (for standard minimums, refer to airport chart).

Initial ATC Clearance:

"Cleared FOOOT Three Departure, Climb Via The FOOOT Three Departure"

After Takeoff, ATC Issues :

"Climb Via SID, Except Cross RAPDS At Or Above One Four Thousand"

ROUTING

Follow depicted route to RLG. MAINTAIN FL230 or filed lower altitude. EXPECT higher clearance 10 minutes after departure.

FOOOT THREE RNAV DEPARTURE (FOOOT3.RLG)

150	200	250	300
813	817	1021	1225
825	833	1042	1250
850	867	1083	1300
863	883	1104	1325
1000	1333	1667	2000
1068	1417	1771	2125

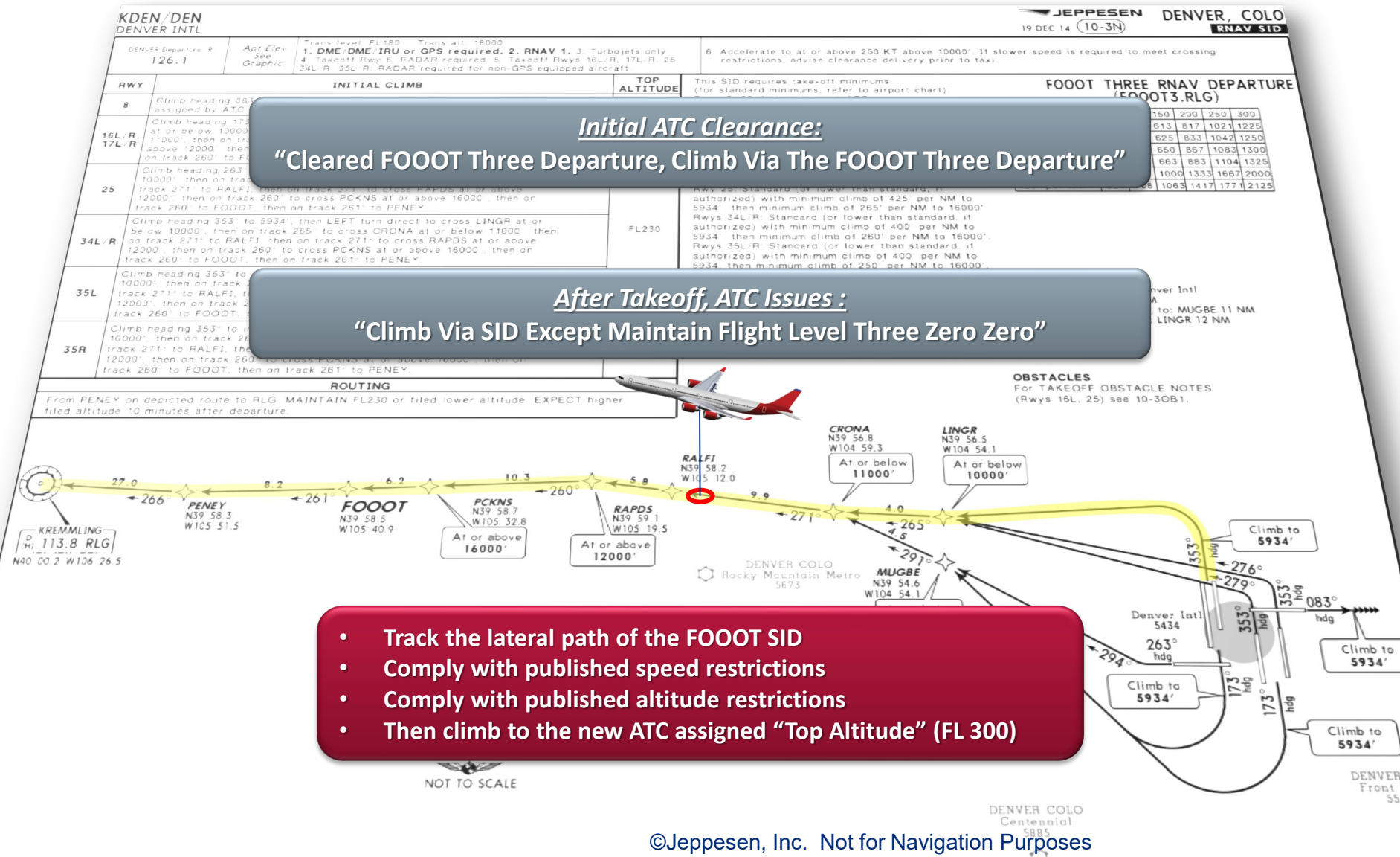
OBSTACLES
For TAKEOFF OBSTACLE NOTES (see 10-30B1).

- PENEY N39 58.3 W105 51.5
- FOOBT N39 58.5 W105 40.9
- PCKNS N39 58.7 W105 32.8 At or above 16000'
- RAPDS N39 59.1 W105 19.5 At or above 12000'
- RALFI N39 58.2 W105 12.0
- CROWN N39 56.8 W104 59.3 At or below 11000'
- LINGR N39 56.5 W104 54.1 At or below 10000'
- MUGBE N39 54.6
- Denver Intl 5434
- Rocky Mountain Metro 5673
- Denver Intl 5434
- 263° hdg
- 294° hdg
- 173° hdg
- 173° hdg
- 355° hdg
- 276° hdg
- 279° hdg
- 353° hdg
- Climb to 5934'

NOT TO SCALE

- Track the lateral path of the FOOOT SID
- Comply with published speed restrictions
- Comply with published altitude restrictions
- Cross RAPDS “at or above” 14,000’
- Then climb to the ATC assigned “Top Altitude” (FL 230)

“Climb Via” – Applications After Takeoff

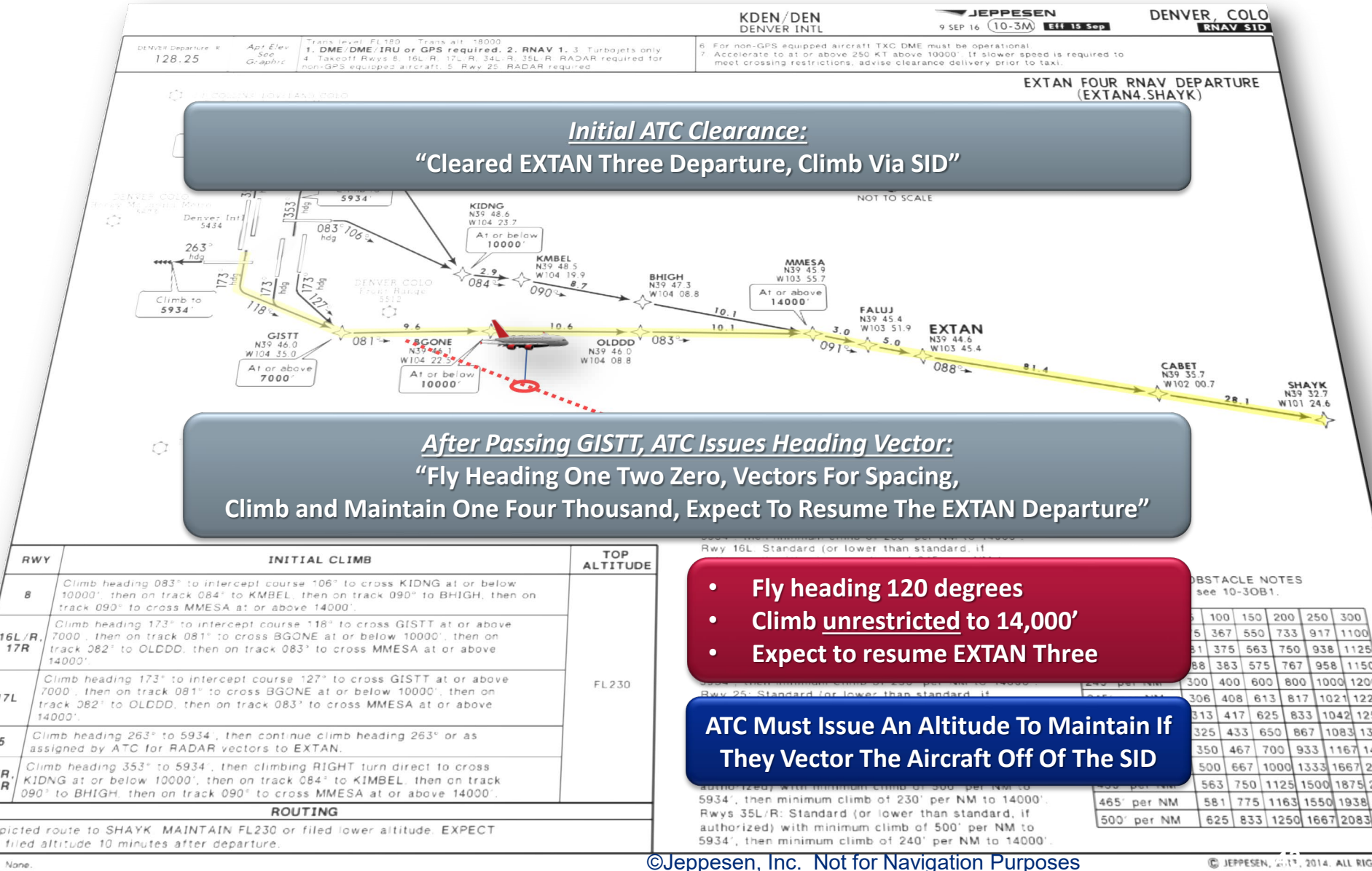


ATC Intervention On A SID

- ATC will issue an altitude to maintain and all appropriate altitude restrictions when a vector will take the aircraft off an assigned procedure that contains altitude instructions or the previously issued clearance included crossing restrictions
- ATC must advise the pilot what to expect when the vector is completed
- Phraseology:
 - *“Lear Two Three Mike X-ray, Fly Heading One Five Zero, Vectors For Spacing, Maintain One Zero Thousand, Expect To Resume The EPPKE Two Departure”*
- Pilots may consider the SID canceled, unless the controller adds “*expect to resume [SID name] departure*”, in which case pilots should be prepared to rejoin the SID at a subsequent fix or procedure leg

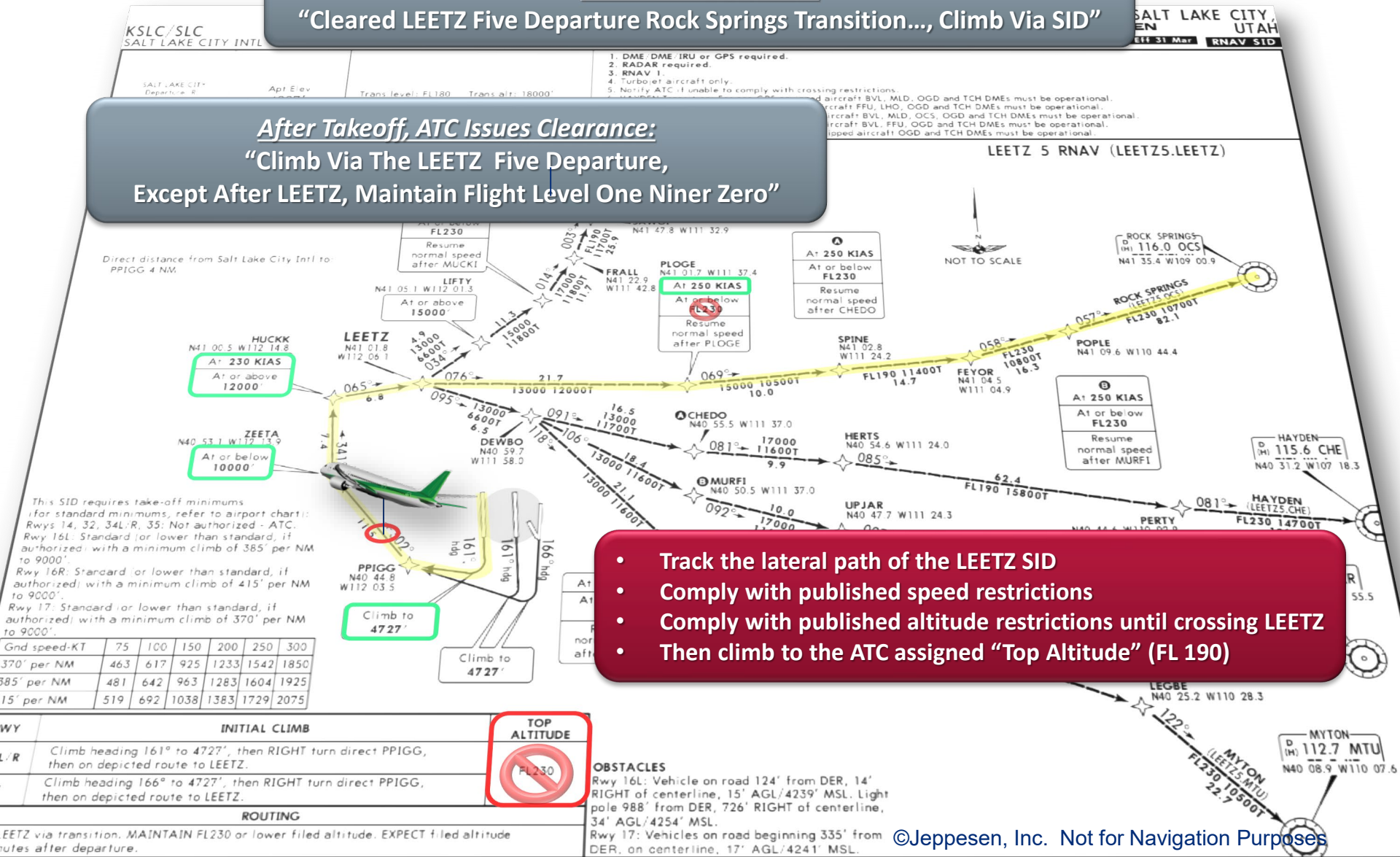
ATC Intervention On A SID

- If ATC interrupts lateral/vertical navigation while an aircraft is flying a SID, ATC must ensure obstacle clearance
- When issuing a “climb via” clearance to join a procedure, ATC must ensure obstacle clearance until the aircraft is established on the lateral and vertical path of the SID
- ATC will assign an altitude to cross if no altitude is depicted at a waypoint/fix, or when otherwise necessary/ required, for an aircraft on a direct route to a waypoint fix where the SID will be joined or resumed

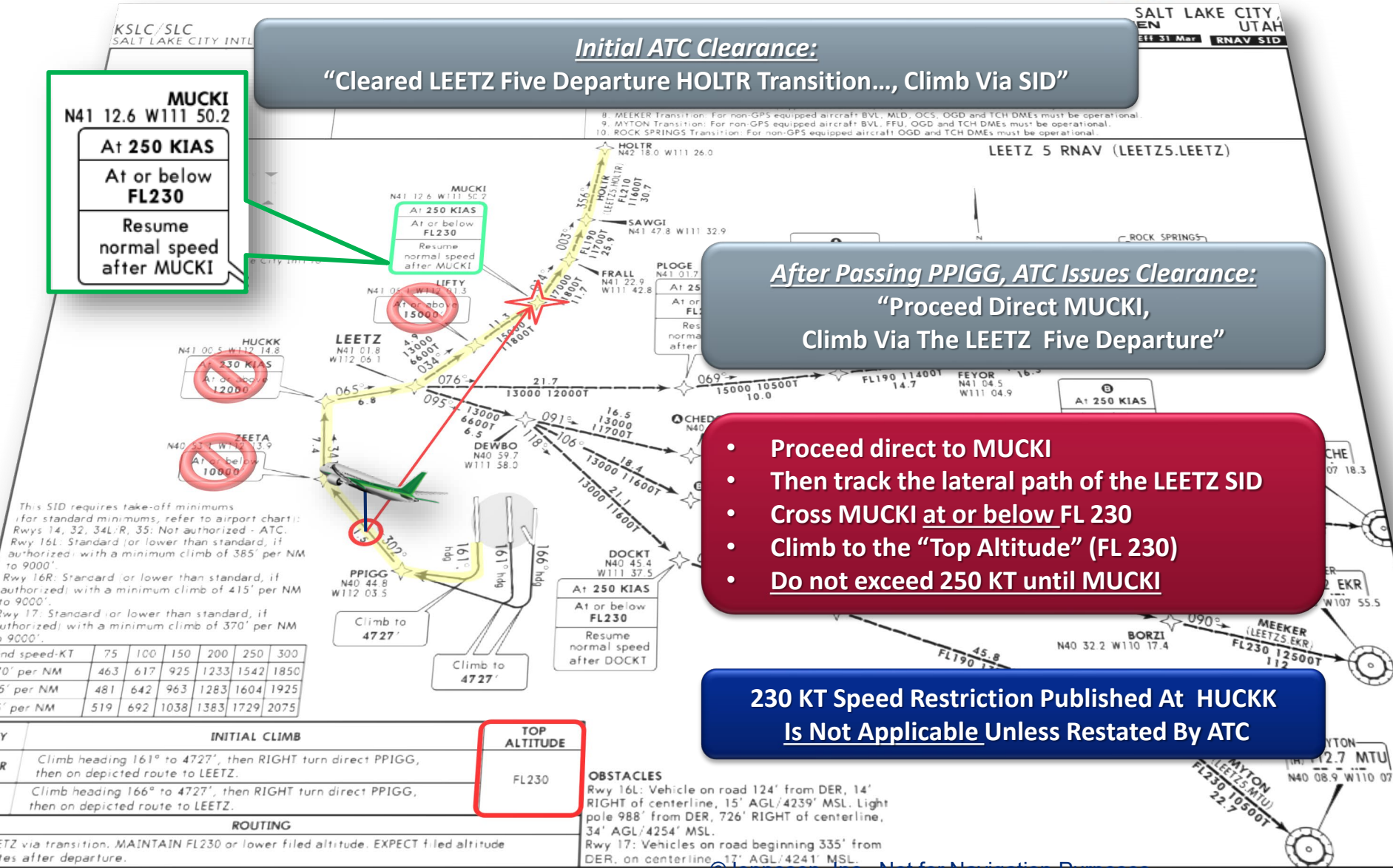


Initial ATC Clearance:
“Cleared LEETZ Five Departure Rock Springs Transition..., Climb Via SID”

After Takeoff, ATC Issues Clearance:
“Climb Via The LEETZ Five Departure,
Except After LEETZ, Maintain Flight Level One Niner Zero”



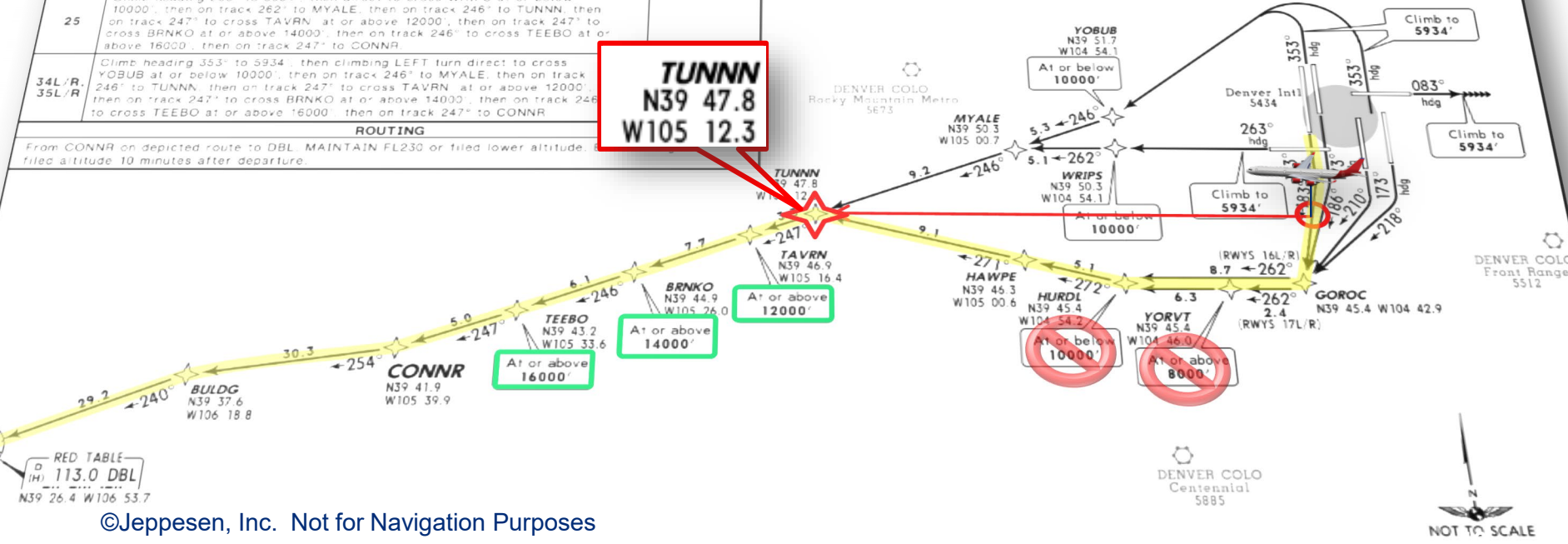
- Track the lateral path of the LEETZ SID
- Comply with published speed restrictions
- Comply with published altitude restrictions until crossing LEETZ
- Then climb to the ATC assigned “Top Altitude” (FL 190)



After Takeoff, ATC Issues Clearance:
“Proceed Direct TUNNN, Cross TUNNN At Or Above One-One Thousand,
Then Climb Via The CONNR Three Departure”

RWY	INITIAL CLIMB	TOP ALTITUDE
8	Climb heading 083° to 5934', then continue climb heading 083° or as assigned by ATC for RADAR vectors to CONNR.	
16L	Climb heading 173° to intercept course 186° to GOROC, then on track 262° to cross HURDL at or below 10000', then on track 272° to HAWPE, then on track 271° to TUNNN, then on track 247° to cross TAVRN at or above 12000', then on track 247° to cross BRNKO at or above 14000', then on track 246° to cross TEEBO at or above 16000', then on track 247° to CONNR.	
16R	Climb heading 173° to intercept course 183° to GOROC, then on track 262° to cross HURDL at or below 10000', then on track 272° to HAWPE, then on track 271° to TUNNN, then on track 247° to cross TAVRN at or above 12000', then on track 247° to cross BRNKO at or above 14000', then on track 246° to cross TEEBO at or above 16000', then on track 247° to CONNR.	
17L	Climb heading 173° to intercept course 218° to GOROC, then on track 262° to cross YORVT at or above 8000', then on track 262° to cross HURDL at or below 10000', then on track 272° to HAWPE, then on track 271° to TUNNN, then on track 247° to cross TAVRN at or above 12000', then on track 247° to cross BRNKO at or above 14000', then on track 246° to cross TEEBO at or above 16000', then on track 247° to CONNR.	FL230
17R	Climb heading 173° to intercept course 210° to GOROC, then on track 262° to cross YORVT at or above 8000', then on track 262° to cross HURDL at or below 10000', then on track 272° to HAWPE, then on track 271° to TUNNN, then on track 247° to cross TAVRN at or above 12000', then on track 247° to cross BRNKO at or above 14000', then on track 246° to cross TEEBO at or above 16000', then on track 247° to CONNR.	
25	Climb heading 263° to 5934', then direct to cross WRIPS at or below 10000', then on track 262° to MYALE, then on track 246° to TUNNN, then on track 247° to cross TAVRN at or above 12000', then on track 247° to cross BRNKO at or above 14000', then on track 246° to cross TEEBO at or above 16000', then on track 247° to CONNR.	
34L/R, 35L/R	Climb heading 353° to 5934', then climbing LEFT turn direct to cross YOBUB at or below 10000', then on track 246° to TUNNN, then on track 247° to cross TAVRN at or above 12000', then on track 247° to cross BRNKO at or above 14000', then on track 246° to cross TEEBO at or above 16000', then on track 247° to CONNR.	
ROUTING		
From CONNR on depicted route to DBL. MAINTAIN FL230 or filed lower altitude, if filed altitude 10 minutes after departure.		

- Proceed direct to TUNNN
- Then track the lateral path of the CONNR SID
- Cross TUNNN at or above 11,000'
- Comply with altitude & speed restrictions published after TUNNN
- Climb to the published “Top Altitude” (FL 230)



Weather Deviation

Established on a SID with a Climb Via Clearance

- If a deviation from the lateral track of a SID is requested & approved by ATC for any reason, the climb via clearance is canceled.
 - (e.g. for weather),
- If ATC does not assign an altitude to maintain with approval to deviate from the SID's lateral track, pilots should request an altitude to maintain from the controller.

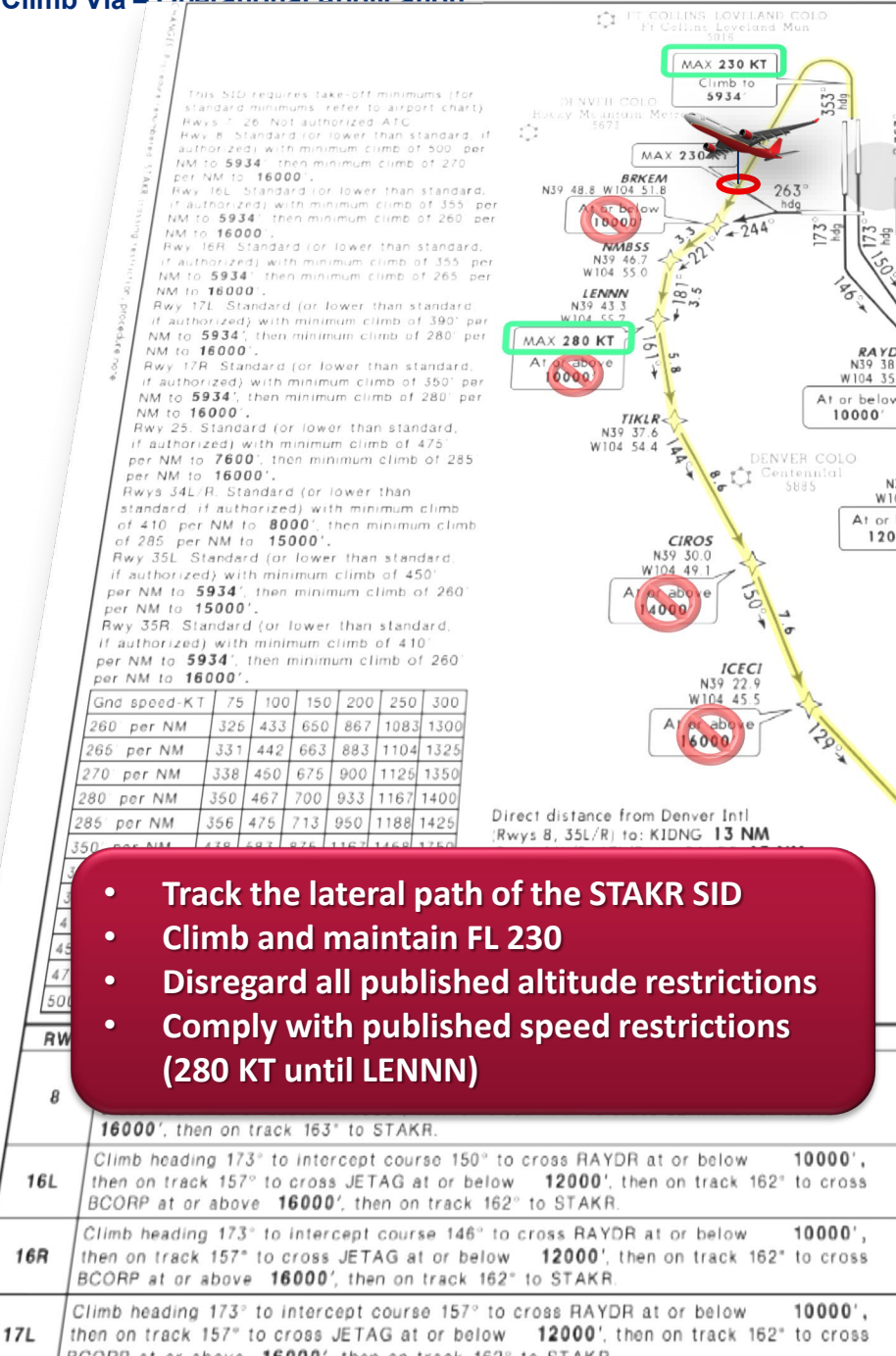


“Forth Worth Center, Gulfstream Two Three Yankee, unable climb via, request an altitude to maintain in the climb”

Unrestricted Climb

Phraseology: “Maintain” or “Climb & Maintain”

- Initial IFR clearance:
 - *“Cleared To ..., LOOP Six Departure, As Filed, Maintain Four Thousand”*
- After initial IFR clearance, but prior to or after takeoff:
 - *“Hawker Two Three Yankee, Climb And Maintain One-two Thousand”*
- Receipt of a “Maintain” or “Climb & Maintain” altitude clearance means:
 - All Published Altitude Restrictions **Are Canceled**
 - All Published Speed Restrictions **Remain In Effect**



Initial IFR Clearance:
"Cleared...STAKR Two Departure, Climb Via SID..."

After Takeoff, ATC Issue Clearance:
"Climb And Maintain Flight Level Two Three Zero"

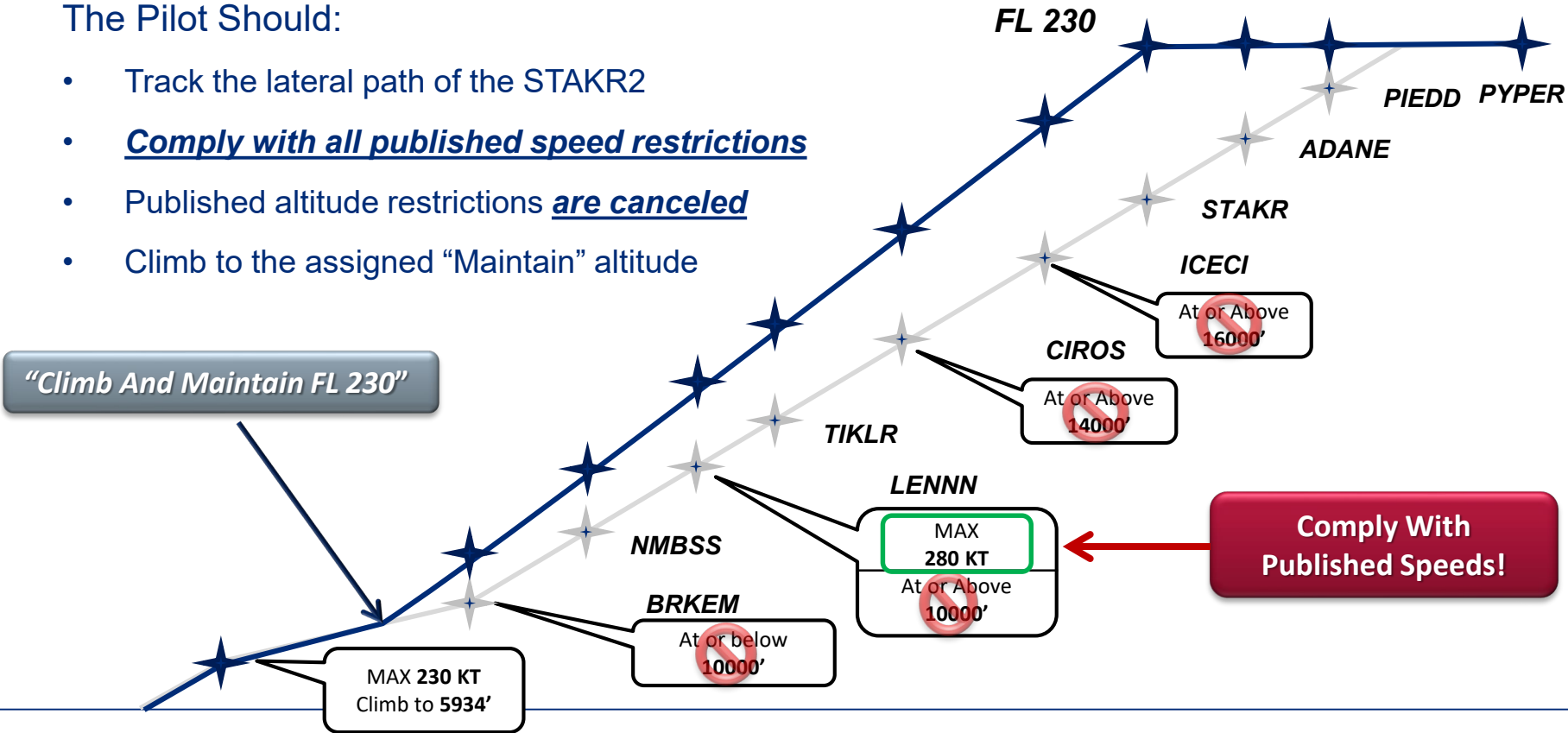
- Track the lateral path of the STAKR SID
- Climb and maintain FL 230
- Disregard all published altitude restrictions
- Comply with published speed restrictions (280 KT until LENNN)

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“Maintain” or “Climb & Maintain...”

The Pilot Should:

- Track the lateral path of the STAKR2
- Comply with all published speed restrictions
- Published altitude restrictions are canceled
- Climb to the assigned “Maintain” altitude



Speed Restrictions Published On A SID

- When cleared along a route or procedure that contains published speed restrictions, pilots must comply with those speed restrictions independent of a “Climb Via” or “Climb & Maintain” clearance
- ATC anticipates pilots will begin accelerating after passing a speed restriction commensurate with normal aircraft operations, but will not exceed the next speed restriction, if any, published on the SID
- If vectored off of a SID route segment where a published speed applies, the published speed is cancelled and speed is at pilot's discretion unless ATC has assigned a speed
- Absent any qualifying instructions, issuance of a “Climb Via” clearance cancels a previously issued ATC speed adjustment and provides pilot discretion to adjust speed while requiring compliance with upcoming restrictions
- ATC may require compliance with previously issued speed adjustments using phraseology:
 - “Proceed to (WP name), then climb via...”
 - “Maintain (speed) until (WP name), then climb via...”
 - “Cross (WP name) at (speed) then climb via....”
- Where there are no upcoming speed restrictions, issuance of a “Proceed direct (WP name), climb via” cancels a previously issued speed adjustment and authorizes speed at pilot's discretion as appropriate for the phase of flight, ensuring compliance with 14 CFR 91.117

Pre-Departure Clearances

IFR Clearance Received Via Data Link Service

- PDC “REMARKS” section will contain:
 - ATC assigned departure (SID or ODP)
 - “Climb Via” clearance
- The “FILED FLIGHT PLAN” section may list the filed departure procedure
- The ATC assigned departure may differ from that filed in the IFR flight plan
- **Fly the ATC-assigned departure, not the departure that was filed!**
- Insure the filed departure procedure is uplinked to the FMS
- Verify the correct departure procedure in the FMS

* Note: The “Route” & “Remarks” sections are generic descriptions of the elements of a typical the PDC message. They are not necessarily specific sections in the PDC as the format of these messages will vary with FOC or service provider

PDC Nxxxx
KIAD-KICT
-ATC CLEARANCE-
CLR AS FILED
-FILED FLIGHT PLAN-
KIAD RNLDI4 OTTTO COLNS J134
FLM CASSO KICT
-REMARKS-
Cleared RNLDI4 DEPARTURE OTTTO TRSN
CLIMB VIA SID
EXP 400 10 MIN ANT DP,DPFRQ SEE SID

SQUAWK 1367
-OTHER INFO-
REQUESTED ALT: 400
PROPOSED ETD: 1930Z
CLEARANCE ETD: Z
AIRCRAFT: xxxx/L
* END OF CLEARANCE *

ATC-Assigned Departure Procedure &
“Climb Via” Clearance

Note: PDC Format Varies With AOC or Service Provider

PDC Nxxxx
KIAD-KTEB
-ATC CLEARANCE-
WOOLY1 SWANN FUBRR JAIKE3
KTEB
THEN AS FILED
-FILED FLIGHT PLAN-
KIAD JCOBY3 SWANN./KTEB
-REMARKS-
Cleared WOOLY1 DEPARTURE SWANN TRSN

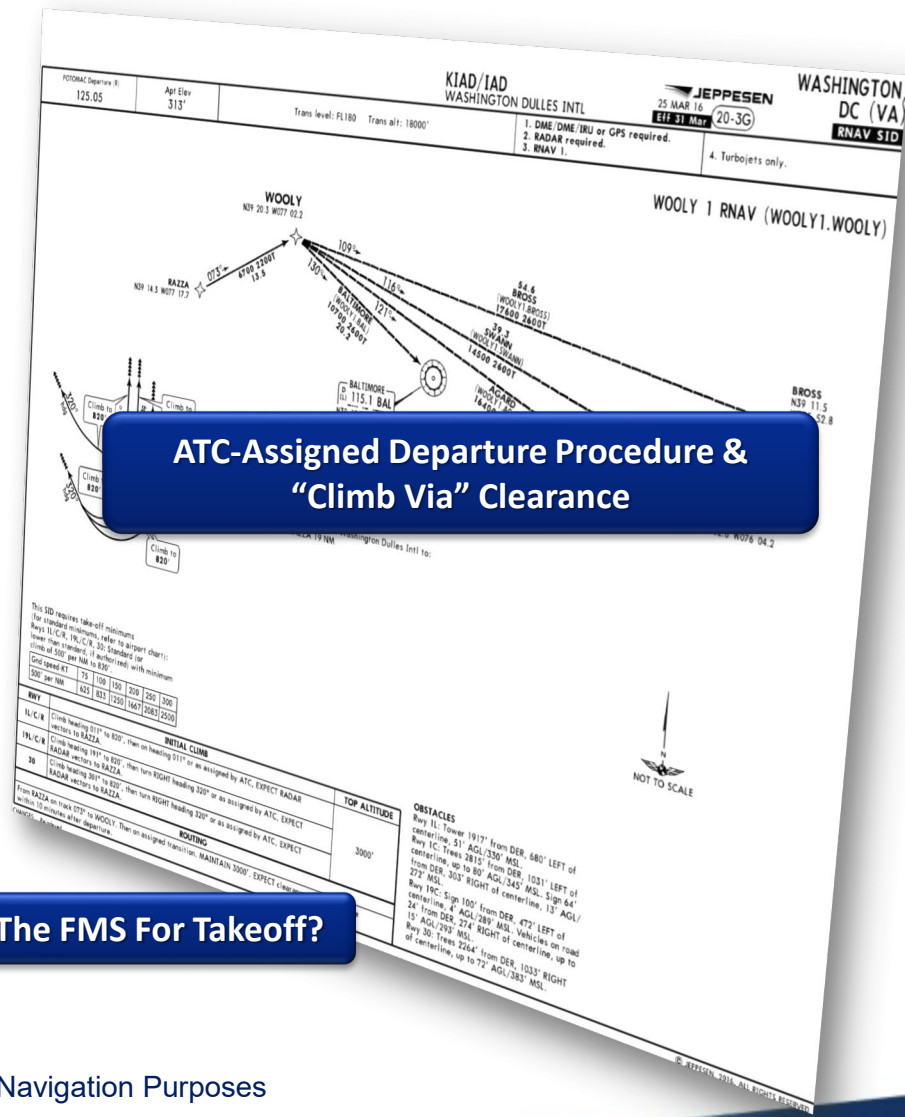
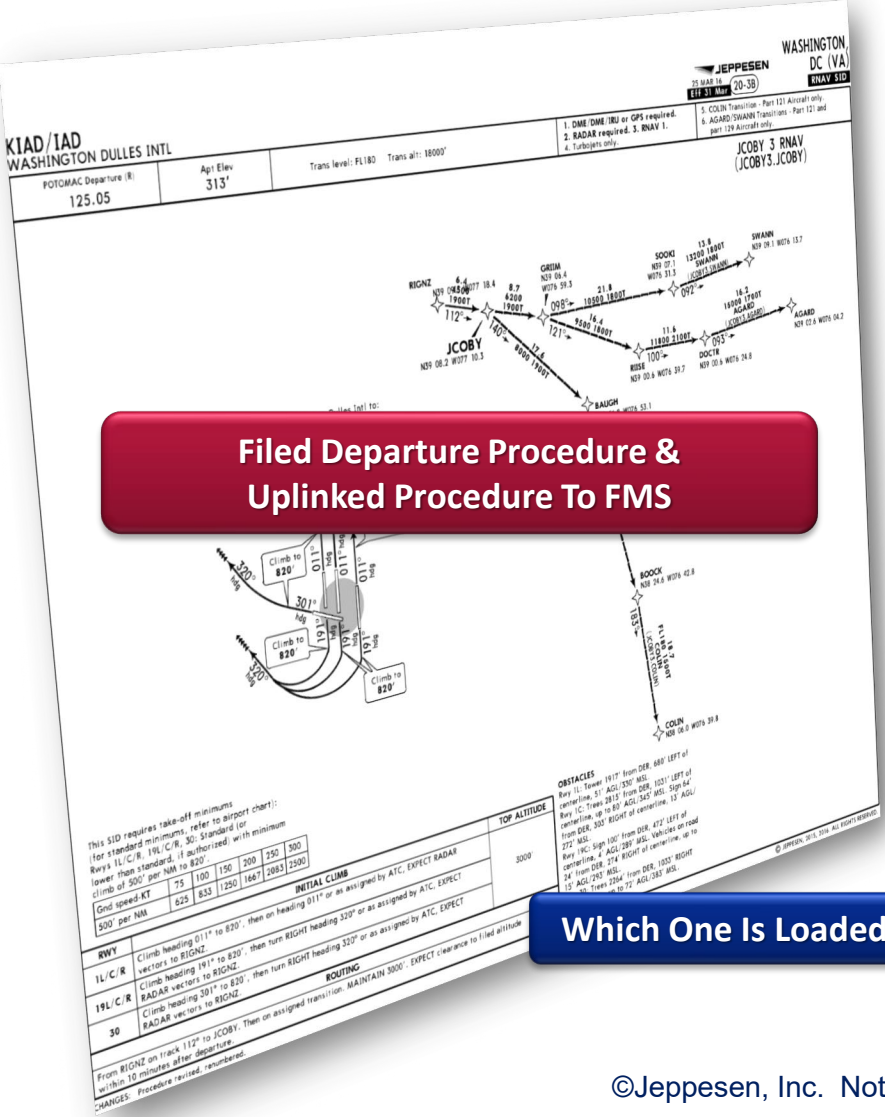
CLIMB VIA SID
EXP 190 10 MIN AFT DP,DPFRQ SEE SID

SQUAWK 2454
-OTHER INFO-
REQUESTED ALT: 190
PROPOSED ETD: 1805Z
CLEARANCE ETD: Z
AIRCRAFT: xxxx/L
* END OF CLEARANCE *

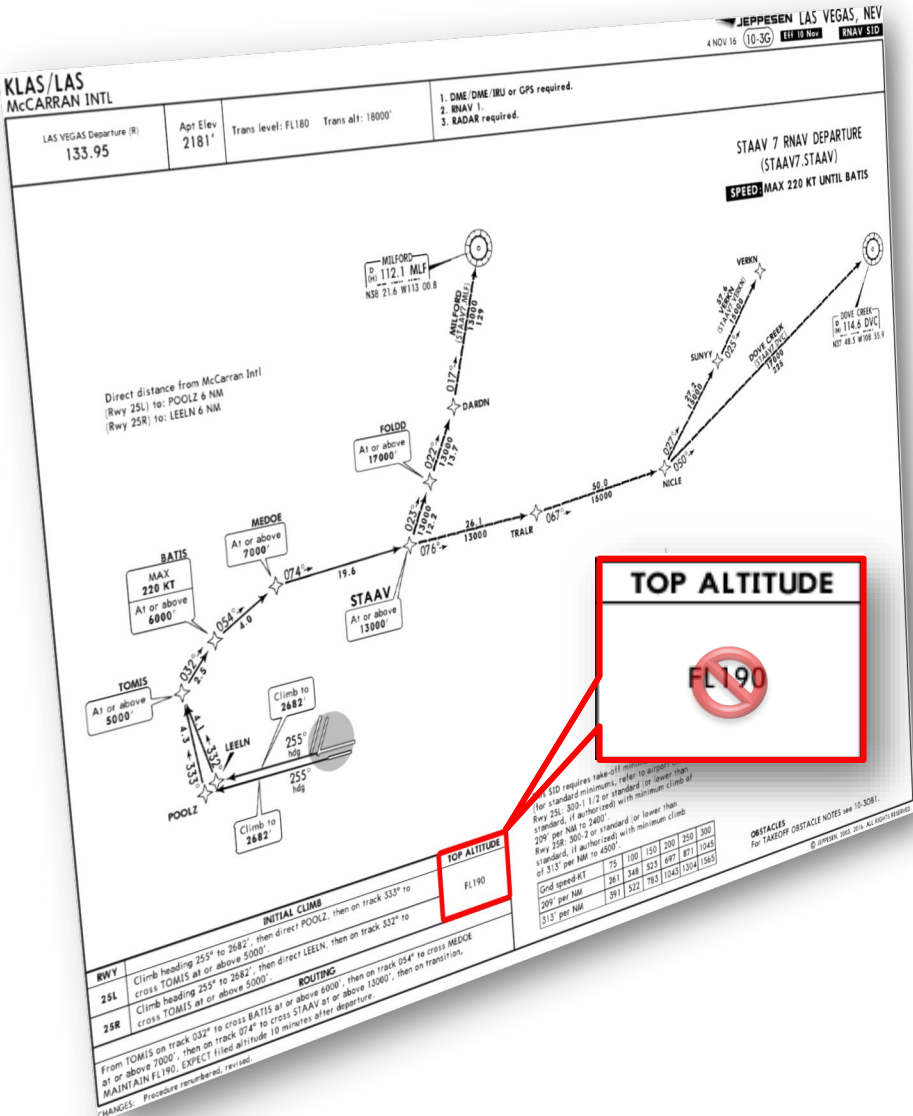
Filed Departure Procedure & Uplinked Procedure To FMS

ATC-Assigned Departure Procedure & "Climb Via" Clearance

Note: PDC Format Varies With AOC or Service Provider



Which One Is Loaded In The FMS For Takeoff?



Nxxxx 4723 KLAS
xxxx/L P1730
244 370
KLAS STAAR7 MLF J28 HBU LDORA2
KDEN

CLEARED STAAR7 DEPARTURE MLF
TRSN

CLIMB VIA SID EXC MAINT 13000FT
EXP 370 10 MIN AFT DP,DPFRQ 125.9

Note: PDC Format Varies With AOC or Service Provider

**ATC-Assigned Departure Procedure & “Climb Via”
Clearance May Include A “Top Altitude” Change**

Note: PDC Format Varies With AOC or Service Provider

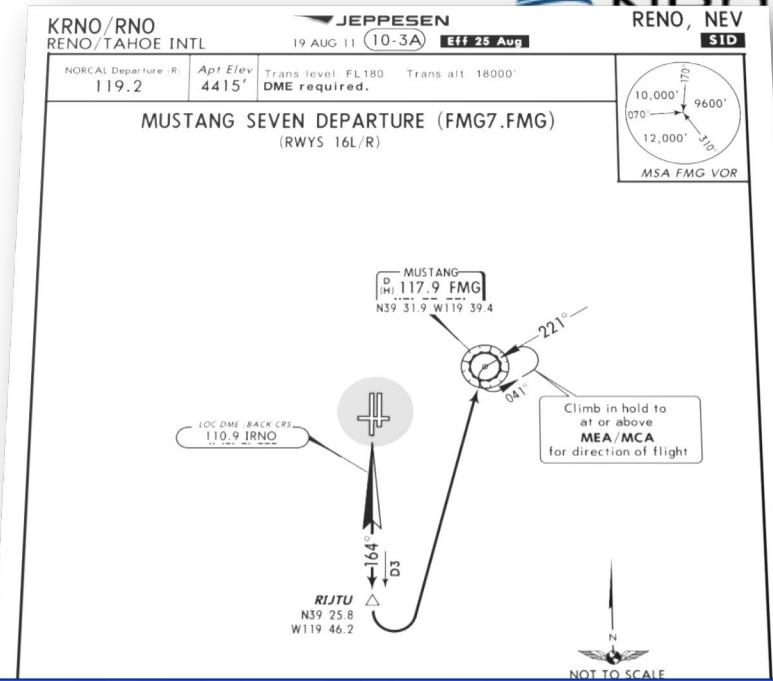
PDC N-----
KRNO KSEA
RECEIVED AT: 29-Apr-13 1922Z

ATC Clearance
FMG J92 WNDEL LKV

Filed Flight Plan
KRNO FMG WNDEL LKV J67 BTG
HAWKZ3 KSEA

Remarks
CLEARED FMG7 DEP
CLIMB VIA SID
SQUAWK 2021

Other Info
REQUESTED ALT: 410
PROPOSED ETD: 2020z
CLERANCE ETD: Z
AIRCRAFT; F2TH/Q
END OF CLEARANCE



“Climb Via” May Be Applied To A Conventional SID

INITIAL CLIMB
Climb to **10000'** or assigned altitude via IRNO localizer SOUTH course to RIJTU/D3 IRNO, then LEFT turn direct to FMG.

ROUTING
Climb in FMG holding pattern to depart FMG at or above MEA/MCA for direction of flight. EXPECT clearance to requested altitude five minutes after departure.

centerline, up to 95' AGL/4510' MSL. Terrain beginning 2784' from DER, 990' RIGHT of centerline, up to 288' AGL/4703' MSL.	525' per NM	656' per NM	1313	1750	2188	2625
	740' per NM	925	1233	1850	2467	3083
INITIAL CLIMB						
Climb to 10000' or assigned altitude via IRNO localizer SOUTH course to RIJTU/D3 IRNO, then LEFT turn direct to FMG.						
ROUTING						
Climb in FMG holding pattern to depart FMG at or above MEA/MCA for direction of flight. EXPECT clearance to requested altitude five minutes after departure.						

Note: PDC Format Varies With AOC or Service Provider

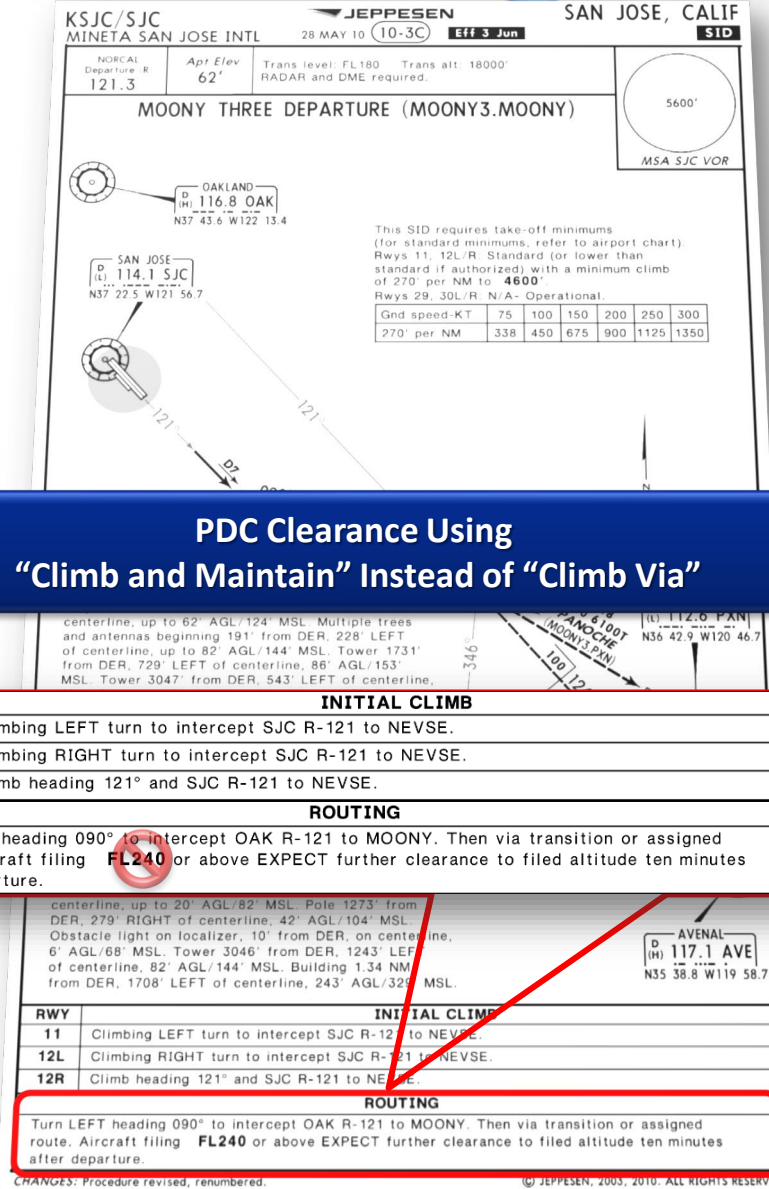
PDC N-----
KSJC KLAS
RECEIVED AT: 22-Jun-13 2019Z

ATC Clearance
MOONY3 MOONY
THEN AS FILED

Filed Flight Plan
KSJC MOONY PMD DAG KEPEC3 KLAS

Remarks
CLIMB AND MAINTAIN 10000
SQUAWK 5247

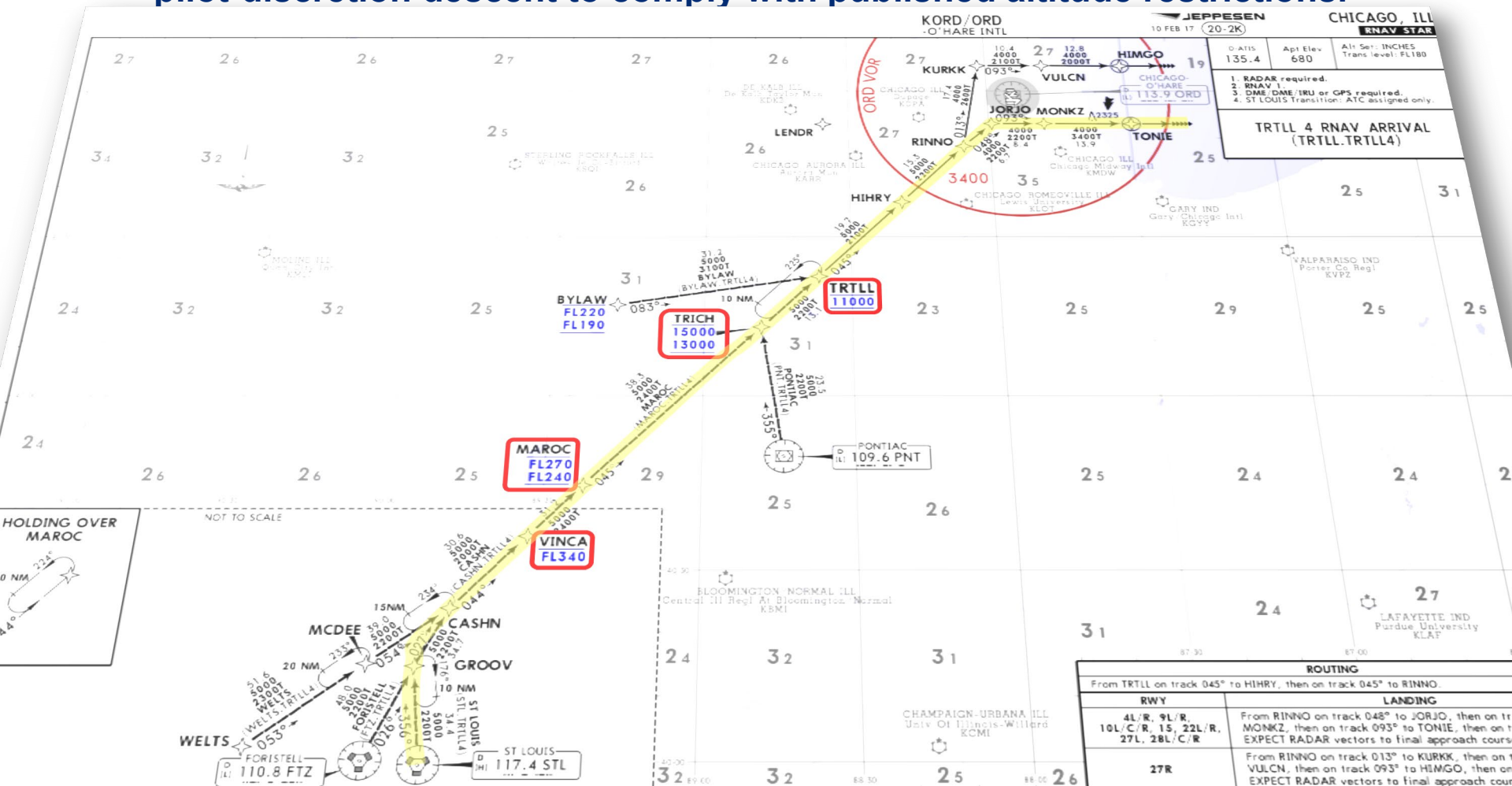
Other Info
REQUESTED ALT: 410
PROPOSED ETD: 2020z
CLERANCE ETD: Z
AIRCRAFT; LJ45/Q
END OF CLEARANCE



CLIMB VIA DEPARTURE PHRASEOLOGY						
PHASE OF FLIGHT		SCENARIO	CONTROLLER		PILOT	
			ACTION	PHRASEOLOGY	ACTION	PHRASEOLOGY
INITIAL IFR CLEARANCE		Assign a SID or ODP with the Initial IFR clearance.	<ul style="list-style-type: none">Assign a SID or ODPAssigned an altitude when a "Top Altitude" is <u>not published</u> in the SID route description.	"American Two, Cleared To Reynolds Airport; DAVID Two Departure, Kingham Transition; Then, As Filed, Maintain Niner Thousand...."	<ul style="list-style-type: none">Comply with the lateral path of the DAVID Two SID, Kingham transition.Climb <u>unrestricted</u> up to and then maintain 9000' MSL.Comply with any published speed restrictions.	On Initial contact "American Two, Leaving Six Hundred, Climbing To Niner Thousand."
			<ul style="list-style-type: none">Assign a SID with a "Top Altitude" published in the SID route description. The assigned altitude may be omitted and pilots instructed to "climb via SID" when a "Top Altitude" is published in the SID route description.	"American Two, Cleared To Reynolds Airport; DAVID Two Departure, Kingham Transition; Then, As Filed, <u>Climb Via SID</u>"	<ul style="list-style-type: none">Comply with the lateral path of the DAVID Two SID, Kingham transition.Comply with all published speed & altitude restrictions while climbing to the SID's published "Top Altitude" (e.g. FL 240).	On Initial contact: "American Two, Leaving Six Hundred, Climbing Via The DAVID Two Departure."
			<ul style="list-style-type: none">Assign a SID that has published altitude restrictions but the "Top Altitude" is <u>not published or must be changed</u>.Use the phrase "climb via SID except maintain" to assign the "Top Altitude".	"American Two, Cleared To Reynolds Airport; DAVID Two Departure, Kingham Transition; Then, As Filed, <u>Climb Via SID Except Maintain Flight Level Two Zero Zero</u>"	<ul style="list-style-type: none">Comply with the lateral path of the DAVID Two SID, Kingham transition.Comply with any published speed & altitude restrictions.Climb to the ATC issued "Top Altitude" (FL 200) instead of the SID's published "Top Altitude" (e.g. FL 240).	On Initial contact with departure control: "American Two, Leaving Six Hundred For Flight Level Two Zero Zero Climbing Via The DAVID Two Departure."
AFTER TAKEOFF	ALTITUDE	ATC desires an unrestricted climb-out and cancels all altitude restrictions.	<ul style="list-style-type: none">Clear aircraft for unrestricted climbCancel all published altitude restrictions.	"American Two, Climb And Maintain Right Level Two Four Zero"	<ul style="list-style-type: none">Track the lateral path of the SID.Climb from the current altitude to FL 240.All published altitude restrictions are canceled. <u>Speed restrictions remain in effect unless the controller explicitly cancels the speed restrictions.</u>	"American Two, Climb And Maintain Flight Level Two Four Zero"
		ATC must interrupt the climb and assign an interim altitude to maintain while the aircraft continues to follow the SID's lateral path.	<ul style="list-style-type: none">Issue an altitude to maintain.ATC must ensure obstacle clearance until the aircraft is re-established on the vertical path of the SID.	"American Two, Climb And Maintain Niner Thousand"	<ul style="list-style-type: none">Track the lateral path of the SID.Climb from the current altitude to 9000'.All published altitude restrictions are canceled. <u>Speed restrictions remain in effect unless the controller explicitly cancels the speed restrictions.</u>	"American Two, Climb And Maintain Niner Thousand"
		ATC desires that the aircraft resume climb to the original "Top Altitude" while complying with all published altitude and speed restrictions on the SID.	<ul style="list-style-type: none">Instruct aircraft to resume climb & to comply with published altitude and speed restrictions.	"American Two, Climb Via SID"	<ul style="list-style-type: none">Track the lateral path of the SID.Begin climb from the last assigned altitude to comply with all published altitude restrictions.Comply with published speed restrictions.	"American Two, Climb Via SID"
		During the climb, ATC must assign an interim "Top Altitude" or assign a "Top Altitude" <u>that differs</u> from that published on the SID.	<ul style="list-style-type: none">Instruct aircraft to climb via the SID to a specific fix published on the SID.Then assign the new "Top Altitude".	"American Two, Climb Via SID Except After BARET, Maintain Right Level One Niner Zero"	<ul style="list-style-type: none">Track the lateral path of the SID.Comply with published speed restrictions.Comply with published altitude restrictions up to BARET, then climb & maintain the ATC-assigned "Top Altitude".	"American Two, Climb Via SID Except After BARET, Maintain Right Level One Niner Zero"
		Established on the SID, ATC must assign an altitude at a waypoint/fix <u>that differs</u> from the altitude restriction published on a SID.	<ul style="list-style-type: none">Instruct aircraft to climb via the SID.Amend the altitude restriction at the desired waypoint/fix.	"American Two, Climb via SID Except Cross MKALA At Or Above Seven Thousand."	<ul style="list-style-type: none">Track the lateral path of the SID.Comply with published speed restrictions.Comply with published altitude restrictions, except cross MKALA at or above 7000'.	"American Two, Climb via SID Except Cross MKALA At Or Above Seven Thousand."

CLIMB VIA DEPARTURE PHRASEOLOGY						
PHASE OF FLIGHT		SCENARIO	CONTROLLER		PILOT	
			ACTION	PHRASEOLOGY	ACTION	PHRASEOLOGY
AFTER TAKEOFF	SPEED	ATC must assign a speed restriction to a departing aircraft climbing in conjunction with a "climb via" clearance.	<ul style="list-style-type: none">Assign a speed to maintain until a waypoint/fix on the SID.Then instruct aircraft to climb via the SID. <i>Issuing speed adjustments to aircraft flying procedures with published speed restrictions may impact the pilot's ability to fly the intended flight profile of the procedure</i>	<i>"American Two, Cross ALISA At Two Two Zero Knots Then Climb Via The DAVID Two Departure."</i>	<ul style="list-style-type: none">Track the lateral path of the SID.Maintain speed 220 KT until crossing ALISA, then comply with published speed restrictions.Climb to comply with all published altitude restrictions.	<i>"American Two, Cross ALISA At Two Two Zero Knots Then Climb Via The DAVID Two Departure."</i>
		ATC must amend the altitude restriction published at a waypoint/fix, after which the aircraft is to continue climb and comply with published altitude restrictions. In addition, ATC must assign a speed to maintain during the climb instead of the published speeds on the SID.	<ul style="list-style-type: none">Assign an altitude to cross the waypoint/fix.Then issue "Climb Via" clearance; however, assign a speed to maintain in place of the published speed restrictions.	<i>"American two, Cross ALISA At One Zero Thousand, Then Climb Via The DAVID Two Departure, Except Maintain Two Two Zero Knots."</i>	<ul style="list-style-type: none">Track the lateral path of the SID.Climb to cross ALISA at 10,000', then comply with published altitude restrictions.Maintain speed 220 KTPublished speed restrictions are canceled	<i>"American Two, Cross ALISA At One Zero Thousand, Then Climb Via The DAVID Two Departure, Except Maintain Two Two Zero Knots."</i>
	ROUTE	ATC must issue a heading and vector the aircraft off the lateral path of a SID with altitude restrictions.	<ul style="list-style-type: none">Assign a heading to maintain.State the purpose of the vector.Assign an altitude to maintain.Advise pilot to expect to resume SID.	<i>"American Two, Fly Heading Zero Niner Zero, Vectors To Specing. Maintain Eight Thousand, Expect To Resume The DAVID Two Departure"</i>	<ul style="list-style-type: none">Fly heading 090.Maintain 8000'Be prepared to resume the DAVID Two SID. Do not sequence FMS beyond the SID.	<i>American Two, Fly Heading Zero Niner Zero, Maintain Eight Thousand."</i>
		Clear an aircraft to re-join the SID at a waypoint/fix with a published altitude restriction then to comply with published altitude & speed restrictions.	<ul style="list-style-type: none">Clear the aircraft to a waypoint/fix with a published restriction.Instruct the aircraft to climb via SID.Ensure obstacle clearance until the aircraft is established on the lateral and vertical path of the SID.	<i>"American Two, Proceed Direct DVINE, Climb Via The DAVID Two Departure"</i>	<ul style="list-style-type: none">Proceed direct to DVINE & resume the DAVID Two SID.Climb to comply with the altitude published at DVINE.Climb to comply with the published altitude & speed restrictions.	<i>"American Two, Proceed Direct DVINE, Climb Via The DAVID Two Departure"</i>
		Clear an aircraft to re-join the SID at a waypoint/fix without a published altitude restriction, and then to comply with published altitude & speed restrictions.	<ul style="list-style-type: none">Clear the aircraft to a waypoint fix & assign an altitude to cross waypoint/fix.Instruct the aircraft to climb via SID.Ensure obstacle clearance until the aircraft is established on the lateral and vertical path of the SID.	<i>"American Two Proceed Direct DENIS, Cross DENIS At Or Above One Zero Thousand, Then Climb Via The DAVID Two Departure"</i>	<ul style="list-style-type: none">Proceed direct to DENIS & resume the DAVID Two SID.Climb to cross DENIS at or above 10,000'Climb to comply with the published altitude & speed restrictions.	<i>"American Two Proceed Direct DENIS, Cross DENIS At Or Above One Zero Thousand, Then Climb Via The DAVID Two Departure"</i>
	GENERAL	Instruct an aircraft to resume SID that contains speed and/or altitude restrictions	<ul style="list-style-type: none">Issue/reissue all applicable restrictions.Advise aircraft to comply with restrictions or resume published speed.	<i>"American Two, Resume DAVID Two Departure, Comply With Restrictions"</i>	<ul style="list-style-type: none">Comply with the altitude & speed restrictions published on the DAVID Two SID.	<i>"American Two, Resume DAVID Two Departure, Comply With Restrictions"</i>

An abbreviated ATC clearance that requires compliance with a published procedure lateral path and associated speed restrictions and provides a pilot-discretion descent to comply with published altitude restrictions.

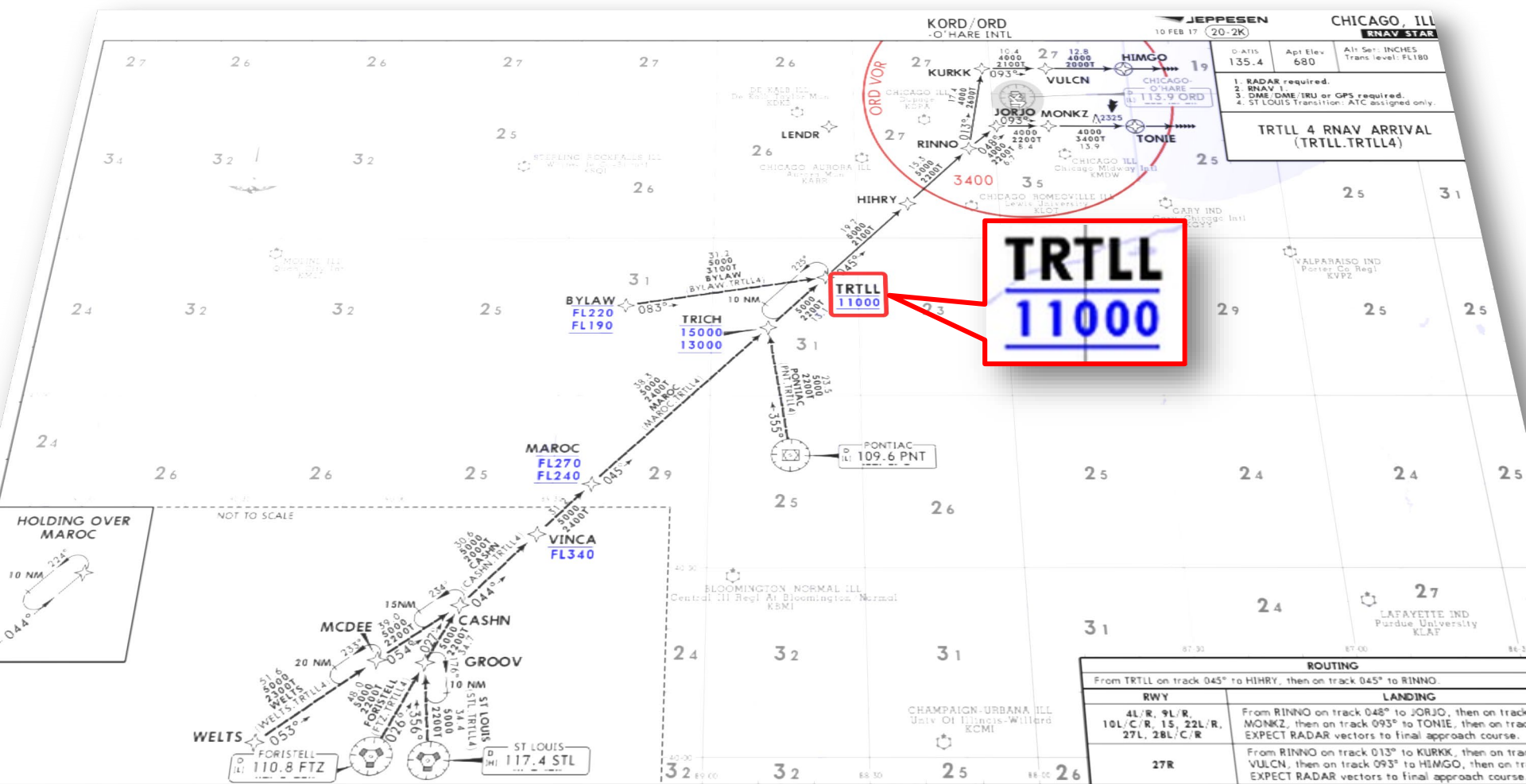


Descend Via (AIM 5-4-1 a 2)

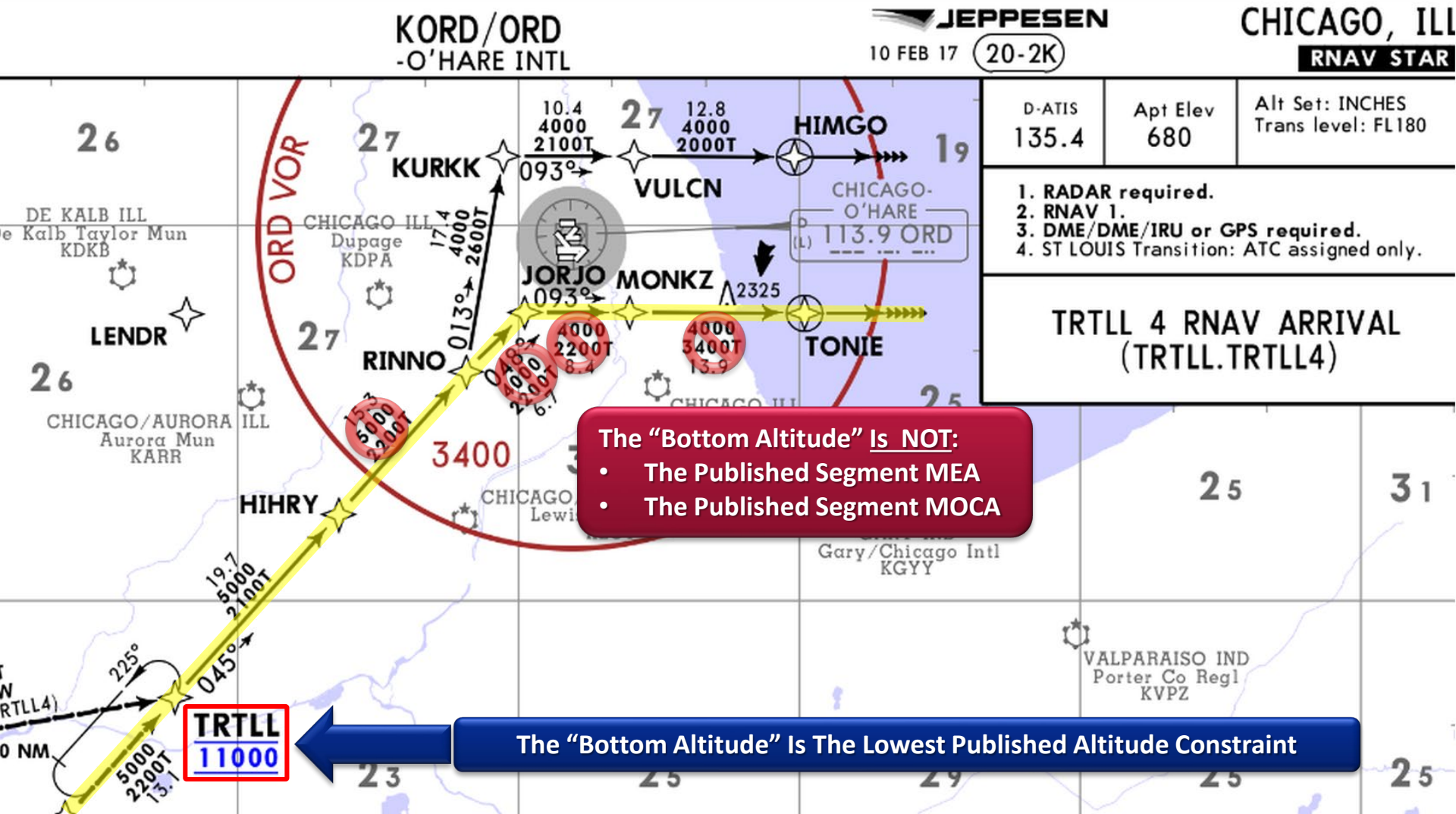
Authorizes The Pilot To

- Descend at pilot's discretion to meet published restrictions and laterally navigate on a STAR
- When cleared to a waypoint depicted on a STAR, to descend from a previously assigned altitude at pilot's discretion to the altitude depicted at the waypoint
- Once established on the depicted arrival, to descend and to meet all published or assigned altitude and/or speed restrictions

In reference to published altitude restrictions on a STAR or STAR runway transition, the lowest altitude authorized.



Bottom Altitude



Bottom Altitude

In reference to published altitude restrictions on a STAR or STAR runway transition, the lowest altitude authorized.

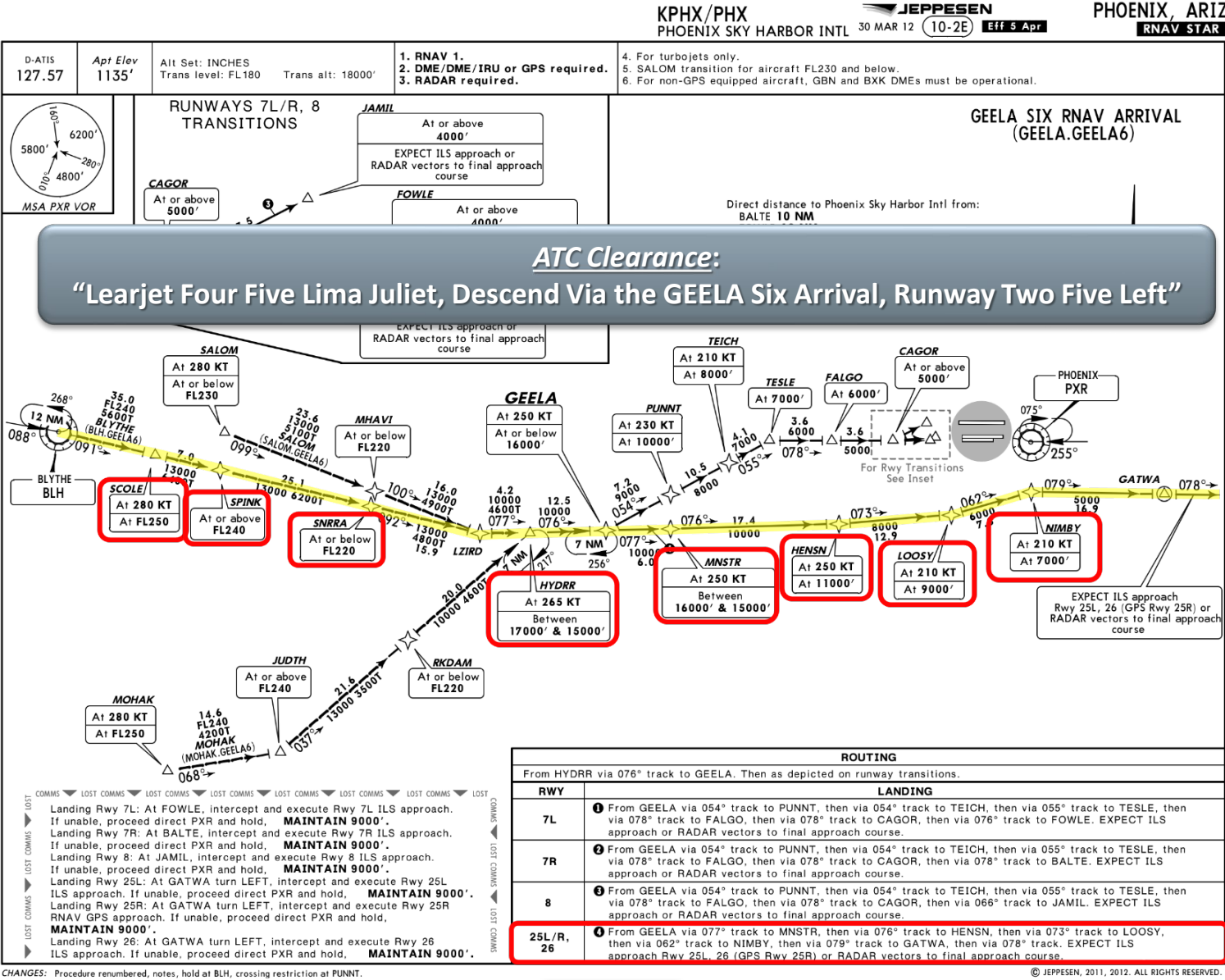
- Runway transition or landing direction may be provided by ARTCC
 - An advisory note may be included on the chart:

5. EXPECT "descend via" clearance and landing direction assignment (NORTH or SOUTH) by ARTCC. Charlotte approach will assign landing runway.

- Otherwise, landing runway must be assigned by Arrival Controller on initial contact or as soon as practical thereafter, and no later than 10 miles prior to the runway transition waypoint
- Landing runway in use broadcast by the ATIS may be used to determine anticipated STAR transition for planning purposes

- Is a clearance to fly the depicted route & assigned transition
- Is a clearance requiring compliance with published speed restrictions
- ***However, altitude assignment & vertical navigation is a separate clearance!***

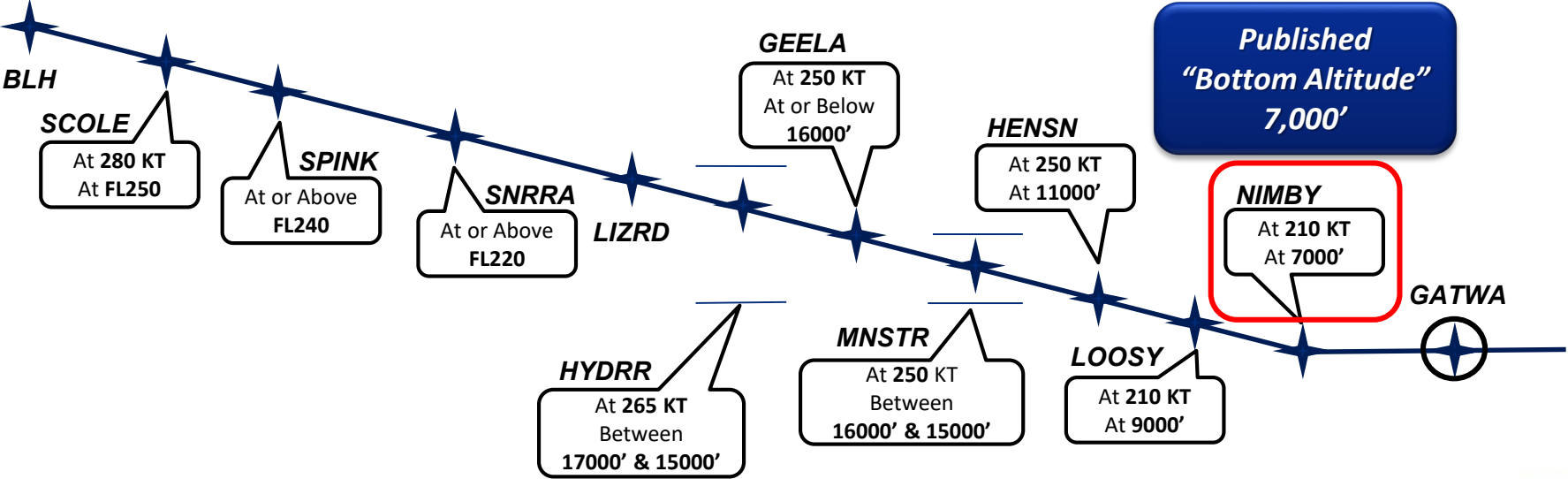




“Descend Via” Clearance

The Pilot Should:

- Track the lateral path of the GEELA6
- Comply with published speed restrictions
- Descend at pilot’s discretion to comply with all published altitude restrictions
- Descend to the “Bottom Altitude” published on the STAR



Pilot/Controller Initial Contact Phraseology

**“Phoenix Approach, Learjet Four Five Lima Juliet,
Leaving Flight Level Two Eight Zero,
Descending Via The GEELA Six Arrival,
Runway Two Five Left, Information Alpha”**

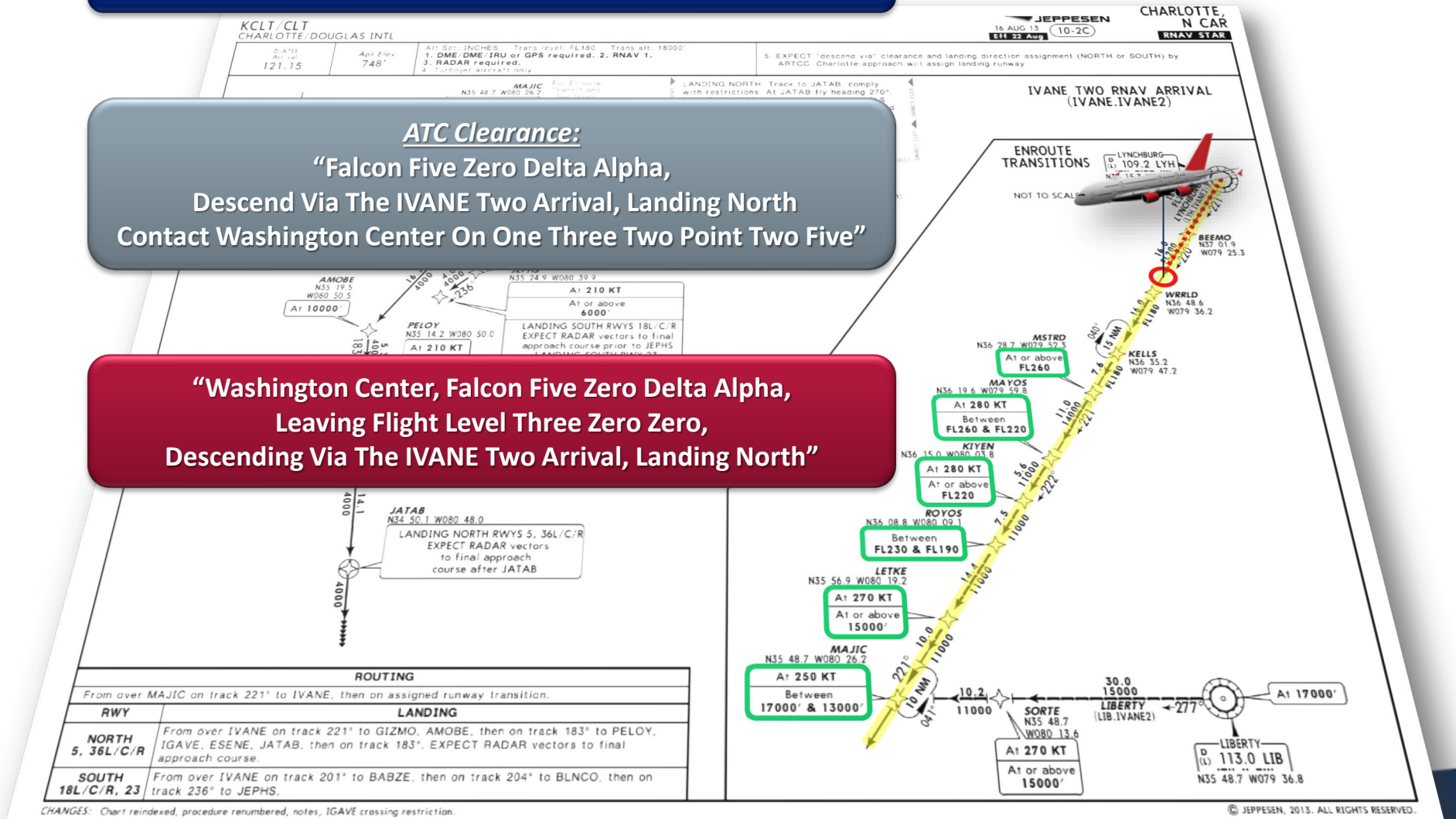
**“Learjet Four Five Lima Juliet, Phoenix Approach,
Expect I-L-S Two Five Left Approach”**

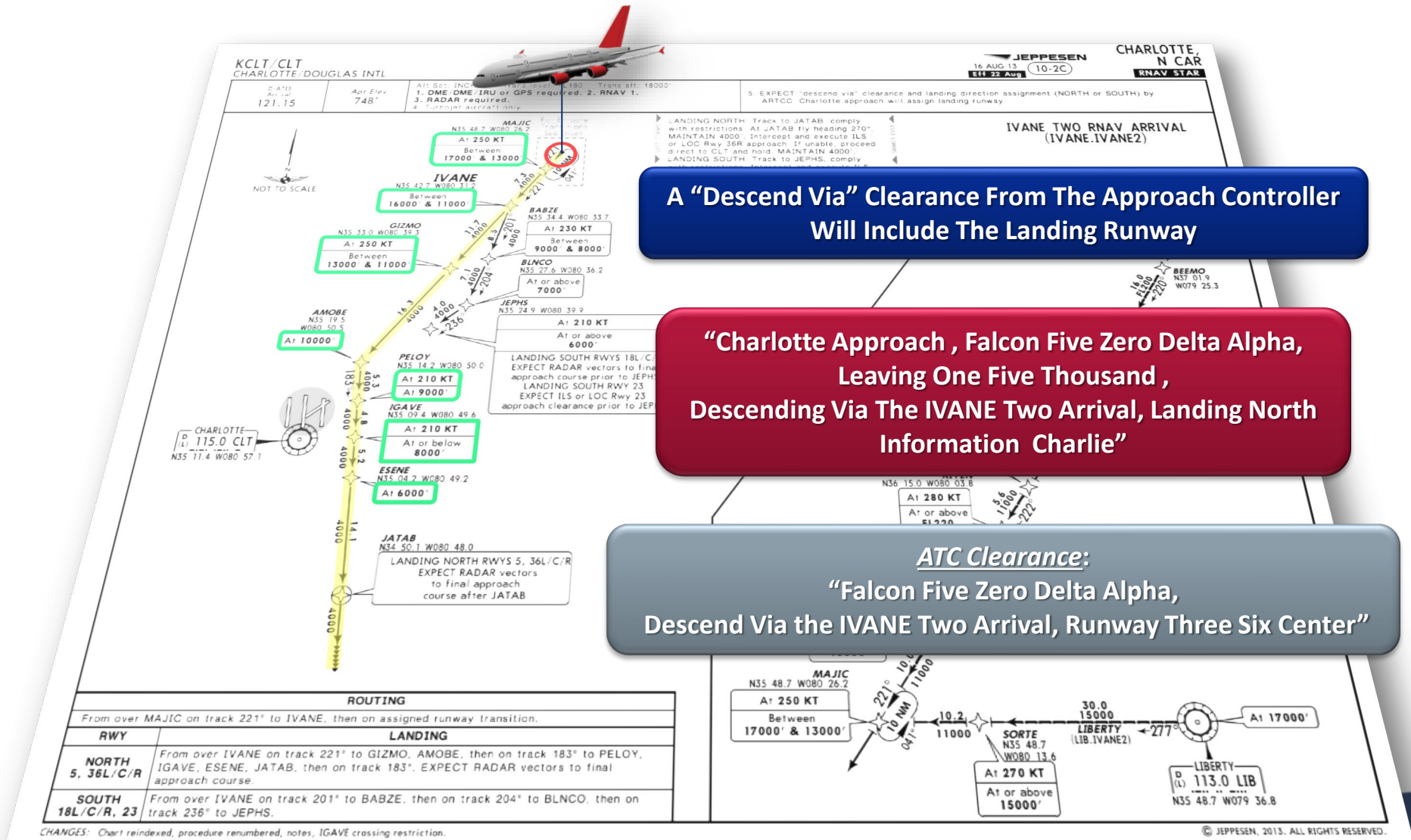


A “Descend Via” Clearance From The Center (ARTCC)
May Include The Landing Direction

ATC Clearance:
“Falcon Five Zero Delta Alpha,
Descend Via The IVANE Two Arrival, Landing North
Contact Washington Center On One Three Two Point Two Five”

“Washington Center, Falcon Five Zero Delta Alpha,
Leaving Flight Level Three Zero Zero,
Descending Via The IVANE Two Arrival, Landing North”

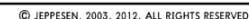


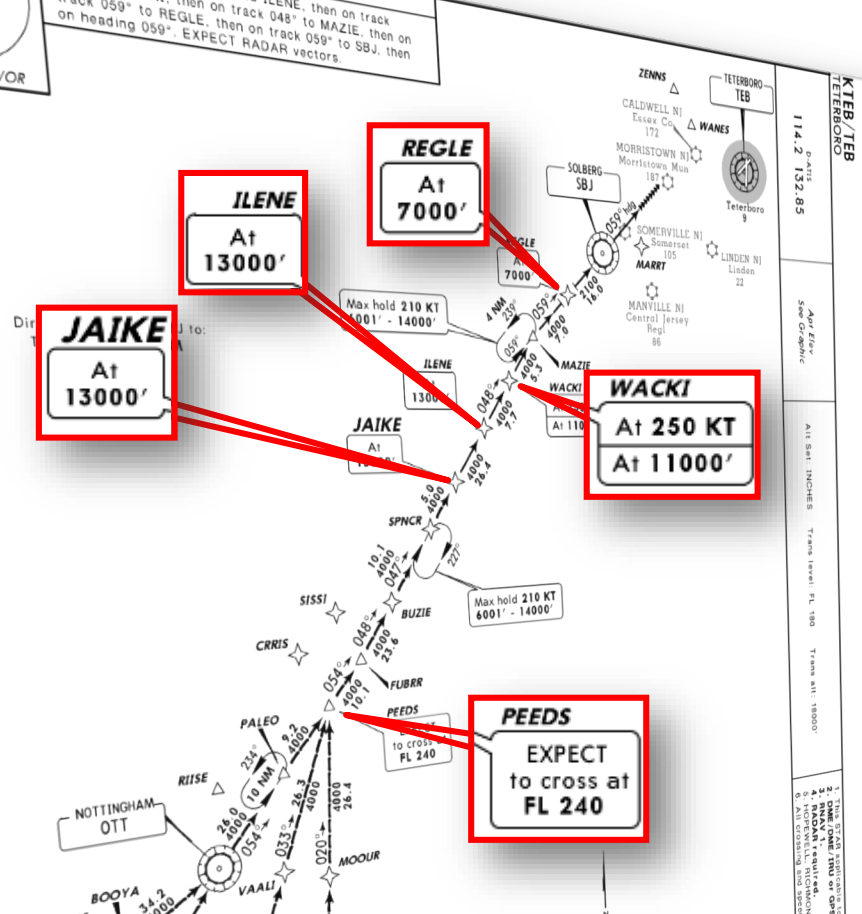


A "Descend Via" Clearance From The Approach Controller Will Include The Landing Runway

"Charlotte Approach , Falcon Five Zero Delta Alpha, Leaving One Five Thousand , Descending Via The IVANE Two Arrival, Landing North Information Charlie"

ATC Clearance:
"Falcon Five Zero Delta Alpha, Descend Via the IVANE Two Arrival, Runway Three Six Center"





ATC Clearance:
 "Gulfstream Two Three Echo,
 Cross PEEDS At Flight Level Two Four Zero,
 Then Descend Via The JAIKE Three Arrival"

"Descend Via" May Be Used On Procedures That Contain Both "EXPECT" And REQUIRED Altitude And Speed Restrictions Only If Altitude And/Or Speed Restrictions Or Alternate Restrictions Are Issued For The Fix/Waypoint Associated With All Expect Restrictions

"Descend Via" Clearances May Also Be Issued If An Aircraft Is Past All Fixes/Waypoints That Have Expect Restrictions

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STARs

ATC Clearances

- Lateral/Routing Clearance:
 - “Cleared TYLER One Arrival”
 - No descent authorized
 - Comply with published speed restrictions
- Lateral Route & Unrestricted Descent:
 - “Cleared TYLER One Arrival, Descend At Pilot’s Discretion, Maintain One Zero Thousand”
 - Initiate descent at pilot’s discretion to 10,000’
 - All published altitude restrictions are canceled
 - All published speed restrictions remain in effect

KMEM/MEM
MEMPHIS INTL

JEPPESSEN MEMPHIS, TENN
31 JAN 14 10-2 Eff 6 Feb RNAV STAR

D ATIS
127.75

Apt Elev
341'

A1 Sel. INCHES Trans. eval. FL190. Trans alt. 18000'.
1. RADAR required. 2. DME/DME/IRU or GPS required. 3. RNAV 1.
4. Turbojet aircraft only.

SPEED RESTRICTION
Descend via Mach number
until transition to 290 KT.

BLUZZ ONE RNAV ARRIVAL
(BLUZZ.BLUZZ1)

SPEED RESTRICTION
Descend via Mach number
until transition to 290 KT.

ATC Clearance:

"Proceed Direct Bowling Green, Cleared BLUZZ One Arrival,
Landing North, Descend and Maintain One Zero Thousand"



- Track the lateral path of the BLUZZ One STAR
- Descend and maintain 10,000'
- Disregard all published altitude restrictions
- Transition from cruise Mach to 290 KT
- Comply with published speed restrictions

RWY	ROUTING
(SOUTH) 9, 18L/C/R, 27	From over BLUZZ track 230° to COPEN, then track 230°. EXPECT RADAR vectors to final approach course.
(NORTH) 36L/C/R	From over BLUZZ track 225° to LTOWN, DAPLE, MRCEL, DASAC then CLARK, then track 178° to DIGLE and DINKE, then track 178°. EXPECT RADAR vectors to final approach course.

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CHANGES: New procedure at this airport.

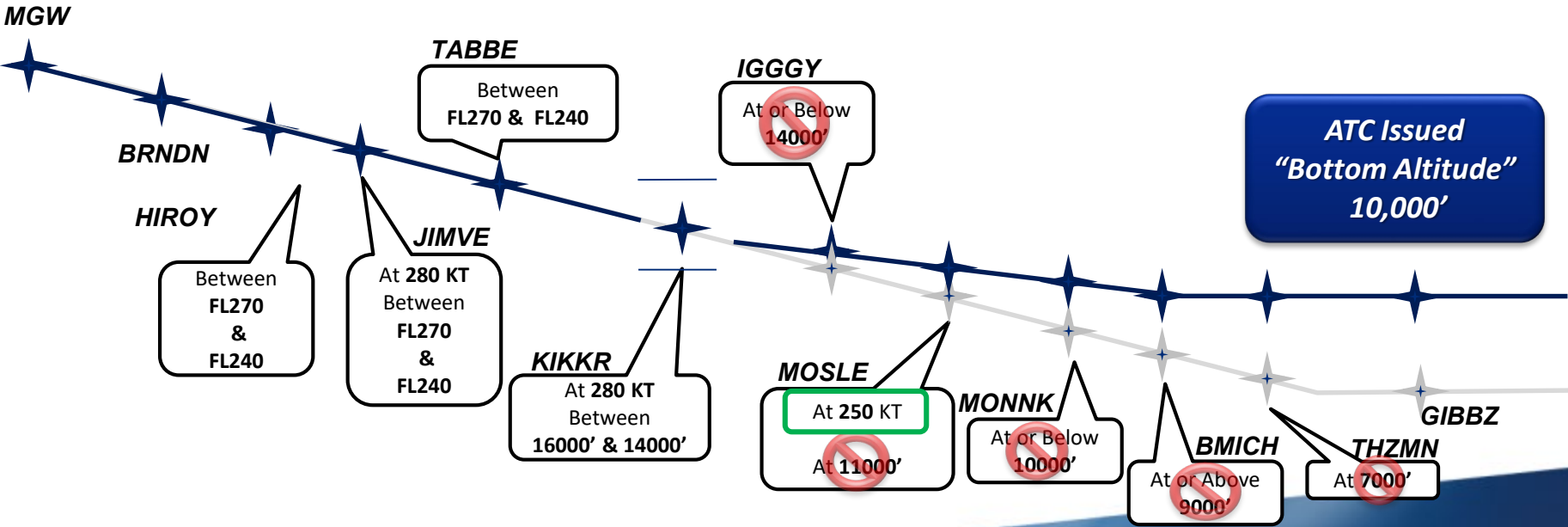
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RWY	LANDING WASHINGTON DULLES INTL
1L/C/R, 30	From over GIBBZ on track 108° to SUNYJ, then on track 168° to SIYOB, then on track 192° to MIKEJ, then on track 192°. EXPECT RADAR vectors to final approach course.

“Descend Via” With An Interim Altitude Or Revised Bottom Altitude

The Pilot Should:

- Track the lateral path of the GIBBZ2, Runway 1 Center transition
- Descend at pilot’s discretion to comply with published altitude restrictions until KIKKR
- Then descend unrestricted and at a optimum rate to 10,000’
- Comply with all published speed restrictions (e.g. 250 KT at MOSLE)



Pilot/Controller Initial Contact Phraseology

**“Potomac Approach,
Falcon Nine Zero Zero Delta Alpha,
Leaving Flight Level Two Four Zero
For One Zero Thousand,
Descending Via The GIBBZ Two Arrival,
Landing North, Information Bravo”**

**“Falcon Nine Zero Zero Delta Alpha,
Potomac Approach,
Expect R-NAV Zulu Runway One Center”**



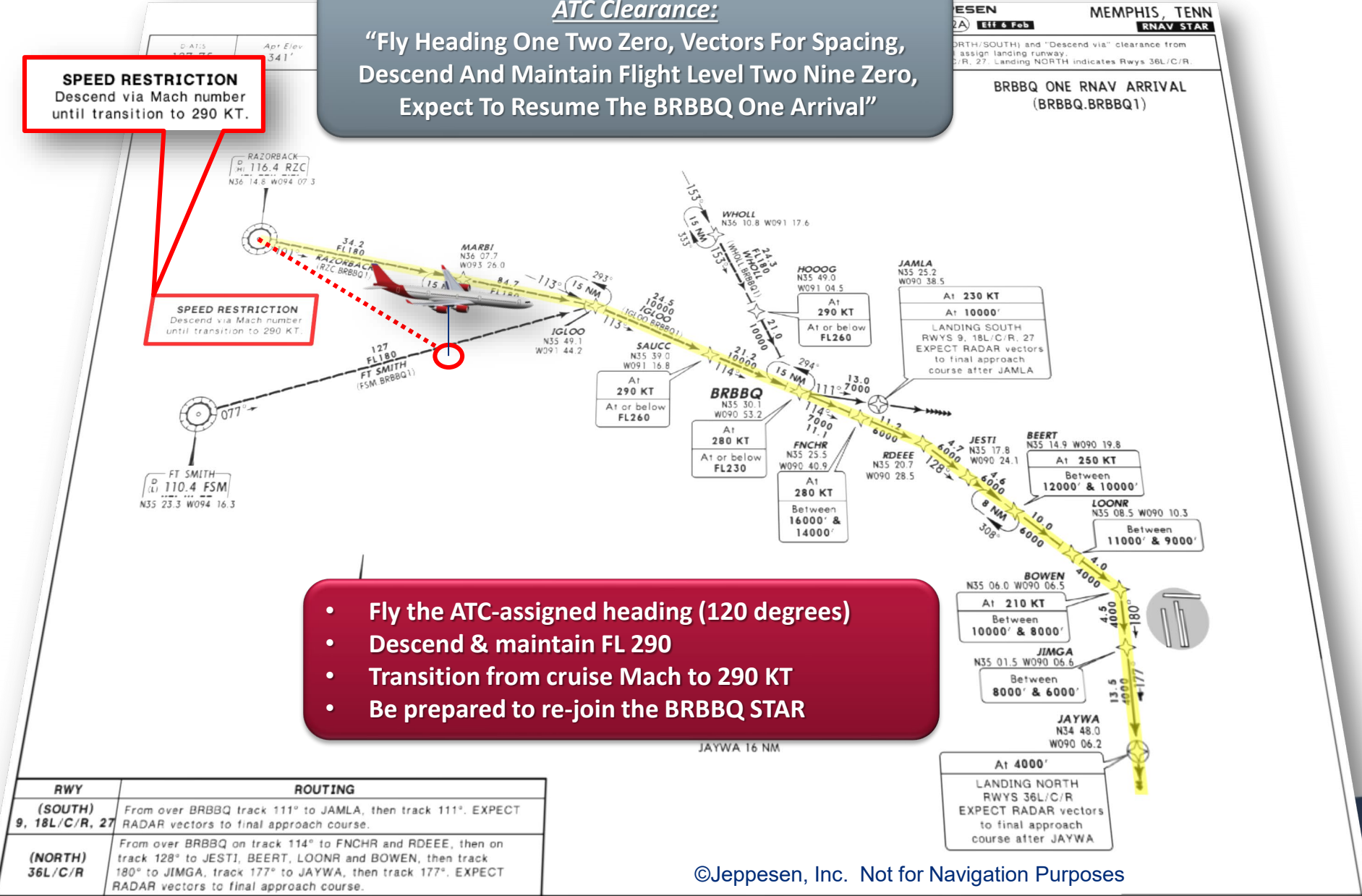
ATC Intervention On A STAR

- ATC will issue an altitude to maintain and all appropriate altitude restrictions when the vector will take the aircraft off an assigned procedure that contains altitude instructions or the previously issued clearance included crossing restrictions
- ATC must advise the pilot what to expect when the vector is completed
- Phraseology:
 - *“Citation Two Charlie Alpha, Fly Heading Zero Nine Zero, Vector For Spacing, Descend And Maintain Flight Level Two Nine Zero, Expect To Resume The BRBBQ One Arrival”*
- Air traffic will assign an altitude to cross the waypoint/fix, if no altitude is depicted at the waypoint/fix, for aircraft on a direct routing to a STAR
- Air traffic must ensure obstacle clearance when issuing a “Descend Via” instruction to the pilot

ATC Clearance:
“Fly Heading One Two Zero, Vectors For Spacing,
Descend And Maintain Flight Level Two Nine Zero,
Expect To Resume The BRBBQ One Arrival”

SPEED RESTRICTION
Descend via Mach number
until transition to 290 KT.

SPEED RESTRICTION
Descend via Mach number
until transition to 290 KT.



- Fly the ATC-assigned heading (120 degrees)
- Descend & maintain FL 290
- Transition from cruise Mach to 290 KT
- Be prepared to re-join the BRBBQ STAR

SPEED RESTRICTION
Descend via Mach number
until transition to 290 KT.

ATC Clearance:
“Proceed Direct BRBBQ,
Descend Via The BRBBQ One Arrival, Landing North”

BRBBQ
N35 30.1
W090 53.2

At
280 KT

At or below
FL230

SPEED RESTRICTION
Descend via Mach number
until transition to 290 KT

- Proceed direct to BRBBQ
- Transition from cruise Mach to 290 KT
- Cross BRBBQ at or below FL 230 and at 280 KT
- Track the lateral path of the BRBBQ STAR
- Comply with published speed restrictions
- Comply with published altitude restrictions to the “Bottom Altitude” (4,000’)

RWY	ROUTING
(SOUTH) 9, 18L/C/R, 27	From over BRBBQ track 111° to JAMLA, then track 111°. EXPECT RADAR vectors to final approach course.
(NORTH) 36L/C/R	From over BRBBQ on track 114° to FNCHR and RDEEE, then on track 128° to JESTI, BEERT, LOONR and BOWEN, then track 180° to JIMGA, track 177° to JAYWA, then track 177°. EXPECT RADAR vectors to final approach course.

ATC Clearance:
“Proceed Direct JESTI, Cross JESTI At One Zero Thousand,
Then Descend Via The BRBBQ One Arrival, Landing North”

ATC Must Assign An Altitude To Cross JESTI

SPEED RESTRICTION
Descend via Mach number
until transition to 290 KT.

SPEED RESTRICTION
Descend via Mach number
until transition to 290 KT.

- Proceed direct to JESTI
- Transition from cruise Mach to 290 KT
- Cross JESTI at 10,000’
- Then track the lateral path of the BRBBQ STAR
- Comply with published speed restrictions
- Comply with published altitude restrictions to the “Bottom Altitude” (4,000’)

RWY	ROUTING
(SOUTH) 9, 18L/C/R, 27	From over BRBBQ track 111° to JAMLA, then track 111°. EXPECT RADAR vectors to final approach course.
(NORTH) 36L/C/R	From over BRBBQ on track 114° to FNCHR and RDEEE, then on track 128° to JESTI, BEERT, LOONR and BOWEN, then track 180° to JIMGA, track 177° to JAYWA, then track 177°. EXPECT RADAR vectors to final approach course.

**"Proceed Direct BEERT,,
The BRBBQ One Arrival, Landing North"**

SPEED RESTRICTION
Descend via Mach number

Between
12000' & 10000'

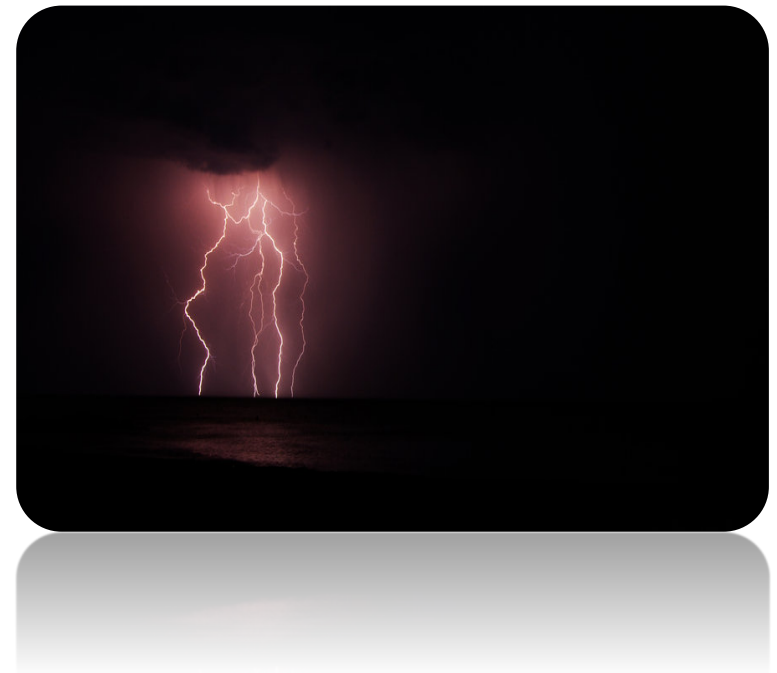
- Proceed direct to BEERT
- Transition from cruise Mach to 290 KT
- Cross BEERT between 12,000' & 10,000'
- Cross BEERT at 250 KT
 - *Reduce speed the minimum distance required prior to BEERT commensurate with normal aircraft performance*
- Track the lateral path of the BRBBQ STAR
- Comply with published speed restrictions
- Comply with published altitude restrictions to the "Bottom Altitude" (4,000')

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Weather Deviation

Established on a STAR with a Descend Via Clearance

- If a deviation from the lateral track of a STAR is requested & approved by ATC for any reason, the climb via clearance is canceled.
 - (e.g. for weather),
- If ATC does not assign an altitude to maintain with approval to deviate from the STAR's lateral track, pilots should request an altitude to maintain from the controller.



“Forth Worth Center, American 123, unable descend via, request an altitude to maintain in the descent”

Speed Restrictions Published On A STAR

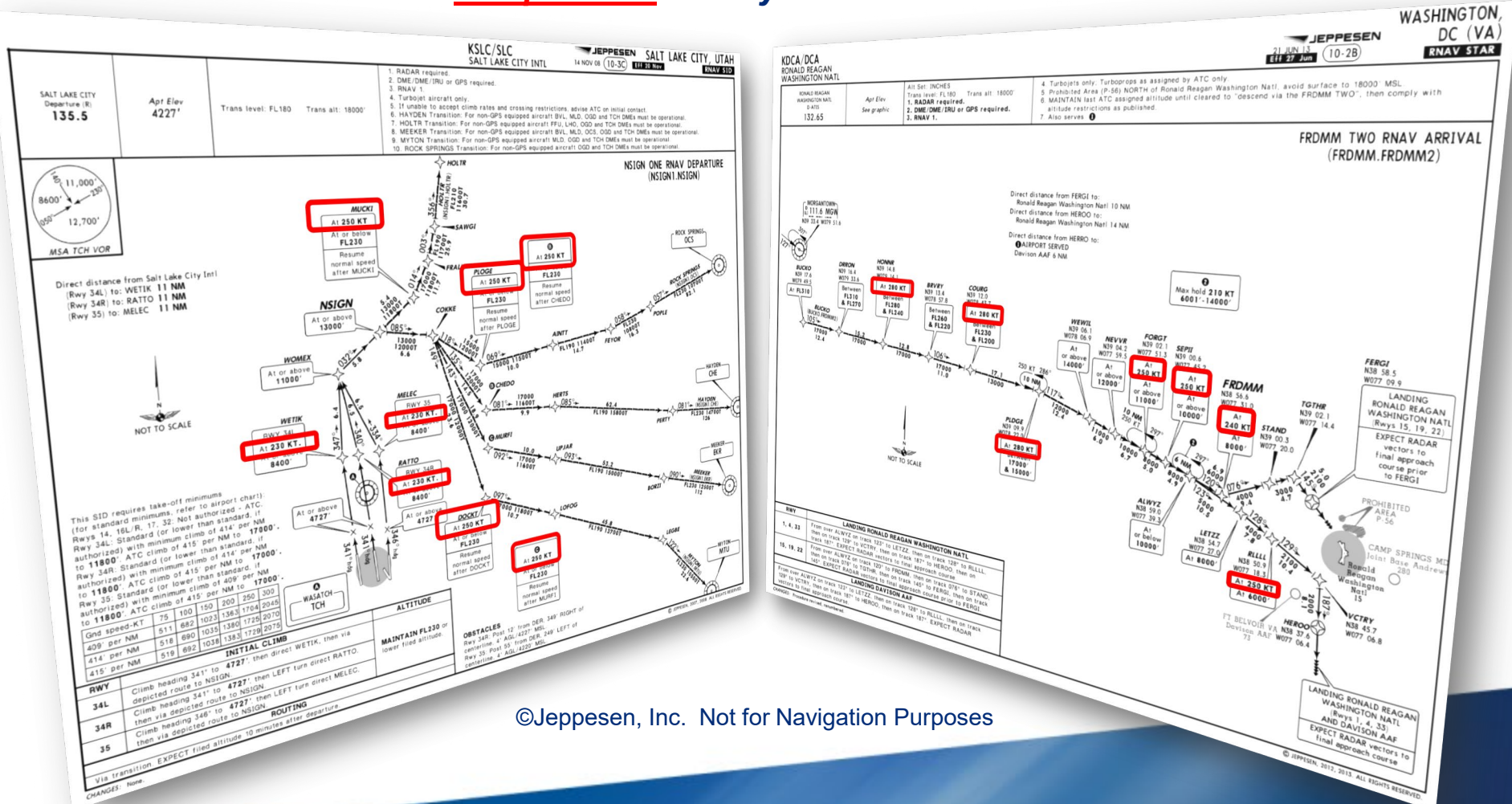
- When otherwise cleared along a route or procedure that contains published speed restrictions, the pilot must comply with those speed restrictions **independent of a “Descend Via” or “Descend & Maintain” clearance**
- ATC anticipates pilots will begin adjusting speed the minimum distance necessary prior to a published speed restriction, commensurate with normal aircraft deceleration, to cross the waypoint/fix at the published speed
- Once at the published speed, ATC expects pilots will maintain the published speed until additional adjustment is required to comply with further published or ATC assigned speed restrictions or as required to ensure compliance with 14 CFR Section 91.117
- If vectored off of a STAR route segment where a published speed applies, the published speed is cancelled and speed is at pilot's discretion unless ATC has assigned a speed
- Absent any qualifying instructions, issuance of a “Descend Via” clearance cancels a previously issued ATC speed adjustment and provides pilot discretion to adjust speed while requiring compliance with upcoming restrictions
- ATC may require compliance with previously issued speed adjustments using phraseology:
 - *“Proceed to (WP name), then descend via...”*,
 - *“Maintain (speed) until (WP name), then descend via...”*
 - *“Cross (WP name) at (speed) then descend via....”*
- Where there are no upcoming speed restrictions, issuance of a *“Proceed direct (WP name), descend via”* cancels a previously issued speed adjustment and authorizes speed at pilot's discretion as appropriate for the phase of flight, ensuring compliance with 14 CFR 91.117

DESCEND VIA ARRIVAL PHRASEOLOGY					
PHASE OF FLIGHT	SCENARIO	CONTROLLER		PILOT	
		ACTION	PHRASEOLOGY	ACTION	PHRASEOLOGY
ENROUTE	STAR was filed IFR flight plan & aircraft was cleared "as filed."	<ul style="list-style-type: none">None required.	NA	<ul style="list-style-type: none">Track the lateral path of the STAR.<u>Comply with published speed restrictions.</u>Maintain last assigned altitude.	NA
	Assign a STAR to an IFR aircraft.	<ul style="list-style-type: none">Clear aircraft to a fix on STAR, if required.Assign the STAR.	<i>"American Two, Proceed Direct Charleston VORTAC, Cleared TYLER Two Arrval."</i>	<ul style="list-style-type: none">Track the lateral path of the STAR.Comply with published speed restrictions.<u>Maintain last assigned altitude.</u>	<i>"American Two, Proceed Direct Charleston VORTAC, Cleared TYLER Two Arrval."</i>
DESCENT	ALTITUDE	Initiate a descent to an aircraft on a STAR. Issue descent at pilot's discretion, if required.	<ul style="list-style-type: none">Issue the altitude to maintain.Issue the altitude to maintain with descent at pilot's discretion.	<i>American Two Descend Now To Right Level Three One Zero, Then Descend at Pilot's Discretion Maintain Right Level Two Four Zero."</i>	<ul style="list-style-type: none">Track the lateral path of the STAR.Comply with published speed restrictions.Begin descend now to FL 310.Then, descend at pilot's discretion to FL 240. <i>"American Two, Descend Now To Right Level Three One Zero, Then Descend at Pilot's Discretion Maintain Right Level Two Four Zero."</i>
		[ENROUTE CONTROLLER] Instruct an aircraft to descend and comply with all restrictions published on a STAR.	<ul style="list-style-type: none">Instruct aircraft to descend via the STAR.Advise of landing <u>direction</u>, if applicable.	<i>"American Two, Descend Via The TYLER Two Arrval, Landing North"</i>	<ul style="list-style-type: none">Track the lateral path of the STAR.Comply with published speed restrictions.Descend at pilot's discretion from the last assigned altitude to comply with all published altitude restrictions. <i>"American Two, Descend Via, The TYLER Two Arrval, Landing North"</i>
		[TERMINAL CONTROLLER] Instruct an aircraft to descend and comply with all restrictions published on a STAR.	<ul style="list-style-type: none">Instruct aircraft to descend via the STAR.Advise of landing <u>subway</u>, if applicable.	<i>"American Two, Descend Via The TYLER Two Arrval, Runway One Center"</i>	<ul style="list-style-type: none">Track the lateral path of the STAR.Comply with published speed restrictions.Descend at pilot's discretion from the last assigned altitude to comply with all published altitude restrictions. <i>"American Two, Descend Via, The TYLER Two Arrval, Runway One Center"</i>
		Assign a waypoint altitude restriction, and then instruct an aircraft to descend and comply with all restrictions published on a STAR.	<ul style="list-style-type: none">Issue the altitude crossing clearance.Then, instruct aircraft to descend via the STAR.	<i>"American Two, Cross GARYM At Right Level Two Four Zero, Then Descend Via The TYLER Two Arrval."</i>	<ul style="list-style-type: none">Track the lateral path of the STAR.Comply with published speed restrictions.Descend at pilot's discretion to cross GARYM at FL 240.Then, descend at pilot's discretion to comply with all published altitude restrictions. <i>"American Two, Cross GARYM At Right Level Two Four Zero, Then Descend Via The TYLER Two Arrval"</i>
		Instruct an aircraft to descend and comply with all restrictions published on a STAR, <u>but</u> assign "Bottom Altitude" <u>that differs</u> from that published on the STAR.	<ul style="list-style-type: none">Instruct aircraft to descend via the STAR.Specify the fix <u>after</u> which the new "Bottom Altitude" will apply.There should be no published altitude restrictions between this fix and the new "Bottom Altitude".Assign the new "Bottom Altitude".	<i>"American Two Descend Via The TYLER Two Arrval Except After ARGH! Maintain Seven Thousand."</i>	<ul style="list-style-type: none">Track the lateral path of the STAR.Comply with published speed restrictions.Comply with published altitude restrictions until ARGH!, then descend & maintain the ATC-assigned "Bottom Altitude". <i>"American Two, Descend Via The TYLER Two Arrval Except After ARGH! Maintain Seven Thousand."</i>
		Instruct an aircraft to descend and comply with all restrictions published on a STAR, <u>but</u> assign an altitude restriction at a waypoint <u>that differs</u> from that published at that waypoint on the STAR.	<ul style="list-style-type: none">Instruct aircraft to descend via the STAR.Amend the waypoint's altitude restriction.	<i>"American Two, Descend Via The TYLER Two Arrval, Except Cross ARGH! At One Zero Thousand."</i>	<ul style="list-style-type: none">Track the lateral path of the STAR.Comply with published speed restrictions.Comply with published altitude restrictions except cross ARGH at the ATC-assigned altitude. <i>"American Two, Descend Via The TYLER Two Arrval, Except Cross ARGH! At One Zero Thousand"</i>

DESCEND VIA ARRIVAL PHRASEOLOGY						
PHASE OF FLIGHT		SCENARIO	CONTROLLER		PILOT	
			ACTION	PHRASEOLOGY	ACTION	PHRASEOLOGY
DESCENT	SPEED	Instruct an aircraft to descend and comply with <u>altitude</u> restrictions published on a STAR, but issue a speed to maintain during the descent.	<ul style="list-style-type: none">Instruct aircraft to descend via the STAR.Issue a speed to be maintained in the descent.	<i>%American Two, Descend Via The TYLER Two Arrival, Landing North, Except Maintain Three Zero Zero Knots.¹</i>	<ul style="list-style-type: none">Track the lateral path of the STAR.Descend at pilot's discretion from the last assigned altitude to comply with all published altitude restrictions.Delete speed restrictions published on the STAR.Maintain speed 300 KIAS until required to slow to 250 KIAS below 10,000' (ref 14 CFR 91.117).	<i>%American Two, Descend Via The TYLER Two Arrival, Landing North, Except Maintain Three Zero Zero Knots.¹</i>
		Issue an altitude to cross a waypoint, then instruct aircraft to descend and comply with the altitude restrictions published on the STAR, but assign a speed to maintain instead of complying with the published speed restrictions on the STAR.	<ul style="list-style-type: none">Assign the waypoint's altitude restriction.Then, instruct aircraft to descend via the STAR.Issue the speed to be maintained.	<i>%American Two, Cross LMOND At Or Above One Seven Thousand, Then Descend Via TYLER Two Arrival, Except Maintain Three Zero Zero Knots.¹</i>	<ul style="list-style-type: none">Track the lateral path of the STAR.Cross LMOND at 17,000'.Then descend at pilot's discretion to comply with all published altitude restrictions.Delete speed restrictions published on the STAR.Maintain speed 300 KIAS until required to slow to 250 KIAS below 10,000' (ref 14 CFR 91.117).	<i>%American Two, Cross LMOND At Or Above One Seven Thousand, Then Descend Via TYLER Two Arrival, Except Maintain Three Zero Zero Knots.¹</i>
	ROUTE	ATC must vector an aircraft away from the lateral path of a STAR with altitude restrictions.	<ul style="list-style-type: none">Assign a heading to maintain.State the purpose of the vector.Assign an altitude to maintain.Advise pilot to expect to resume STAR.	<i>%American Two, Fly Heading Zero Niner Zero, Vectors For Spacing, Descend And Maintain Niner Thousand, Expect to resume the TYLER Two Arrival.¹</i>	<ul style="list-style-type: none">Fly heading 090.Descend and maintain 9,000'.Be prepared to resume the TYLER Two STAR. Do not sequence FMS beyond the STAR.	<i>%American Two, Fly Heading Zero Niner Zero, Descend And Maintain Niner Thousand.¹</i>
		Clear an aircraft to re-join the STAR at a waypoint <u>with</u> a published altitude restriction, then instruct the aircraft to descend and comply with all published restrictions on the STAR.	<ul style="list-style-type: none">Clear the aircraft to the waypoint with a published altitude restriction.Instruct aircraft to descend via the STAR.Ensure obstacle clearance until the aircraft is established on the lateral and vertical path of the STAR.	<i>%American Two, Proceed Direct GARYYY, Descend Via TYLER Two Arrival.¹</i>	<ul style="list-style-type: none">Proceed direct to GARYYY & resume the STAR.Comply with any speed restriction, if published, at GARYYY.Descend at pilot's discretion to comply with the altitude restriction published at GARYYY.Descend & comply with all restrictions published on the remainder of the STAR.	<i>%American Two, Proceed Direct GARYYY, Descend Via TYLER Two Arrival.¹</i>
		Clear an aircraft to re-join the STAR at a waypoint <u>that does not have</u> a published altitude restriction, then instruct the aircraft to descend and comply with all published restrictions on the STAR.	<ul style="list-style-type: none">Clear the aircraft to the waypoint.Assign an altitude to cross the waypoint.Then, instruct aircraft to descend via the STAR.Ensure obstacle clearance until the aircraft is established on the lateral and vertical path of the STAR.	<i>%American Two, Proceed Direct BTOWN, Cross BTOWN At Or Above One Zero Thousand, Then Descend Via TYLER Two Arrival.¹</i>	<ul style="list-style-type: none">Proceed direct to BTOWN & resume the STAR.Comply with any speed restriction, if published, at BTOWN.Descend at pilot's discretion to cross BTOWN at or above 10,000'.Then, descend & comply with all restrictions published on the remainder of the STAR.	<i>%American Two, Proceed Direct BTOWN, Cross BTOWN At Or Above One Zero Thousand, Then Descend Via TYLER Two Arrival.¹</i>
	GENERAL	Aircraft has been issued a descend via clearance with no change to the STAR's "Bottom Altitude".	NA	NA	NA	<i>%American Two, Flight Level One Eight Zero, Descending Via The TYLER Two Arrival, Landing North.¹</i>
		Aircraft is making the initial contact following a frequency change.				
		Aircraft has been issued a descend via clearance <u>but with an ATC-assigned</u> "Bottom Altitude" of 7,000'.	NA	NA	NA	<i>%American Two, Flight Level One Eight Zero For Seven Thousand, Descending Via The TYLER Two Arrival, Landing North.¹</i>
		Aircraft is making the initial contact following a frequency change.				

Published Speeds On SIDs & STARs

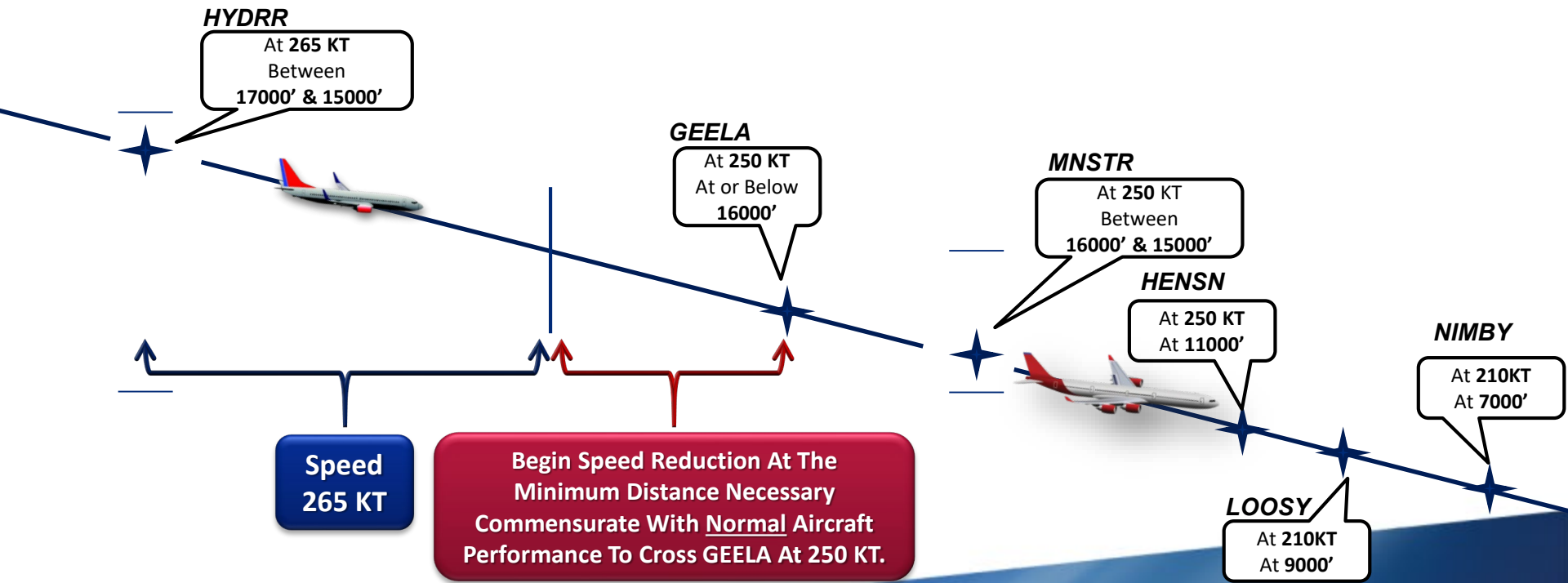
Unless Otherwise Assigned By ATC, Pilots Must Comply With Published Speed Restrictions **Independent** Of Any Climb Or Descent Clearance



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SID & STAR Published Speed Restrictions

- Strict compliance with published speed restrictions is necessary to maintain lateral & longitudinal spacing and to prevent “compression” of the sequential aircraft flow
- Where a speed reduction is required, ATC anticipates pilots will begin adjusting speed the minimum distance necessary, commensurate with normal aircraft performance, prior to a published speed restriction so as to cross the waypoint/fix at the published speed
- Once at the published speed, ATC expects pilots will maintain the published speed until additional adjustment is required to comply with further published or ATC assigned speed restrictions or as required to ensure compliance with 14 CFR Section 91.117



Speed Adjustments

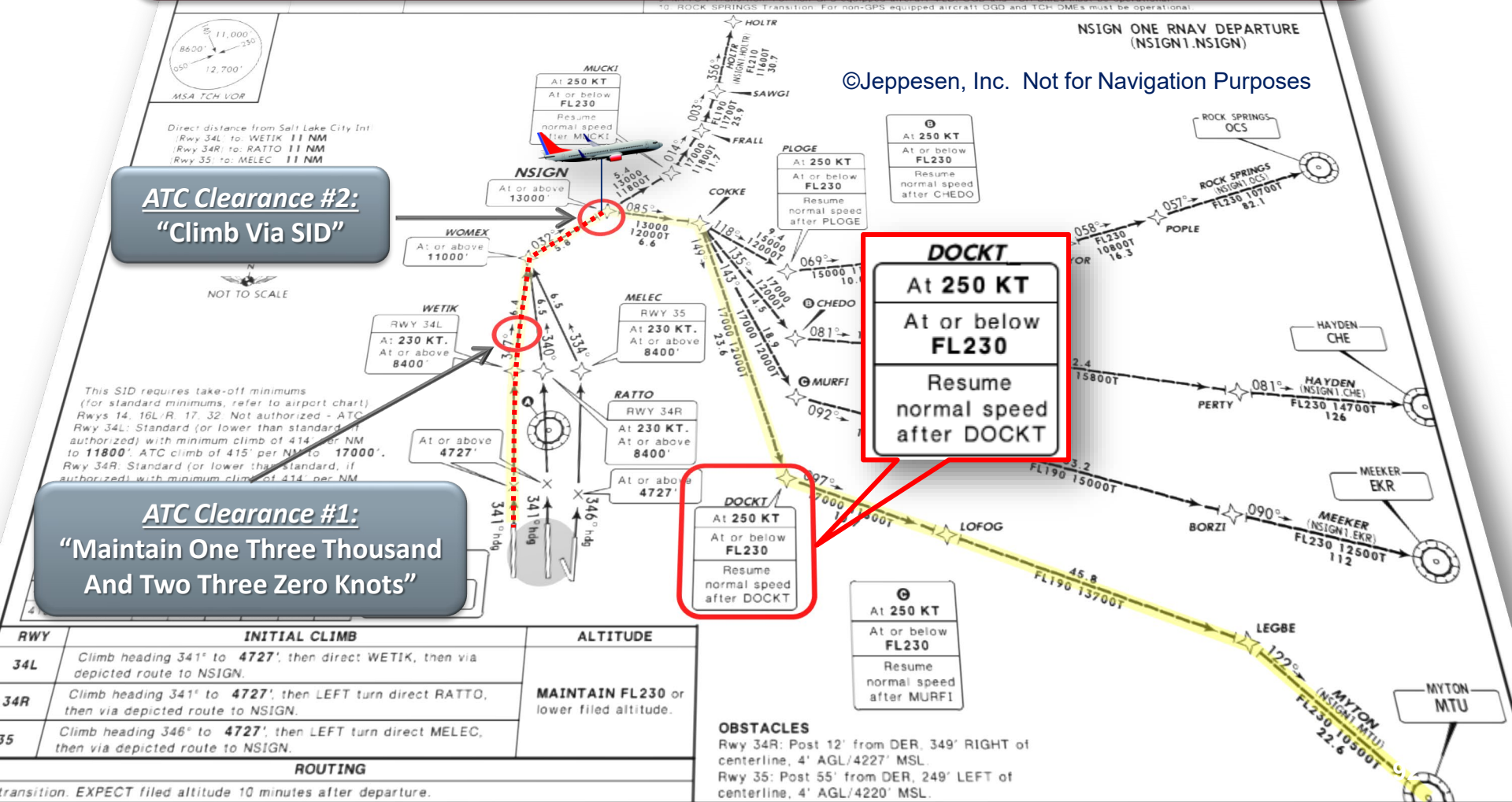
- However, ATC may issue speed adjustments to address tactical requirements necessary for the separation & spacing of aircraft
- ATC uses the phraseology “*Maintain (Speed) Knots*” to assign a speed to be maintained:
 - “*Learjet Four Five Lima Juliet, Maintain Two Five Zero Knots*”
- It is recommended that pilots provide the ATC-assigned speed on subsequent frequency changes
 - (ref: AIM 4-4-12. Speed Adjustments)
- ATC-assigned speeds remain in effect until canceled by ATC
- When issuing speed adjustments to aircraft cleared on procedures with published speed restrictions, ATC will specify the point at which the issued restriction **begins, ends, or changes** the published restrictions using the methods described on the following slides to cancel or amend speed assignments

Phraseology

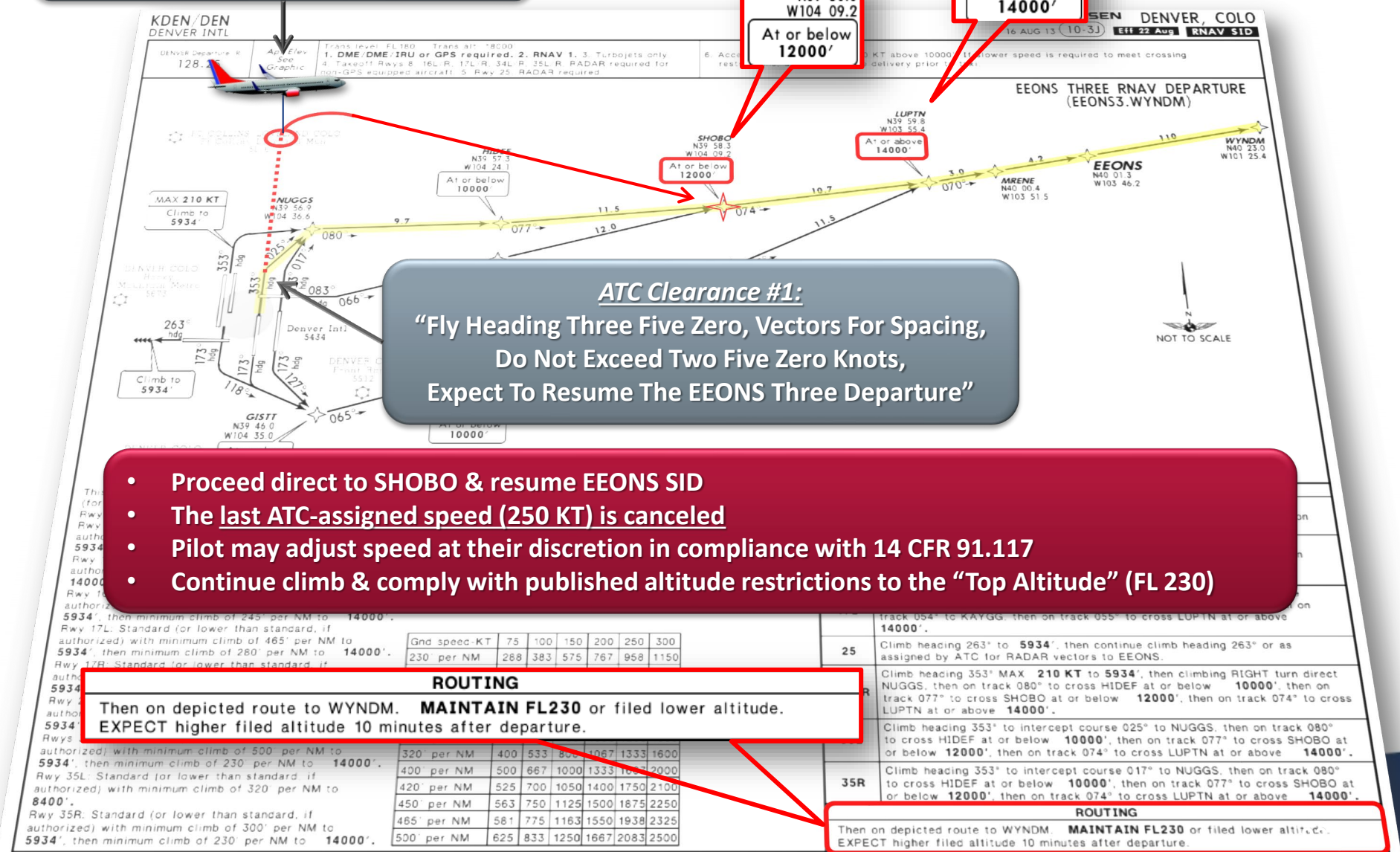
“Climb Via” & “Descend Via”

- Absent any qualifying instructions, issuance of a climb or descend via clearance **cancels** a previously issued **ATC speed** adjustment and provides pilot discretion to adjust speed while requiring compliance with upcoming restrictions'
- ATC **may require** compliance with previously issued speed adjustments using phraseology such as
 - *“Proceed To (WP Name), Then Climb/Descend Via...”*
 - *“Maintain (Speed) Until (WP Name), Then Climb/Descend Via...”*
 - *“Cross (WP Name) At (Speed) Then Climb/Descend Via....”*
- Where there are no upcoming speed restrictions, issuance of a *“Proceed Direct (WP Name), Climb/Descend Via”* cancels a previously issued speed adjustment and authorizes speed at pilot's discretion as appropriate for the phase of flight, ensuring compliance with 14 CFR 91.117

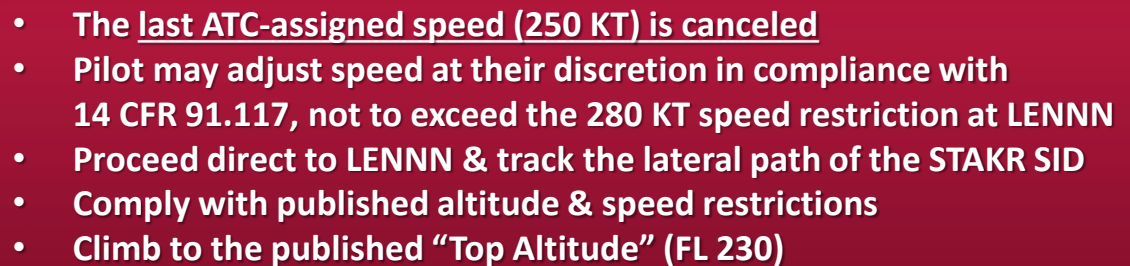
- Resume climb & comply with published altitude restrictions to the “Top Altitude” (FL 230)
- The last ATC-assigned speed (230 KT) is canceled
- Pilot may adjust speed at their discretion in compliance with 14 CFR 91.117, not to exceed the 250 KT speed restriction at DOCKT



ATC Clearance #2:
“Proceed Direct SHOBO,
Climb Via The EEONS Three Departure”



ATC Clearance #1:
**“Fly Heading Two Seven Zero, Vectors for Spacing,
 Maintain Two Five Zero Knots,
 Expect To Resume The STAKR Two Departure”**



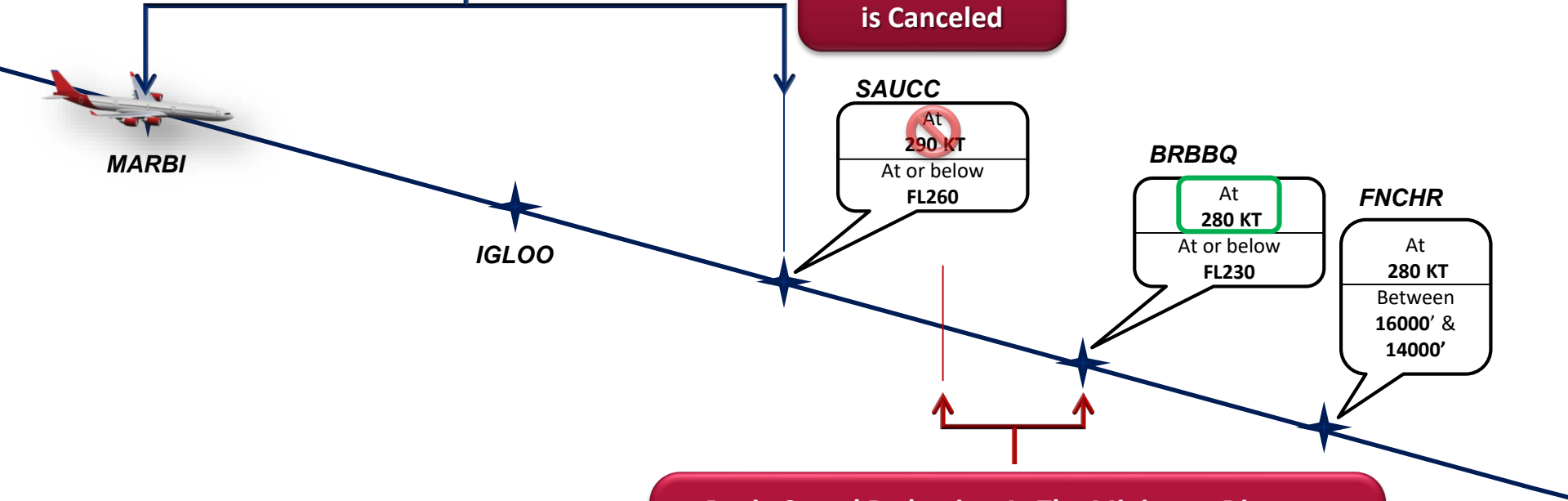
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<ESC Exit>

ATC Clearance #2:
“Maintain Three One Zero Knots Until SAUCC,
Then Descend Via The BRBBQ One Arrival, Landing North”

ATC-Assigned Speed
310 KT Until SAUCC

Speed Restriction
at SAUCC
is Canceled



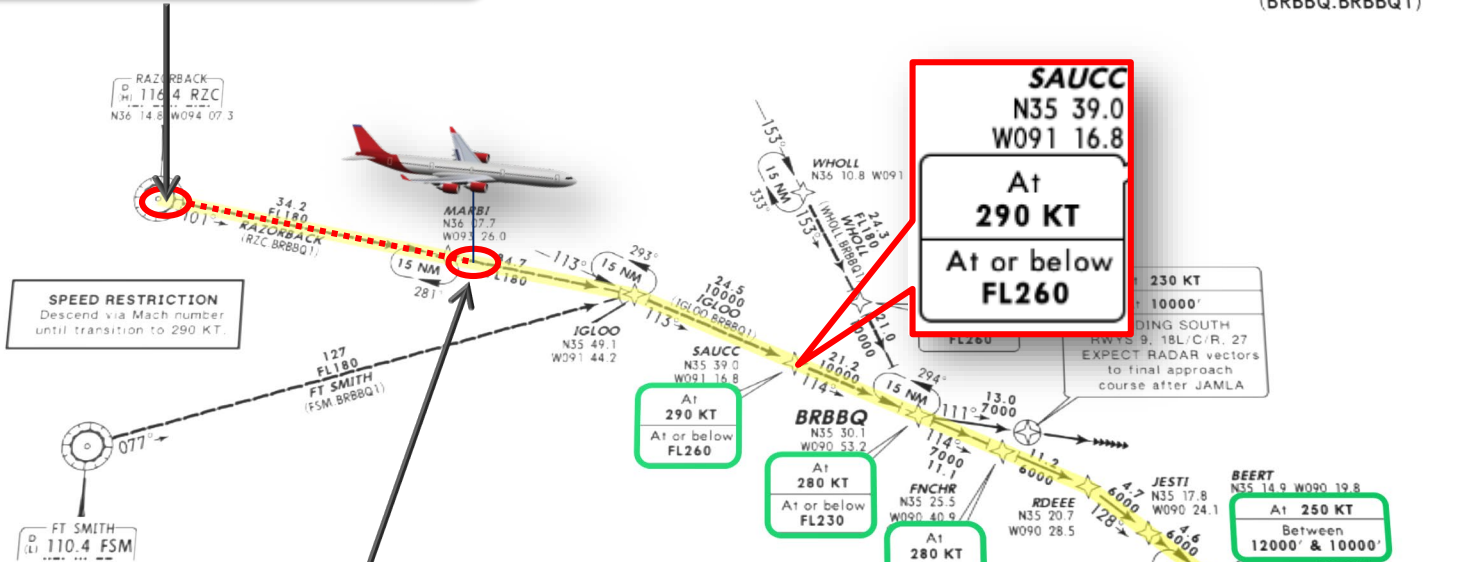
Begin Speed Reduction At The Minimum Distance
Necessary Commensurate With Normal Aircraft
Performance To Comply With The Next Published
Speed Restriction (BRBBQ At 280 KT)

KMEM/MEM
MEMPHIS INTL

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31 JAN 14 (10-2A) Eff 6 Feb

MEMPHIS, TENN
RNAV STAR

ATC Clearance #1:
"Maintain Three One Zero Knots"

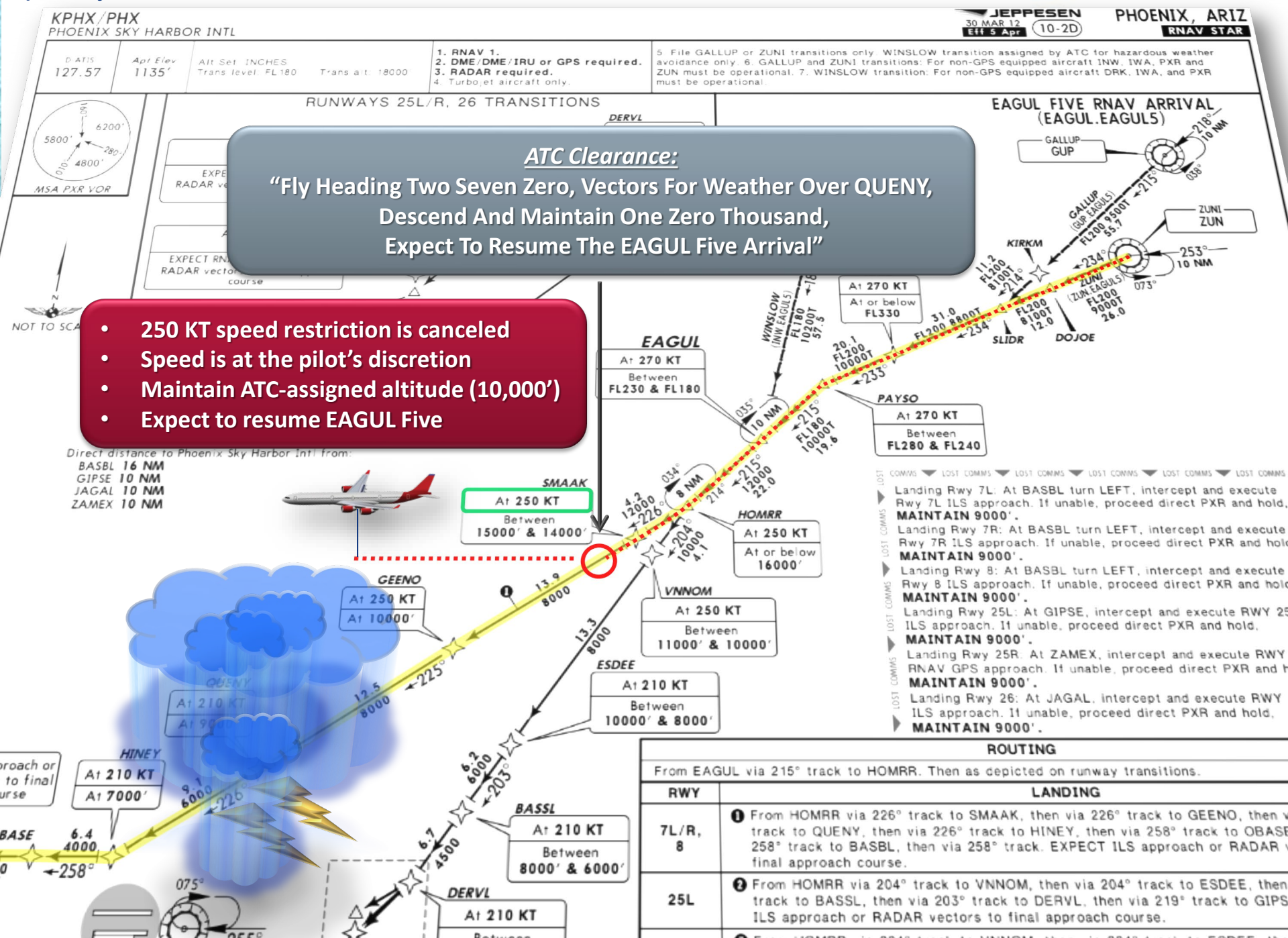


ATC Clearance #2:
"Cross SAUCC At Two Niner Zero Knots, Then Descend Via The BRBBQ One Arrival, Landing North"

- Maintain ATC-assigned speed (310 KT)
- Cross SAUCC at 290 KT, Then...
- Comply with published altitude restrictions to "Bottom Altitude" (4,000')
- Comply with published speed restrictions

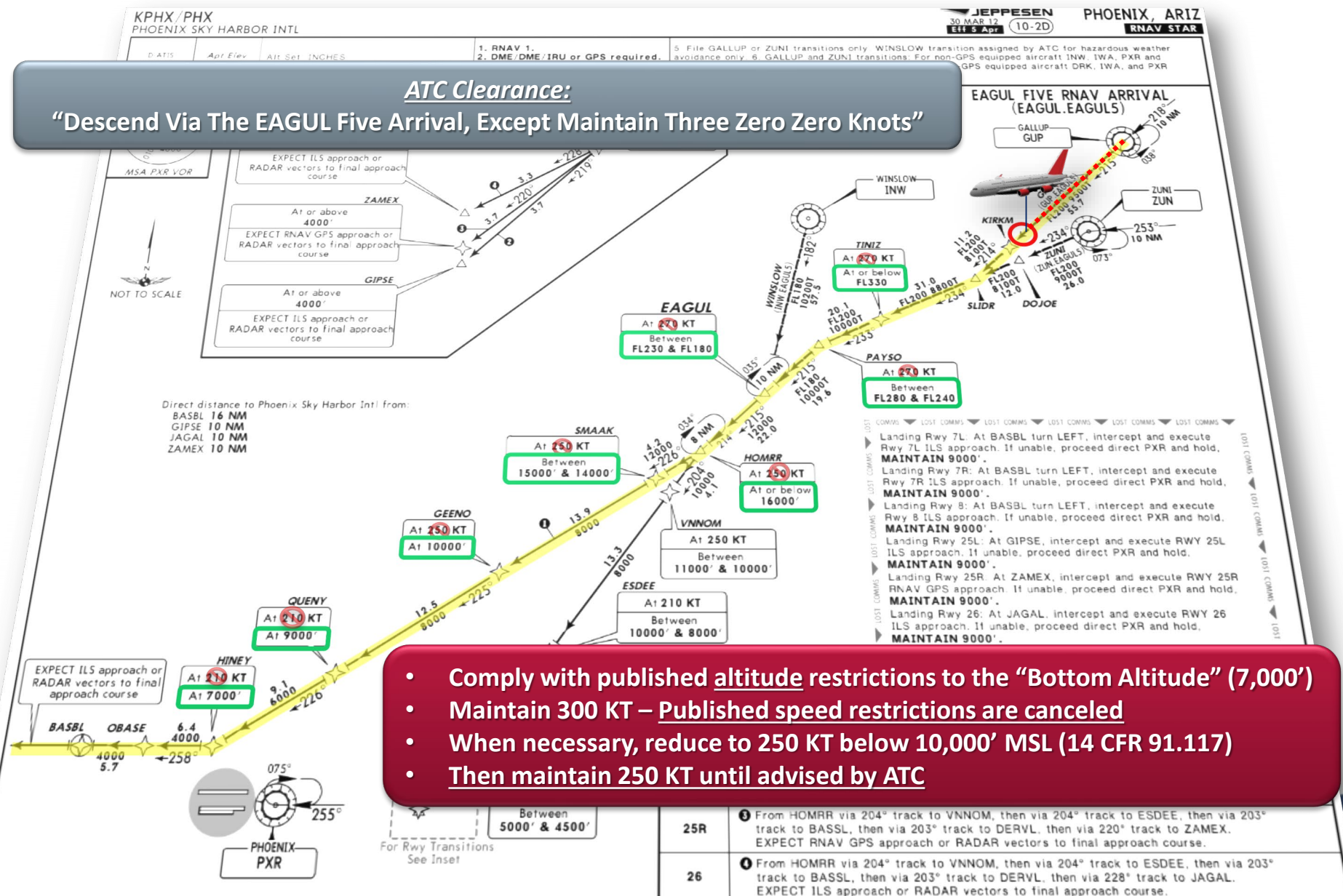
9, 18L/C/R, 27	RADAR vectors to final approach course.
(NORTH) 36L/C/R	From over BRBBQ on track 114° to FNCHR and RDEEE, then on track 128° to JEST1, BEERT, LOONR and BOWEN, then track 180° to JIMGA, track 177° to JAYWA, then track 177°. EXPECT RADAR vectors to final approach course.

Speed Adjustments



ATC Clearance:

“Descend Via The EAGUL Five Arrival, Except Maintain Three Zero Zero Knots”

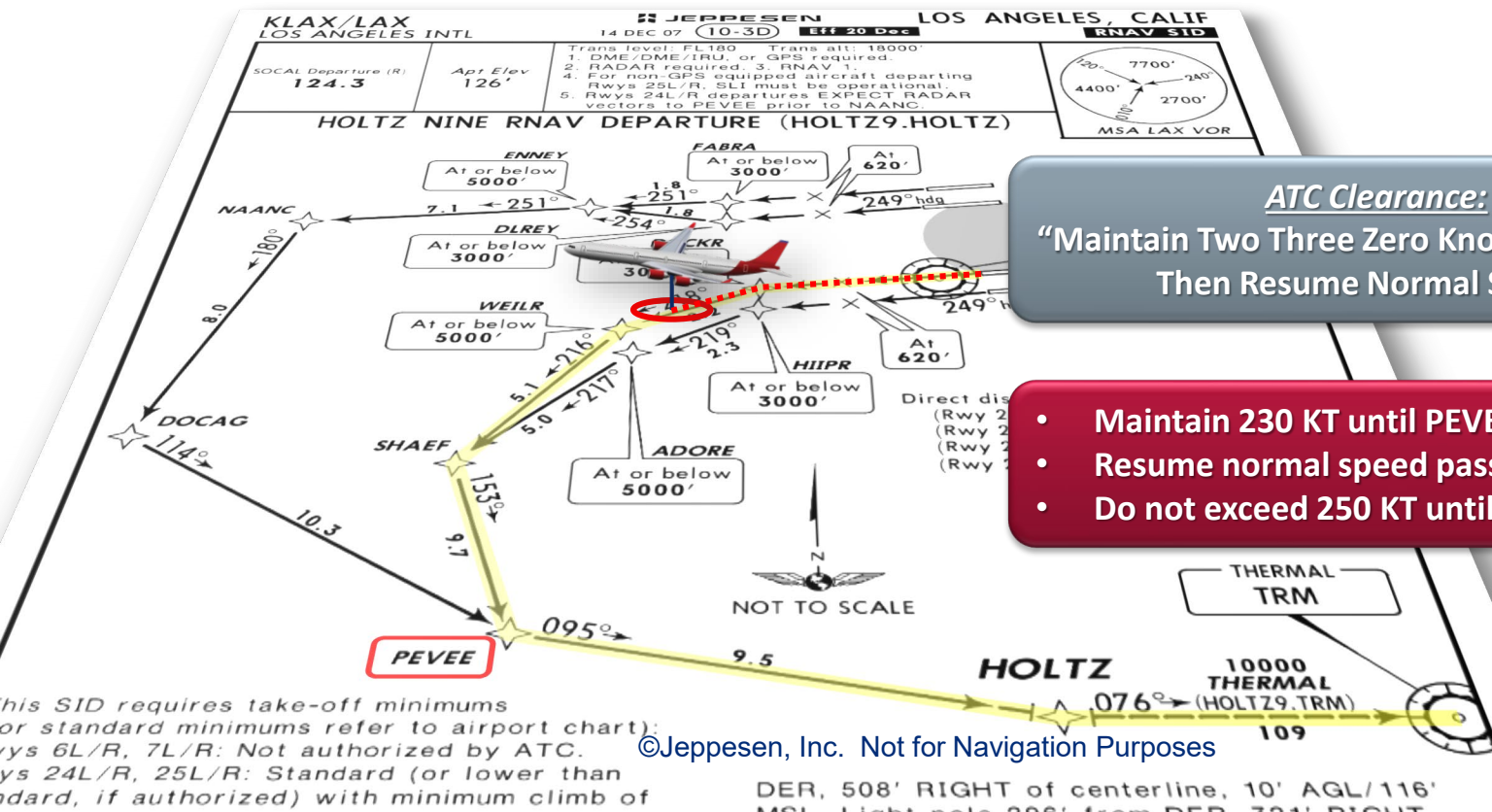


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Phraseology

“Resume Normal Speed”

- Used to terminate ATC assigned speed adjustments on segments where no published speed restrictions apply
- It does not delete speed restrictions on upcoming segments of flight and does not relieve the pilot of those speed restrictions which are applicable to 14 CFR Section 91.117



ATC Clearance:
“Maintain Two Three Zero Knots Until PEVEE, Then Resume Normal Speed”

- Maintain 230 KT until PEVEE
- Resume normal speed passing PEVEE
- Do not exceed 250 KT until above 10,000'

This SID requires take-off minimums or standard minimums refer to airport chart).
Rwys 6L/R, 7L/R: Not authorized by ATC.
Rwys 24L/R, 25L/R: Standard (or lower than standard, if authorized) with minimum climb of

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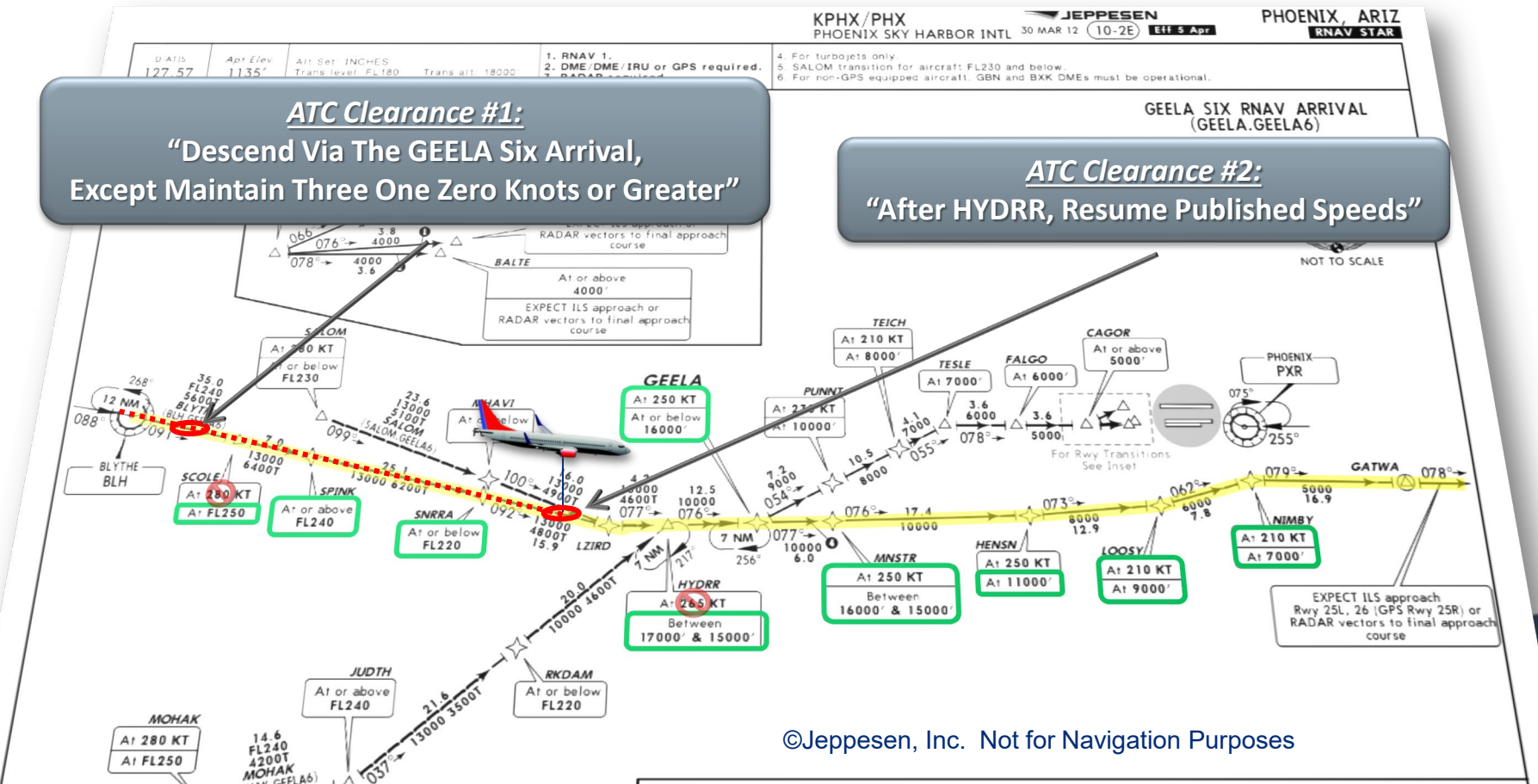
Phraseology

“Resume Published Speed”

- Used by ATC to terminate a speed adjustment where speed restrictions are published on a charted procedure

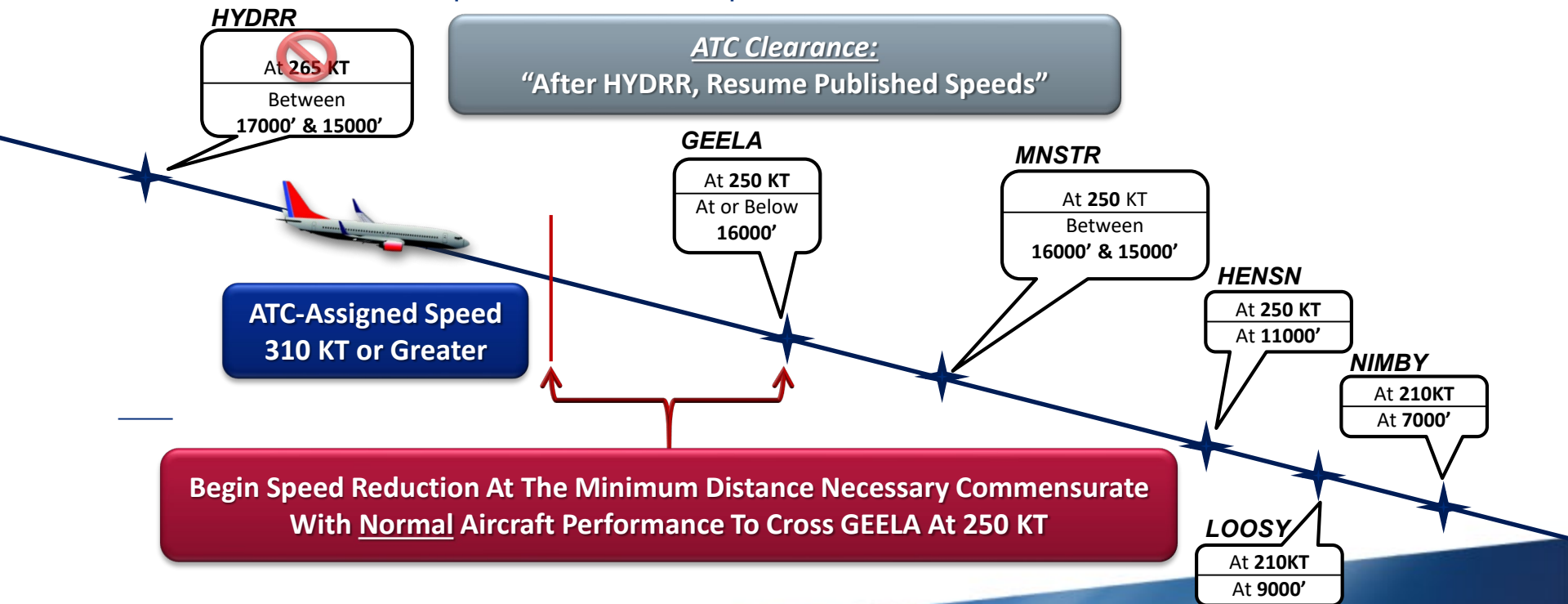
ATC Clearance #1:
“Descend Via The GEELA Six Arrival,
Except Maintain Three One Zero Knots or Greater”

ATC Clearance #2:
“After HYDRR, Resume Published Speeds”



Complying With Speed Restrictions

- When instructed to “resume published speed,” ATC anticipates pilots will begin adjusting speed the minimum distance necessary prior to a published speed restriction so as to cross the waypoint/fix at the published speed
- Once at the published speed, ATC expects pilots will maintain the published speed until additional adjustment is required to comply with further published or ATC assigned speed restrictions or as required to ensure compliance with 14 CFR Section 91.117



Phraseology

“Delete Speed Restrictions”

- ATC will advise the pilot to “*Delete Speed Restrictions*” when *either* ATC assigned or published speed restrictions on a charted procedure are no longer required
- When deleting published restrictions, ATC must ensure obstacle clearance until aircraft are established on a route where no published restrictions apply
- This does not relieve the pilot of those speed restrictions which are applicable to 14 CFR Section 91.117

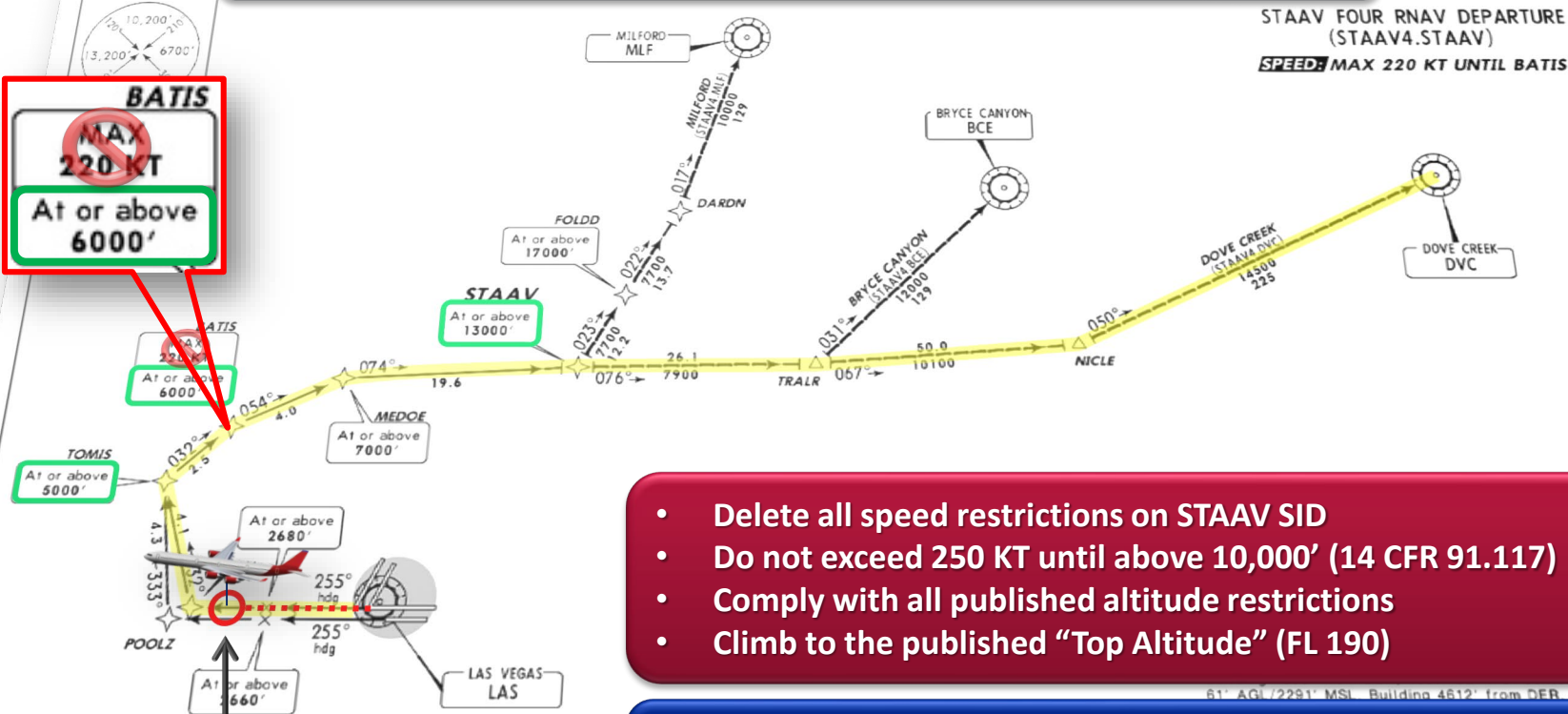
Initial IFR Clearance:
“Cleared...STAAV Four Departure, Dove Creek Transition, Climb Via SID...”

MAX

220 KT

At or above 6000'

STAAV FOUR RNAV DEPARTURE (STAAV4.STAAV)
SPEED: MAX 220 KT UNTIL BATIS



- Delete all speed restrictions on STAAV SID
- Do not exceed 250 KT until above 10,000' (14 CFR 91.117)
- Comply with all published altitude restrictions
- Climb to the published “Top Altitude” (FL 190)

When Deleting Published Restrictions, ATC Must Ensure Obstacle Clearance Until The Aircraft Is Established On A Route Where No Published Restrictions Apply

After Takeoff - ATC Clearance:
“Delete Speed Restrictions”

(Rwy 25R) to: LEELN 6 NM

RWY	INITIAL CLIMB	ALTITUDE
25L	Climb heading 255° to at or above 2660' then direct POOLZ, then via 333° track to TOMIS.	MAINTAIN FL 190
25R	Climb heading 255° to at or above 2680' then direct LEELN, then via 332° track to TOMIS.	
ROUTING		
From TOMIS via 032° track to BATIS, then via 054° track to MEDOE, then via 074° track to STAAV. Then via transition. EXPECT filed altitude 10 minutes after departure.		

if authorized) with ATC climb of 330' per NM to 13000'.
Rwy 25R: 300-2 or standard (or lower than standard, if authorized) with minimum climb of 313' per NM to 4500'. ATC climb of 330' per NM to 13000'.

Gnd speed-KT	75	100	150	200	250	300
313' per NM	391	522	783	1043	1304	1565
330' per NM	413	550	825	1100	1375	1650

954' from DER, 546' LEFT of centerline, up to 40' AGL/2245' MSL. Obstacle light DME 533' from DER, 445' LEFT of centerline, 18' AGL/2207' MSL. Building 1822' from DER, 652' LEFT of centerline, 59' AGL/2238' MSL. Road 669' from DER, 477' LEFT of centerline, 29' AGL/2208' MSL. Rod on building 534' from DER, 369' LEFT of centerline, 13' AGL/2202' MSL. Road 678' from DER, 17' RIGHT of centerline, 15' AGL/2201' MSL. Obstacle light on LOC 534' from DER, 1' from centerline, 6' AGL/2195' MSL.

ICAO

Previous Standard

- Procedures for Air Navigation Services (PANS) – Air Traffic Management (ATM) Document 4444 is the ICAO Standard & Recommended Practices (SARP) for air traffic control
- Until recently, PANS-ATM 4444 required compliance with published altitude and speed restrictions on SIDs and STARs when the aircraft was cleared to climb or descend on the departure or arrival:
 - SIDs:
When a departing aircraft on a SID is cleared to climb to a level higher than the initially cleared level or the level(s) specified in a SID, the aircraft shall follow the published vertical profile of a SID, unless such restrictions are explicitly cancelled by ATC
 - STARs:
When an arriving aircraft on a STAR is cleared to descend to a level lower than the level or the level(s) specified in a STAR, the aircraft shall follow the published vertical profile of a STAR, unless such restrictions are explicitly cancelled by ATC. Published minimum levels based on terrain clearance shall always be applied.

ICAO Climb Via SID & Descend Via STAR

Effective 10 November 2016 Revision To PANS-ATM 4444

- SID/STAR phraseology allows ATC and aircrew to communicate and understand detailed clearance information that would otherwise require long and potentially complex transmissions.
- Over time, these benefits have been eroded through the development of non-harmonized practices and different meanings being attached to certain elements of SID/STAR phraseology.
- Consequently, there may be a mismatch between ATC and aircrew expectations when SID/STAR phraseology is used, and what certain terms may mean. This presents a safety risk that requires a renewed effort to adopt harmonized SID/STAR phraseology

ICAO Core Phraseology

Effective 10 November 2016

The core phraseologies are:

- CLIMB VIA SID TO (level)
- DESCEND VIA STAR TO (level)

These require the aircraft to:

1. Climb/descend to the cleared level in accordance with published level restrictions;
2. Follow the lateral profile of the procedure; and
3. Comply with published speed restrictions or ATC-issued speed control instructions as applicable.

Phraseologies for removal of speed or level restrictions:

- CLIMB VIA SID TO (level), CANCEL SPEED RESTRICTION(S)
- DESCEND VIA STAR TO (level), CANCEL LEVEL RESTRICTION(S) AT (point(s))

These phraseologies mean that:

1. The lateral profile of the procedure continue to apply and
2. Speed or level restrictions which have not been referred to will continue to apply.

ICAO Core Phraseology

Effective 10 November 2016

Phraseologies for variations to lateral profile of the SID/STAR:

- PROCEED DIRECT (waypoint), or
- VECTORING

These phraseologies mean that:

Speed and level restrictions associated with the bypassed waypoints are cancelled.

Phraseology to return to SID/STAR:

- REJOIN SID/STAR

This phraseology means that:

Speed and level restrictions associated with the waypoint where the rejoin occurs, as well as those associated with all subsequent waypoints must be complied with.

What Has Not Changed

- Use of CANCEL SPEED RESTRICTION applies only to the speed restrictions associated with the SID or STAR procedure. It does not cancel other speed restrictions such as the speed limits detailed at ICAO Annex 11 Chapter 2 and Appendix 4
- The requirement for a QNH altimeter setting to be included in the descent clearance when first cleared to an altitude below the transition level, except when it is known that the aircraft has already received the information (PANS-ATM 4.10.4.5 refers), does not change.
- The terrain clearance responsibilities prescribed in ICAO Doc 4444 (PANS-ATM) 8.6.5.2 do not change
- And finally, while pilots and ATS providers are expected to comply with the revised phraseology, in unusual or unforeseen circumstances it may not be possible to apply the phraseology as intended. Should this happen, pilots and ATS personnel are still expected to use plain language, which must be as clear and concise as possible.

ICAO Climb Via SID & Descend Via STAR

The Purposes Of This Change

- Provide core phraseology that positively reinforces that the lateral, vertical and speed requirements embedded in a SID or STAR will continue to apply, unless explicitly cancelled or amended by the controller;
- Provide supplementary phraseology that enables any level and/or speed restrictions as local circumstances, practice or procedures permit;
- Harmonize through appropriate phraseology the means by which aircraft must be cleared where variations to the lateral profile are required, such as where waypoints along the procedure are bypassed.

Global State Of Implementation

- Global adoption
- Several States have already implemented
- Additional States will follow in 2017

**Click For ICAO
Climb Via/Descend Via Webpage**



Global State Of Implementation

Canada – April 27, 2017

- Canada implements Climb Via and Descend Via on April 27, 2017
- With slight exceptions, will follow ICAO PANS ATM 4444

**Click For Canada
Climb Via/Descend Via Resources**



ICAO Climb Via SID & Descend Via STAR

Pilots Take Note...

- The use of a SID designator in a clearance without a cleared level **does not** authorize the aircraft to climb on the SID vertical profile
- The use of a STAR designator in a clearance without a cleared level **does not** authorize the aircraft to descend on the STAR vertical profile
- Pilots must receive a “*Climb Via SID*” or “*Descend Via STAR*” clearance to climb/descend on the SID/STAR vertical profile

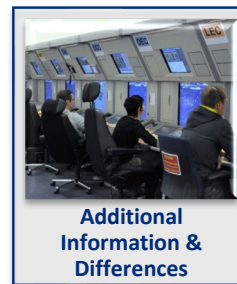
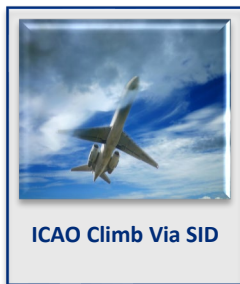
Pilot Readback

“Climb Via SID” or “Descend Via STAR”

- Controllers must get a readback if specifying *“Climb Via SID”* or *“Descend Via STAR.”*
- Readback of *“Via STAR”* or *“Via SID”* may result in a different flight path than a *“Descend To”* or *“Climb To”* clearance



ICAO Climb Via SID & Descend Via STAR Briefing Topics



Briefings topics provide scenarios and significant differences between FAA, ICAO, and Canada
Climb Via/Descend Via clearances

Please click on the above picture to access the program pertaining to “Climb Via SID”, “Descend Via STAR”, or
Additional Information. Within each briefing, you will have the option to return to this menu.

Exit Program



[Return To Briefing Topic Main Menu](#)

ICAO Climb Via SID

“Clearances to aircraft on a SID with remaining published level and/or speed restrictions shall indicate if such restrictions are to be followed or are cancelled.”

**The Use Of A SID Designator Without A Cleared Level
Does Not Authorize The Aircraft To Climb On The SID Vertical Profile**



ICAO Climb Via SID

Initial IFR Clearance – On Ground

Standard clearances for departing aircraft shall contain the following items:

- Aircraft identification;
- Clearance limit, normally destination aerodrome;
- Designator of the assigned SID, if applicable;
- Cleared level;
- Allocated SSR code;
- Any other necessary instructions or information not contained in the SID description, (e.g. instructions relating to change of frequency)

ATC	<i>"FASTAIR 345 CLEARED TO XXX, FLIGHT PLANNED ROUTE, DEPART RUNWAY 27, CLIMB VIA XXX DEPARTURE TO 5000 FEET, SQUAWK (CODE), WHEN AIRBORNE CONTACT DEPARTURE ON 128.17"</i>
Pilot	<i>"FASTAIR 345 CLEARED TO XXX, FLIGHT PLANNED ROUTE, DEPART RUNWAY 27, CLIMB VIA XXX DEPARTURE TO 5000 FEET, SQUAWK (CODE) , WHEN AIRBORNE CONTACT DEPARTURE ON 128.17"</i>

ICA0 Climb Via SID

SID With Altitude Restrictions

Initial ATC Clearance:

*“FASTAIR 345 CLEARED TO
XXX, (SID NAME) DEPARTURE
FLIGHT PLANNED ROUTE,
CLIMB VIA SID [TO]
(ALTITUDE), DEPART RUNWAY
TWO-SEVEN, SQUAWK
(CODE), WHEN AIRBORNE
CONTACT DEPARTURE ON
128.17”*

SID Without Altitude Restrictions

Initial ATC Clearance:

*“FASTAIR 345 CLEARED TO
XXX, (SID NAME) DEPARTURE
FLIGHT PLANNED ROUTE
CLIMB [TO] (ALTITUDE),
DEPART RUNWAY TWO-
SEVEN, SQUAWK (CODE),
WHEN AIRBORNE CONTACT
DEPARTURE ON 128.17”*

FAA – ICAO Differences

FAA

- Altitude is not issued if “Top Altitude” is published on the SID and pilot is expected to climb to the published “Top Altitude”
 - *“Climb Via CONNR Three departure”*
- ATC will issue an altitude with the Climb Via clearance only when necessary to issue a different “Top Altitude”
 - *“Climb Via CONNR Three departure except maintain one zero thousand”*

ICAO

- Cleared “level” **is always** included with a Climb Via clearance
- “Top Altitude” concept is not used
- “VIA” will no longer be used to describe the lateral route clearance
 - FASTAIR 1234, cleared to the Heathrow airport ~~via~~...
 - Avoid confusion with “Climb Via SID” clearance

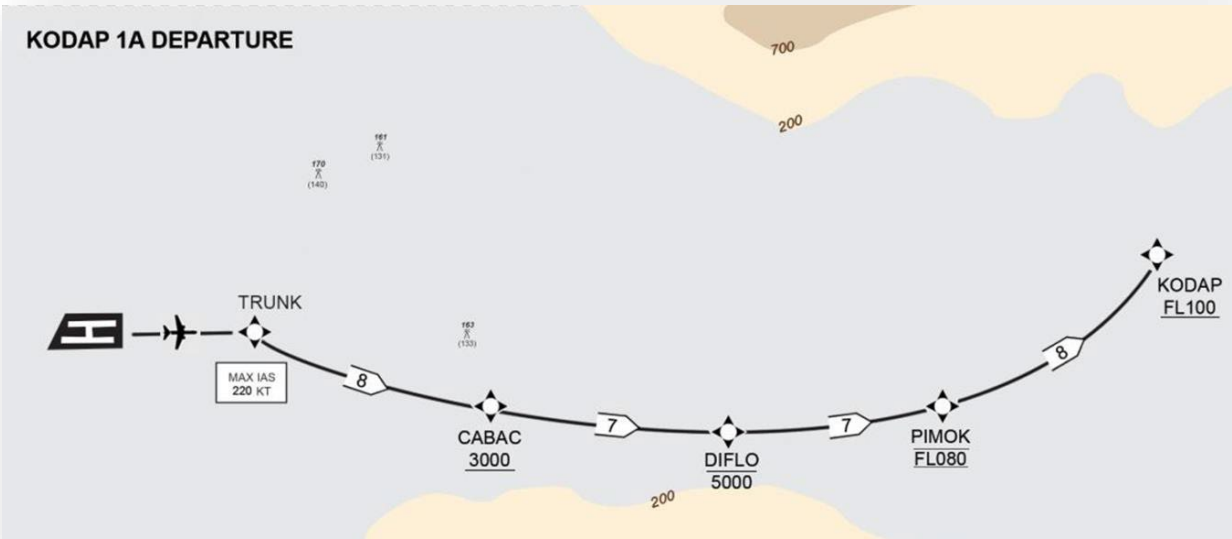
ICAO Climb Via SID

Airborne - Climb On A SID With Charted Restrictions

CLIMB VIA SID TO (level):

- Climb to the cleared level and comply with published level restrictions
- Follow the lateral profile of the SID
- Comply with published speed restrictions or ATC-issued speed control instructions as applicable





Context: FASTAIR 345 has been provided with ATC clearance and assigned SID KODAP 1A. FASTAIR 345 is airborne and climbing via SID to 5 000 feet.

ATC clearance and pilot read back

ATC	"FASTAIR 345 CLIMB VIA SID TO FL 100"
Pilot	"CLIMB VIA SID TO FL 100 FASTAIR 345"

Pilot anticipated action

FASTAIR 345 will climb to FL 100 and comply with all the published speed and level restrictions at or below FL 100.

FAA – ICAO Differences

FAA

- Altitude is not issued if “Top Altitude” is published on the SID and pilot is expected to climb to the published “Top Altitude”
 - *“Climb Via CONNR Three departure”*
- ATC will issue an altitude with the Climb Via clearance only when necessary to issue a different “Top Altitude”
 - *“Climb Via CONNR Three departure except maintain one zero thousand”*

ICAO

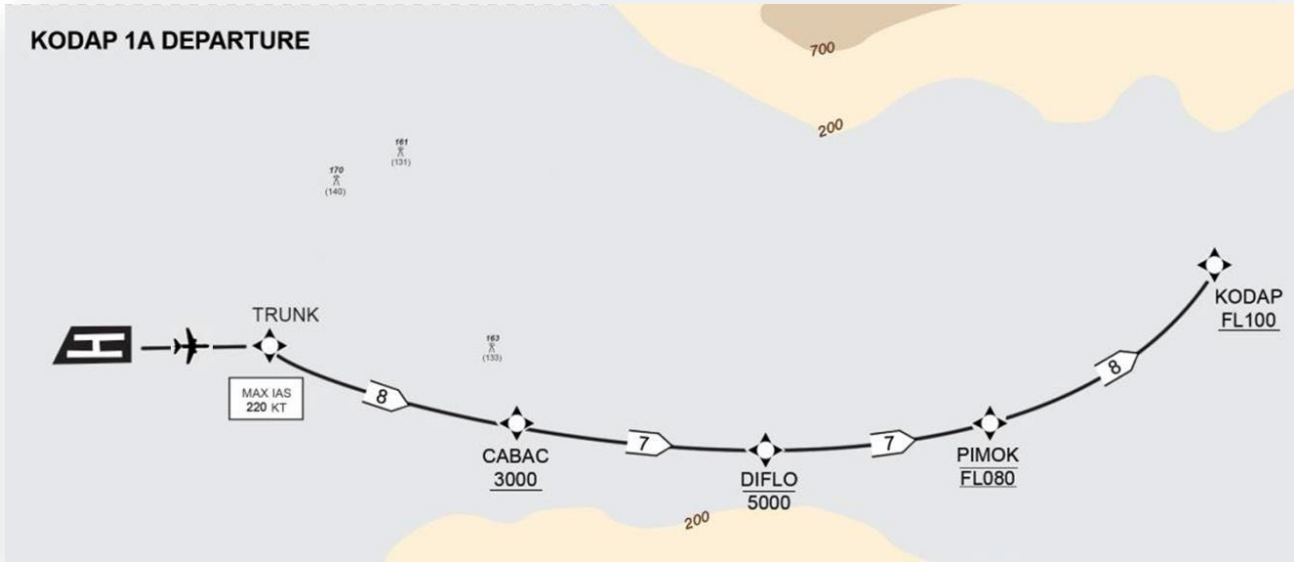
- Cleared “level” **is always** included with a Climb Via clearance
- “Top Altitude” concept is not used

ICAO Climb Via SID

Tactical Cancellation Of A Speed Restriction

CLIMB VIA SID TO (*level*), CANCEL SPEED RESTRICTION(S) AT (*point(s)*):

- Climb to the cleared level and comply with published level restrictions
- Follow the lateral profile of the SID
- Published speed restrictions are cancelled at the specified point(s).



Context: FASTAIR 345 has been provided with ATC clearance and assigned SID KODAP 1A. FASTAIR 345 is airborne and climbing via SID to 5 000 feet.

ATC clearance and pilot read back

ATC	"FASTAIR 345 CLIMB VIA SID TO FL 080 CANCEL SPEED RESTRICTION AT TRUNK"
Pilot	"CLIMB VIA SID TO FL 080 CANCEL SPEED RESTRICTION AT TRUNK FASTAIR 345"

Pilot anticipated action

FASTAIR 345 will climb to FL 080 while complying with all the restrictions on the SID at or below FL 080, with the exception of the SPEED restriction at TRUNK.

FAA – ICAO Differences

FAA

- Uses “*Climb Via, Except*” to delete a published speed restriction at a fix.
 - *Climb via LEETZ Five departure, except delete speed restriction at HUCKK*”

ICAO

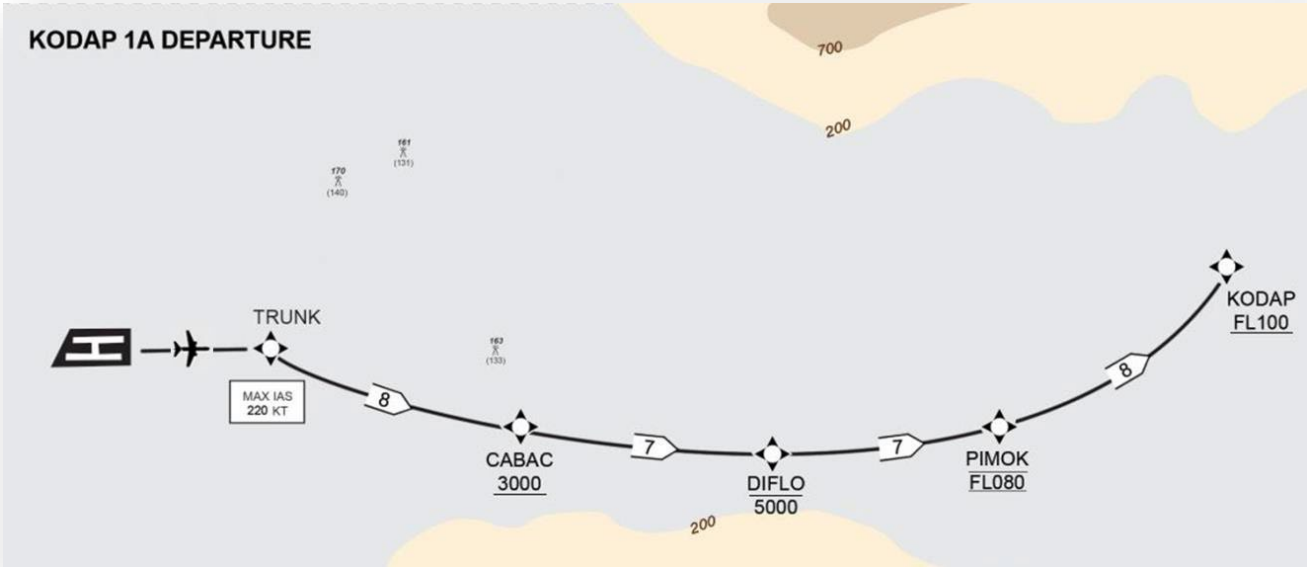
- Cleared “level” **is always** included with a Climb Via clearance
- ICAO uses “*CANCEL*” vs. “*DELETE*”
- ICAO uses “AT (point)” to designate the fix where the speed restriction is canceled

ICAO Climb Via SID

Tactical Cancellation Of A Level Restriction

CLIMB VIA SID TO (*level*), CANCEL LEVEL RESTRICTION(S) AT (*point(s)*):

- Climb to the cleared level, published level restriction(s) at the specified point(s) are cancelled
- Follow the lateral profile of the SID
- Comply with published speed restrictions or ATC-issued speed control instructions as applicable



Context: FASTAIR 345 has been provided with ATC clearance and assigned SID KODAP 1A. FASTAIR 345 is airborne and climbing via SID to 5 000 feet.

ATC clearance and pilot read back

ATC	<i>"FASTAIR 345 CLIMB VIA SID TO FL 070 CANCEL LEVEL RESTRICTION AT DIFLO"</i>
Pilot	<i>"CLIMB VIA SID TO FL 070 CANCEL LEVEL RESTRICTION AT DIFLO FASTAIR 345"</i>

Pilot anticipated action

FASTAIR 345 will climb to FL 070 and comply with all speed and level restrictions on the SID at or below FL 070, with the exception of the LEVEL restriction at DIFLO.

FAA – ICAO Differences

FAA

- Uses “*Climb Via, Except*” to delete a published altitude restriction at a fix.
 - *Climb via LEETZ Five departure, except delete altitude restriction at ZEETA*”

ICAO

- Cleared “level” **is always** included with a Climb Via clearance
- ICAO uses “*CANCEL*” vs. “*DELETE*”
- ICAO uses “AT (point)” to designate the fix where the level restriction is canceled

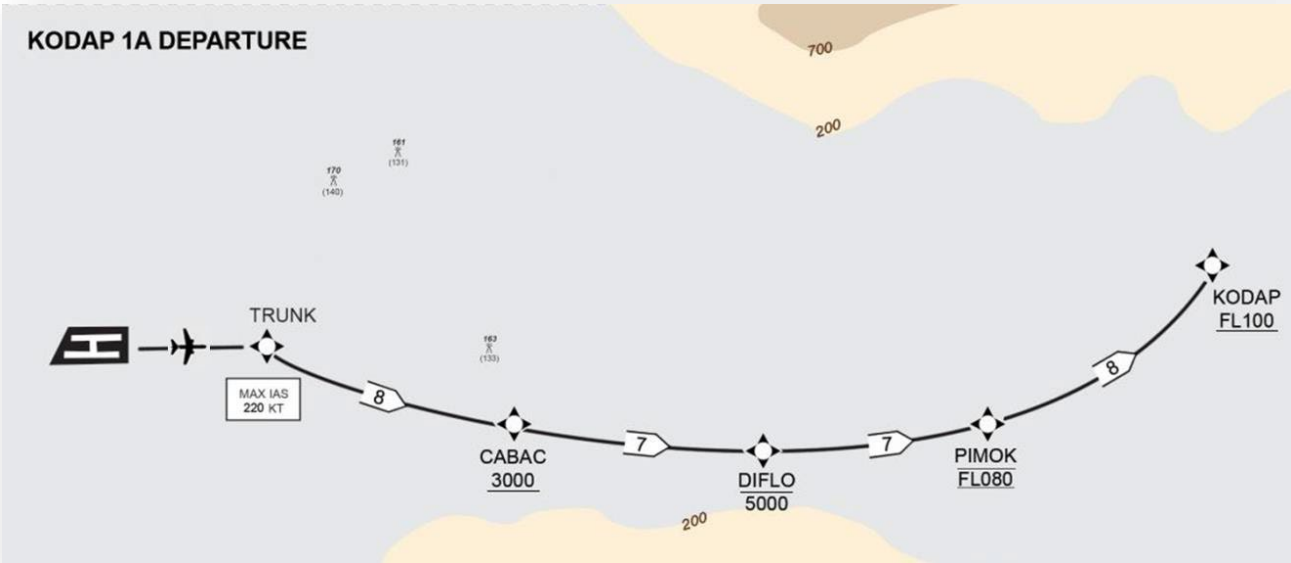
ICAO Climb Via SID

Cancellation of all restrictions below the cleared level

CLIMB UNRESTRICTED TO (*level*) **or**

CLIMB TO (*level*), CANCEL LEVEL AND SPEED RESTRICTION(S):

- Climb to the cleared level, published level restrictions are cancelled
- Follow the lateral profile of the SID
- Published speed restrictions and ATC-issued speed control instructions are cancelled



Context: FASTAIR 345 has been provided with ATC clearance and assigned SID KODAP 1A. FASTAIR 345 is airborne and climbing via SID to 5 000 feet.

ATC clearance and pilot read back

ATC	"FASTAIR 345 CLIMB UNRESTRICTED TO FL 070" or "FASTAIR 345 CLIMB TO FL 070 CANCEL LEVEL AND SPEED RESTRICTIONS"
Pilot	"CLIMB UNRESTRICTED TO FL 070 FASTAIR 345" or "CLIMB TO FL 070 CANCEL LEVEL AND SPEED RESTRICTIONS FASTAIR 345"

Pilot anticipated action

FASTAIR 345 will climb to FL 070 and is not required to meet the restrictions at FL 070 feet or below.

FAA – ICAO Differences

FAA

- “*Climb And Maintain*” clearance, pilot is expected to vacate current altitude and commence an unrestricted climb to comply with the clearance. For aircraft already climbing via a SID, published altitude restrictions are deleted unless reissued by ATC. Pilots must comply with published speed restrictions
- “Delete Speed Restrictions” cancels ATC assigned or published speed restrictions
- FAA equivalent clearance: “*Climb and maintain six thousand, delete speed restrictions*”

ICAO

- Two separate options for phraseology:
 - CLIMB UNRESTRICTED TO (*level*) or
 - CLIMB TO (*level*), CANCEL LEVEL AND SPEED RESTRICTION(S)
- Cancels both published level and published/ATC-assigned speed restrictions
- Cleared “level” is always included with a Climb Via clearance

ICAO Climb Via SID

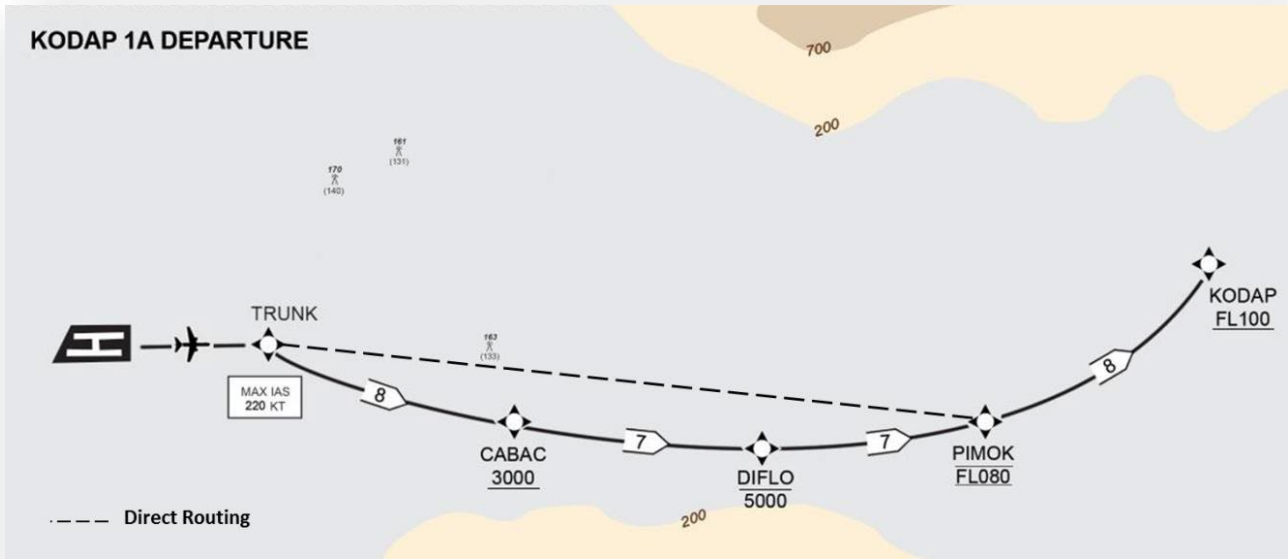
Climb To <Level>

- When no charted restrictions exist, or when there are no other remaining published restrictions, nor remaining level or speed restrictions on the SID, the phrase “CLIMB TO (Level)” or should be used

ICAO Climb Via SID

Proceeding direct to a point on SID

When a departing aircraft is cleared to proceed direct to a published waypoint on the SID, the speed and level restrictions associated with the bypassed waypoints are cancelled. All remaining published speed and level restrictions shall remain applicable.



Context: FASTAIR 345 has been provided with ATC clearance and assigned SID KODAP 1A. FASTAIR 345 is airborne and climbing via SID to 5 000 feet.

ATC clearance and pilot read back

ATC	"FASTAIR 345 PROCEED DIRECT PIMOK CLIMB VIA SID TO FL 120"
Pilot	"PROCEED DIRECT PIMOK CLIMB VIA SID TO FL 120 FASTAIR 345"

Pilot anticipated action

FASTAIR 345 will proceed direct to PIMOK and climb to FL 120. FASTAIR 345 is not required to comply with the published level or speed restrictions at waypoints being by-passed.

FASTAIR 345 must however comply with all the published level and speed restrictions at and after PIMOK.

FAA – ICAO Differences

FAA

- If the fix has a published altitude restriction:
 - *“Proceed direct DVINE, climb via the Suzan Two departure.”*
 - Comply with published restriction at DIVNE
- If the fix does not have a published altitude restriction, ATC will assign an altitude to cross the fix:
 - *“Proceed direct ROCKR, cross ROCKR at or above one-zero thousand, climb via the BIZEE Two departure.”*
- “Top Altitude” is not stated unless changed by ATC:
 - *“Proceed direct ROCKR, cross ROCKR at or above one-zero thousand, climb via the BIZEE Two departure, except maintain flight level two three zero”*

ICAO

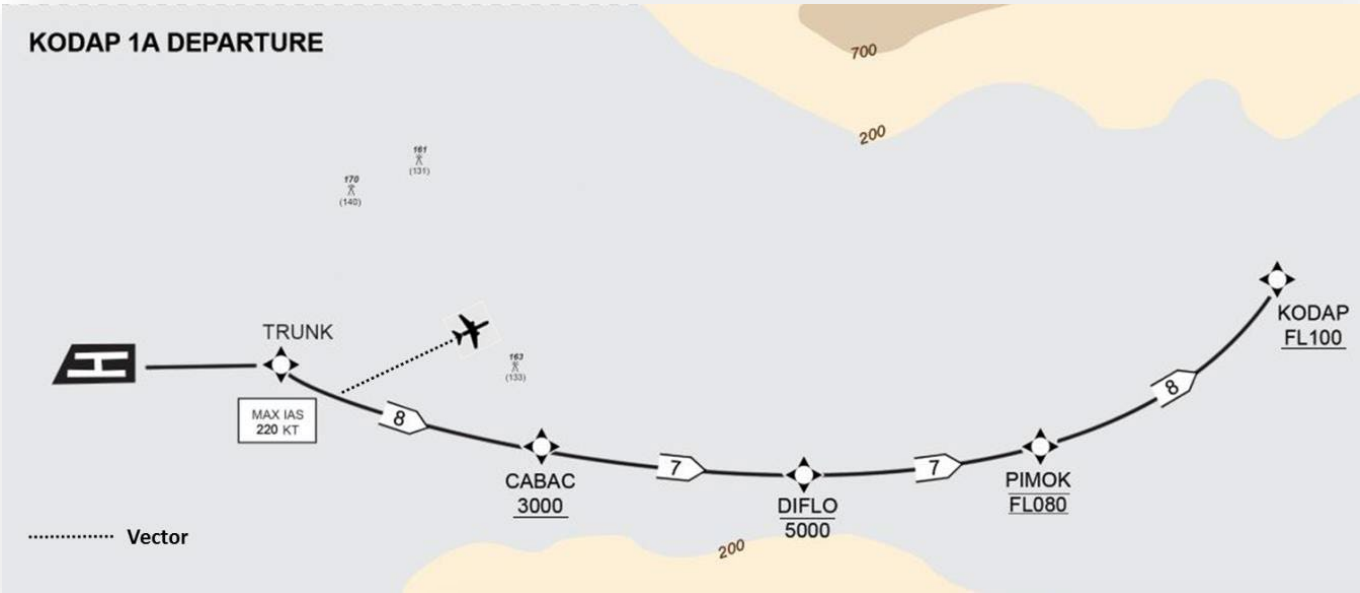
- Uses “Climb Via SID”. Will not include procedure by name
- Cleared “level” is always included with a Climb Via clearance

ICAO Climb Via SID

Vector flight off a SID

When a departing aircraft is vectored or cleared to proceed to a point that is not on the SID, all the published speed and level restrictions of the SID are cancelled and the controller shall:

- Reiterate the cleared level
- Provide speed and level restrictions as necessary
- Notify the pilot if it is expected that the aircraft will be instructed to subsequently rejoin the SID



Context: FASTAIR 345 has previously been cleared to climb via SID KODAP 1A to 5 000 feet and ATC vectors FASTAIR 345 off the SID. ATC intends that FASTAIR 345 to rejoin the SID.

ATC clearance and pilot read back

ATC	"FASTAIR 345 TURN LEFT HEADING 0-6-0 DUE TRAFFIC CLIMB TO FL 080 EXPECT TO REJOIN SID"
Pilot	"TURN LEFT HEADING 0-6-0 CLIMB TO FL 080 FASTAIR 345"

Pilot anticipated action

FASTAIR 345 will turn left heading 060° and climb to FL 080. All SID restrictions are cancelled. The pilot will retain the SID in the FMS for future rejoin instructions.

FAA – ICAO Differences

FAA

- Phraseology:
 - *“Lear four five lima juliet, fly heading zero-two-zero, maintain one two thousand, expect to resume the LEETZ Four departure”*
 - *“Lear four five lima juliet, deviations left of course approved , maintain one two thousand, expect to resume the LEETZ Four departure at LEETZ”*

ICAO

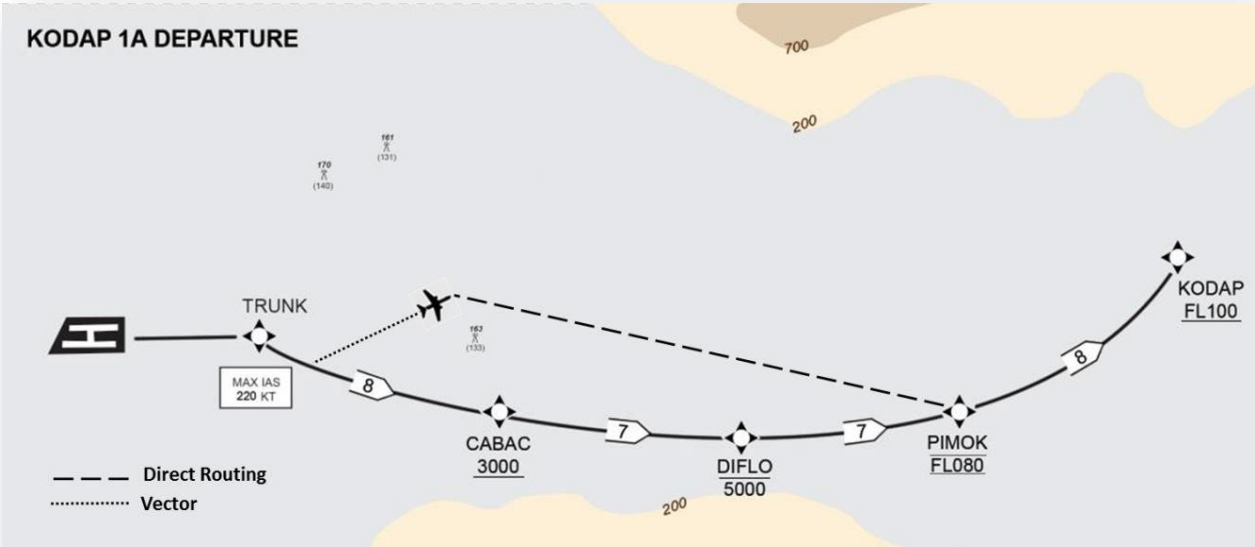
- ICAO phraseology *“EXPECT TO REJOIN SID”*
- Omits the SID procedure name

ICAO Climb Via SID

SID Rejoin Instructions

ATC instructions to an aircraft to rejoin a SID shall include:

- The designator of the SID to be rejoined unless advance notification of rejoin has been provided
- The cleared level
- The position at which it is expected to rejoin the SID



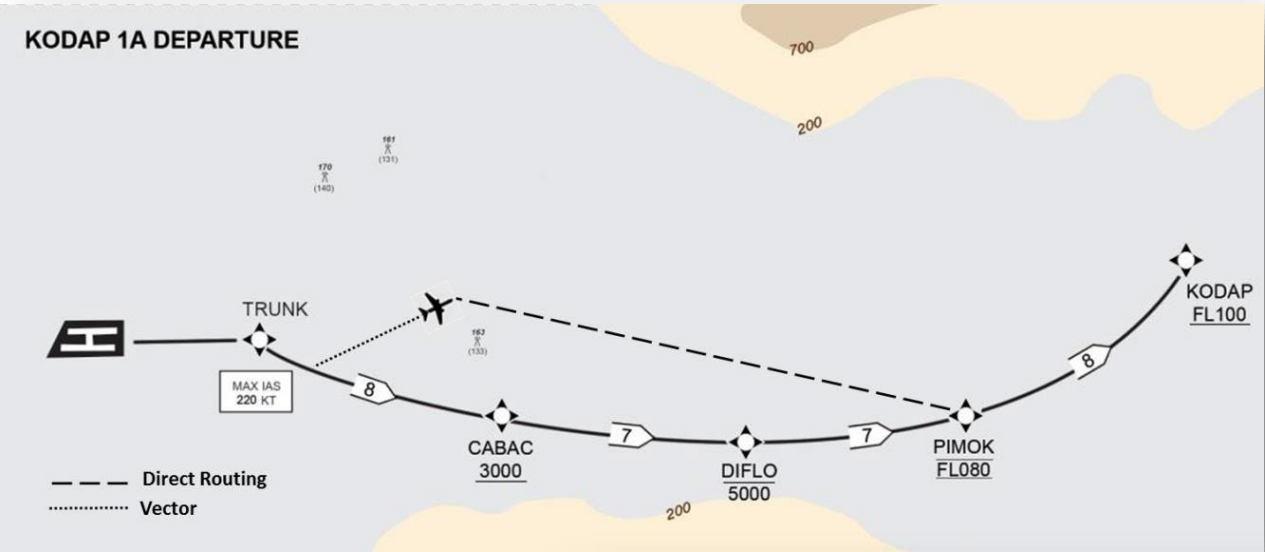
Context: FASTAIR 345 has been provided with ATC clearance and assigned SID KODAP 1A. FASTAIR 345 is airborne and climbing via SID to 5 000 feet.

ATC clearance and pilot read back

ATC	"FASTAIR 345 TURN LEFT HEADING 0-6-0 DUE TRAFFIC CLIMB TO FL 080"
Pilot	"TURN LEFT HEADING 0-6-0 CLIMB TO FL 080 FASTAIR 345"

Pilot anticipated action

FASTAIR 345 will turn left heading 060° and climb to FL 080. All SID restrictions are cancelled.



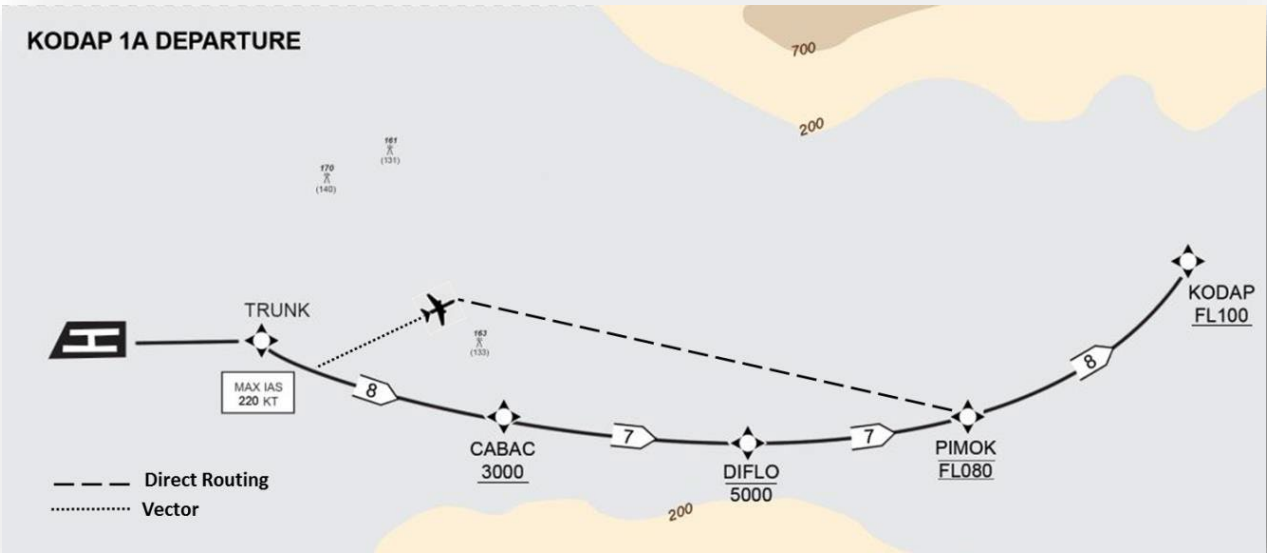
Context: FASTAIR 345 was vectored off the SID and **was not** advised to expect to rejoin SID KODAP 1A. FASTAIR 345 is flying on heading 060° and climbing to FL 080 when ATC instructs FASTAIR 345 to rejoin SID KODAP 1A at PIMOK.

ATC clearance and pilot read back

ATC	"FASTAIR 345 PROCEED DIRECT PIMOK REJOIN <u>KODAP 1A DEPARTURE</u> CLIMB VIA SID TO FL 120"
Pilot	"PROCEED DIRECT PIMOK REJOIN <u>KODAP 1A DEPARTURE</u> CLIMB VIA SID TO FL 120, FASTAIR 345"

Pilot anticipated action

FASTAIR 345 will climb to FL 080, proceed direct to PIMOK to REJOIN KODAP 1A DEPARTURE and comply with all published level and speed restrictions at and after PIMOK. Complying with the restrictions, FASTAIR 345 will climb to FL 120 **after** PIMOK.



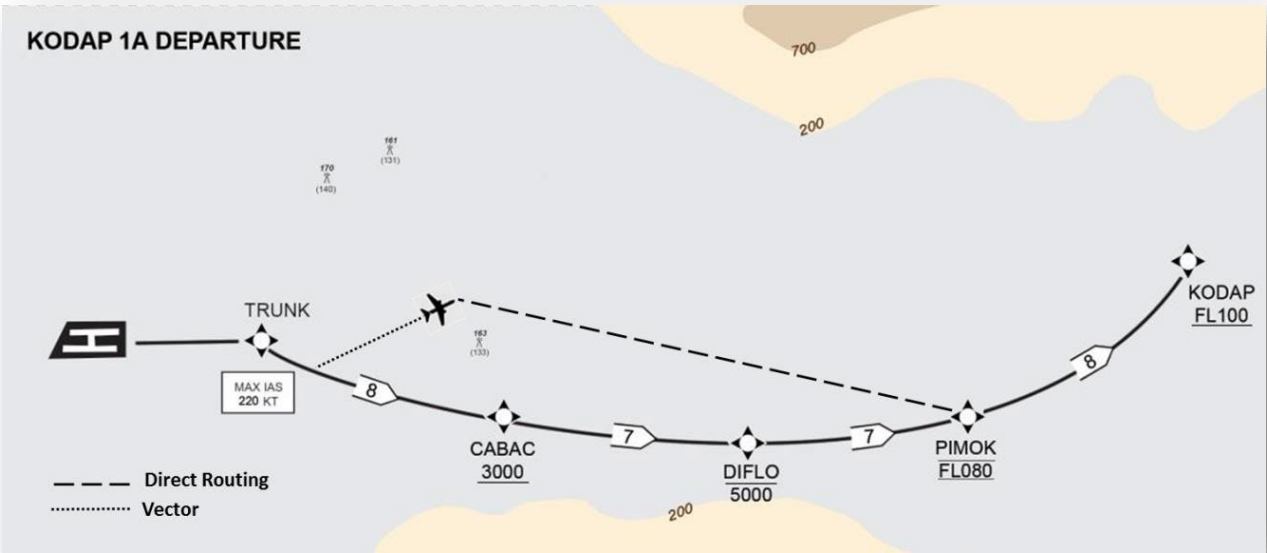
Context: FASTAIR 345 has been provided with ATC clearance and assigned SID KODAP 1A. FASTAIR 345 is airborne and climbing via SID to 5 000 feet.

ATC clearance and pilot read back

ATC	"FASTAIR 345 TURN LEFT HEADING 0-6-0 DUE TRAFFIC CLIMB TO FL 080 EXPECT REJOIN SID "
Pilot	"TURN LEFT HEADING 0-6-0 CLIMB TO FL 080, FASTAIR 345"

Pilot anticipated action

FASTAIR 345 will turn left heading 060° and climb to FL 080. All SID restrictions are cancelled.



Context: FASTAIR 345 was vectored off the SID and **was advised to expect to rejoin SID.** FASTAIR 345 is flying on 060° and climbing to FL 080 when ATC instructs FASTAIR 345 to rejoin SID at PIMOK.

ATC clearance and pilot read back

ATC	"FASTAIR 345 PROCEED DIRECT PIMOK REJOIN SID CLIMB VIA SID TO FL 120"
Pilot	"PROCEED DIRECT PIMOK REJOIN SID CLIMB VIA SID TO FL 120 FASTAIR 345"

Pilot anticipated action

FASTAIR 345 will climb to FL 080, proceed direct to PIMOK to REJOIN SID and comply with all published level and speed restrictions at and after PIMOK. Complying with the restrictions, FASTAIR 345 will climb to FL 120 after PIMOK.

FAA – ICAO Differences

FAA

- FAA does not use “*Rejoin*” or “*Resume*” phraseology in conjunction with a “*Climb Via...*” clearance.
- “*Climb Via*” is a clearance to rejoin the SID’s lateral path.
- An altitude will not be issued unless it is necessary to change the “Top Altitude”:
 - “*Proceed direct ROCKR, cross ROCKR at or above one-zero thousand, climb via the BIZEE Two departure, except maintain flight level two three zero*”

ICAO

- Both “*Rejoin SID*” & “*Climb Via SID*” used in the clearance
- If aircraft was not told to expect to rejoin SID, name of the procedure will be included in the clearance:
 - “*Proceed Direct PIMOK, Rejoin KODAP 1A Departure, Climb Via SID To FL 120*”
- If aircraft was told to expect to rejoin, procedure name is excluded:
 - “*Proceed Direct PIMOK Rejoin SID, Climb Via SID To FL 120*”
- A **level will always** be issued with the “Climb Via SID” clearance

ICAO Descend Via STAR

“Clearances to aircraft on a STAR with remaining published level and/or speed restrictions shall indicate if such restrictions are to be followed or are cancelled. The following phraseologies shall be used with the following meaning.”



ICAO Descend Via STAR

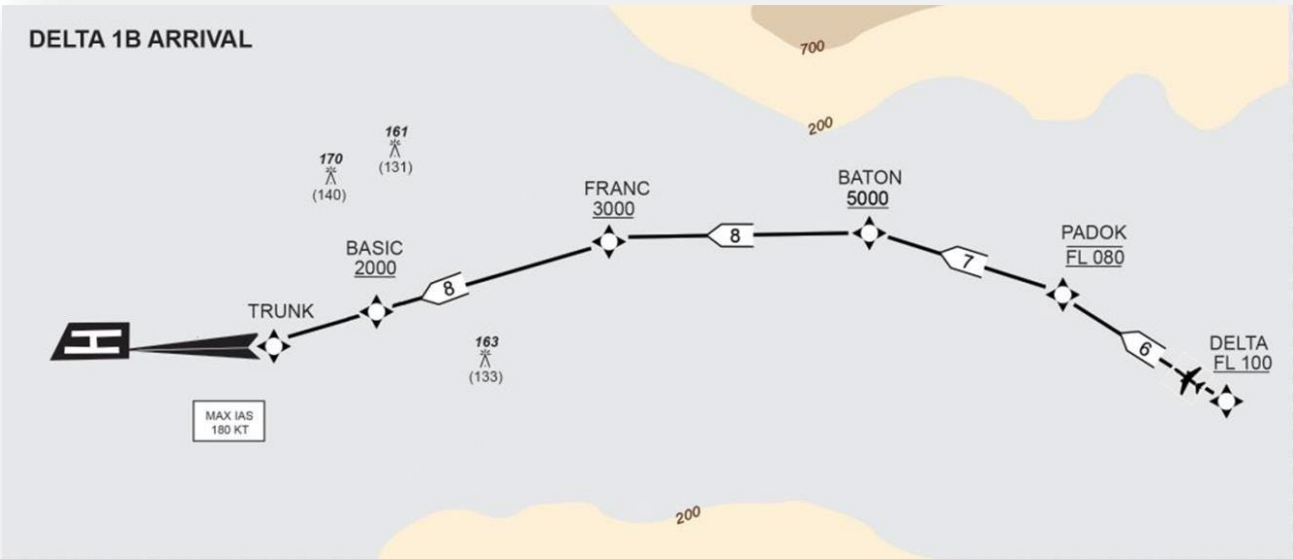
Descent Via A STAR With Charted Restrictions

DESCEND VIA STAR TO (level):

- Descend to the cleared level and comply with published level restrictions
- Follow the lateral profile of the STAR
- Comply with published speed restrictions or ATC-issued speed control instructions as applicable

**“Descend Via STAR To (Level)” Is NOT A Pilot’s Discretion Descent.
Pilots Must Commence Descent Upon Receipt of Clearance.**

Exception: Canada



Context: FASTAIR 345 has previously been cleared to descend via STAR DELTA 1B to FL 080 and complying with the charted restrictions.

ATC clearance and pilot read back

ATC	"FASTAIR 345 DESCEND VIA STAR TO 3 000 FEET"
Pilot	"DESCEND VIA STAR TO 3 000 FEET FASTAIR 345"

Pilot anticipated action

FASTAIR 345 will descend to 3 000 feet and comply with all the speed and level restrictions at or above 3 000 feet.

FAA – ICAO Differences

FAA

- “*Descend Via*” authorizes the pilot to descend at pilot’s discretion to meet published restrictions and laterally navigate on a STAR
- “*Descend Via*” includes the name of the arrival
- “Bottom Altitude” is not provided in the “*Descend Via*” clearance unless ATC assigns a new “Bottom Altitude”

ICAO

- Cleared level is always assigned in the “*Descend Via STAR*” clearance
- Procedure name is not included in the clearance
- “*Descend Via STAR*” is not a pilot’s discretion descent clearance. Pilot’s must begin descent and vacate previously assigned altitude upon acknowledgment of the clearance
 - EXCEPTION CANADA – Canada is harmonizing with FAA’s application of “*Descend Via STAR*”

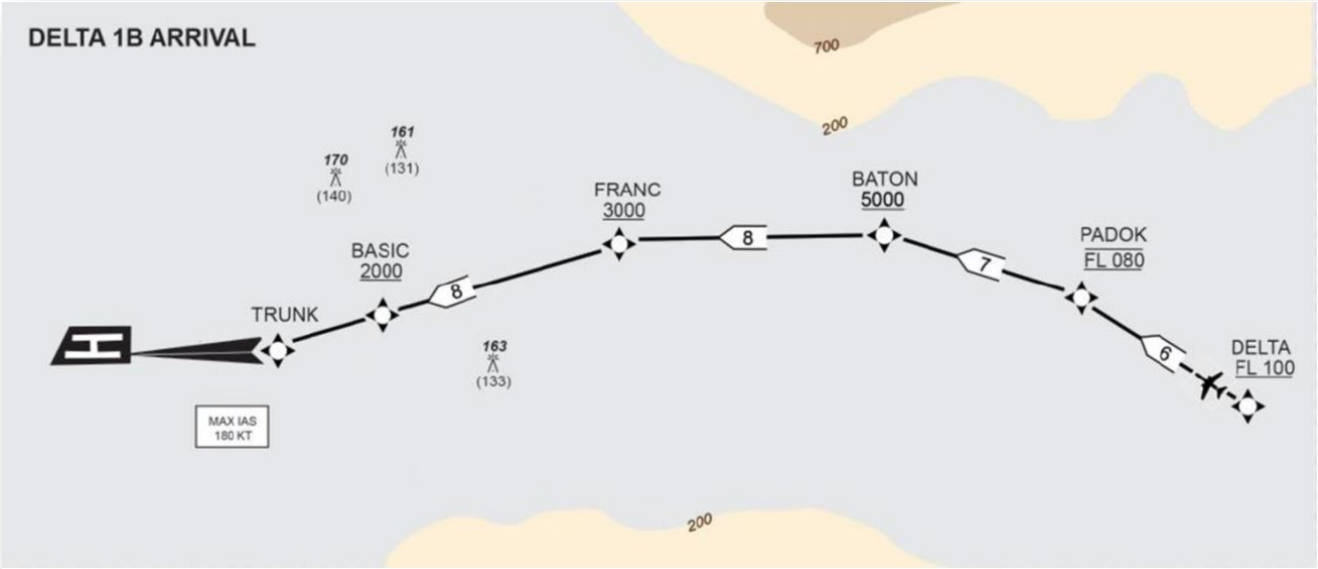
ICAO Descend Via STAR

Descent Via A STAR With Charted Restrictions

WHEN READY *DESCEND VIA STAR TO (level):*

- Descend to the cleared level and comply with published level restrictions
- Follow the lateral profile of the STAR
- Comply with published speed restrictions or ATC-issued speed control instructions as applicable

**The Addition of “When Ready” To The Descend Via STAR Clearance
Authorizes A Descent At Pilot’s Discretion**



ATC clearance and pilot read back

ATC	"FASTAIR 345 WHEN READY , DESCEND VIA STAR TO 5 000 FEET"
Pilot	"WHEN READY DESCEND VIA STAR TO 5 000 FEET FASTAIR 345"

Subsequently...

ATC	"FASTAIR 345 DESCEND VIA STAR TO 3 000 FEET"
Pilot	"DESCEND VIA STAR TO 3 000 FEET FASTAIR 345"

Pilot anticipated action

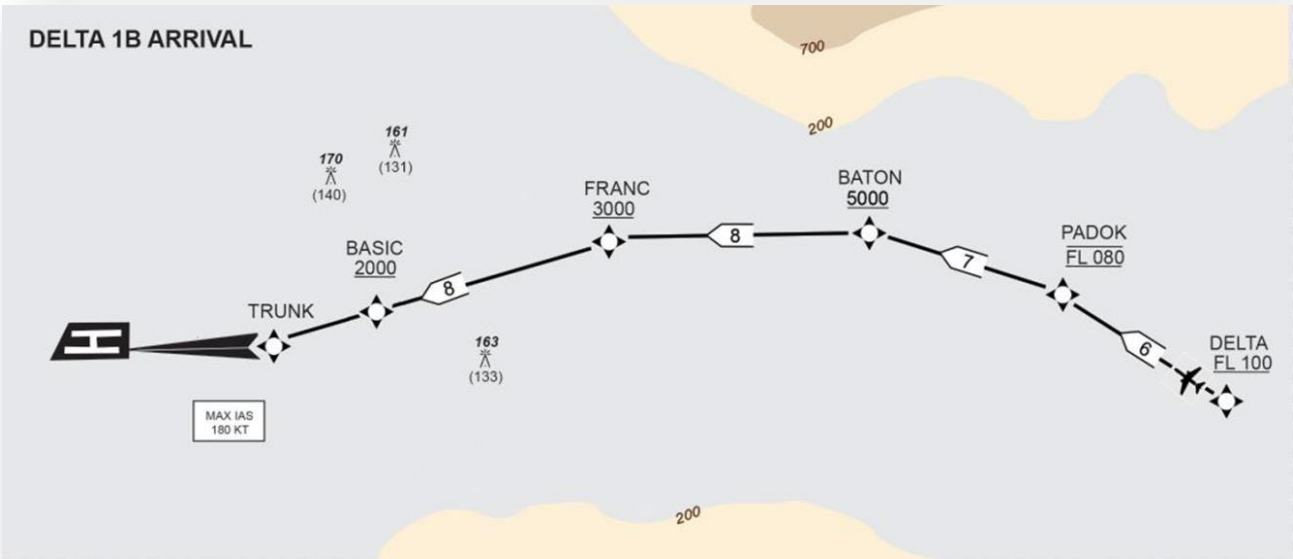
FASTAIR 345 will **descend to 5 000 feet when ready** while complying with all the speed and level restrictions at 5 000 feet or above. Subsequently, FASTAIR 345 will descend to 3 000 feet and comply with all the speed and level restrictions at or above 3 000 feet.

ICAO Descend Via STAR

Tactical Cancellation Of A Speed Restriction

DESCEND VIA STAR TO (*level*), CANCEL SPEED RESTRICTION(S) AT (*point(s)*):

- Descend to the cleared level and comply with published level restrictions
- Follow the lateral profile of the STAR
- Published speed restrictions are cancelled at the specified point(s)



Context: FASTAIR 345 has previously been cleared to descend via STAR DELTA 1B to FL 080 and complying with the charted restrictions.

ATC clearance and pilot read back

ATC	"FASTAIR 345 DESCEND VIA STAR TO 2 000 FEET CANCEL SPEED RESTRICTION AT TRUNK"
Pilot	"DESCEND VIA STAR TO 2 000 FEET CANCEL SPEED RESTRICTION AT TRUNK FASTAIR 345"

Pilot anticipated action

FASTAIR 345 will descend to 2 000 feet while complying with all the restrictions on the STAR, with the exception of the SPEED restriction at TRUNK.

FAA – ICAO Differences

FAA

- FAA uses “*Delete Speed Restriction at <waypoint>*” to delete a speed restriction at a single waypoint
- When either ATC assigned speed adjustments or published speed restrictions are no longer required, ATC will state “*Delete Speed Restrictions*”, which deletes all published & ATC-assigned speed restrictions

ICAO

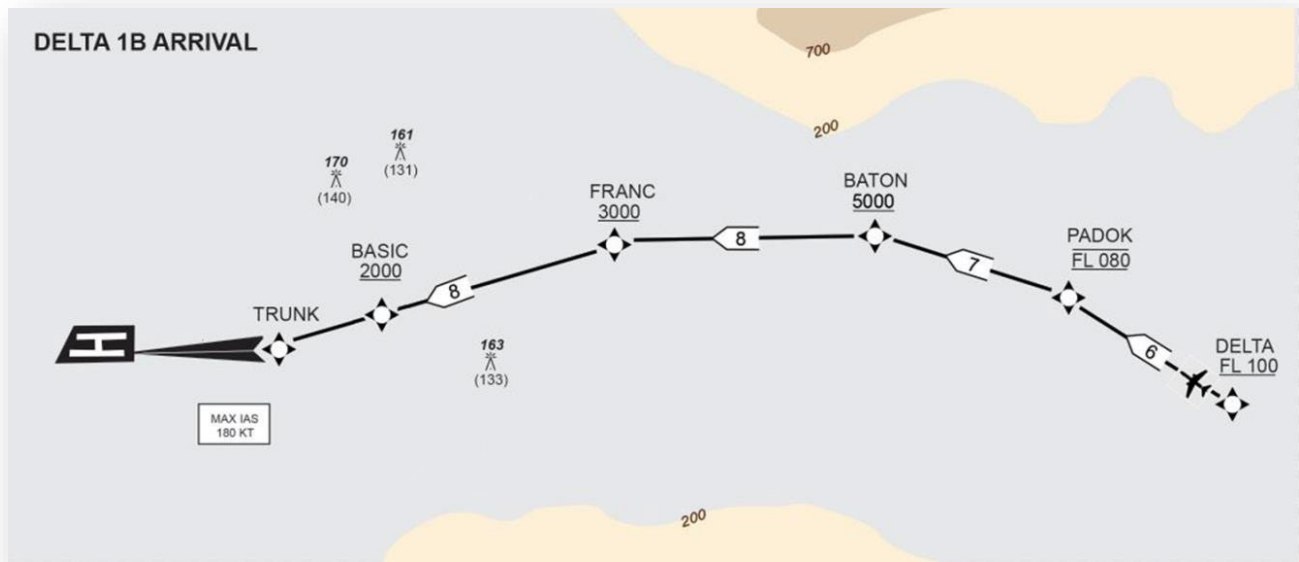
- Uses “Cancel” instead of “Delete”

ICAO Descend Via STAR

Tactical Cancellation Of A Level Restriction

DESCEND VIA STAR TO (*level*), CANCEL LEVEL RESTRICTION(S) AT (*point(s)*):

- Descend to the cleared level, published level restriction(s) at the specified point(s) are cancelled;
- Follow the lateral profile of the STAR; and
- Comply with published speed restrictions or ATC-issued speed control instructions as applicable



Context: FASTAIR 345 has previously been cleared to descend via STAR DELTA 1B to FL 080 and complying with the charted restrictions.

ATC clearance and pilot read back

ATC	"FASTAIR 345 DESCEND VIA STAR TO 2 000 FEET CANCEL LEVEL RESTRICTION AT BATON"
Pilot	"DESCEND VIA STAR TO 2 000 FEET CANCEL LEVEL RESTRICTION AT BATON FASTAIR 345"

Pilot anticipated action

FASTAIR 345 will descend to 2 000 feet while complying with all the restrictions on the STAR, with the exception of the LEVEL restriction at BATON.

FAA – ICAO Differences

FAA

- FAA uses “*Delete Altitude Restriction at <waypoint>*”
- ATC will restate “*Descend Via*” and then use “*except*” or “*except maintain*” phraseology to modify published restrictions or assign a new bottom altitude
- If altitude restrictions are no longer applicable, the controller issues an amended clearance as follows
“*Descend and maintain one four thousand*”

ICAO

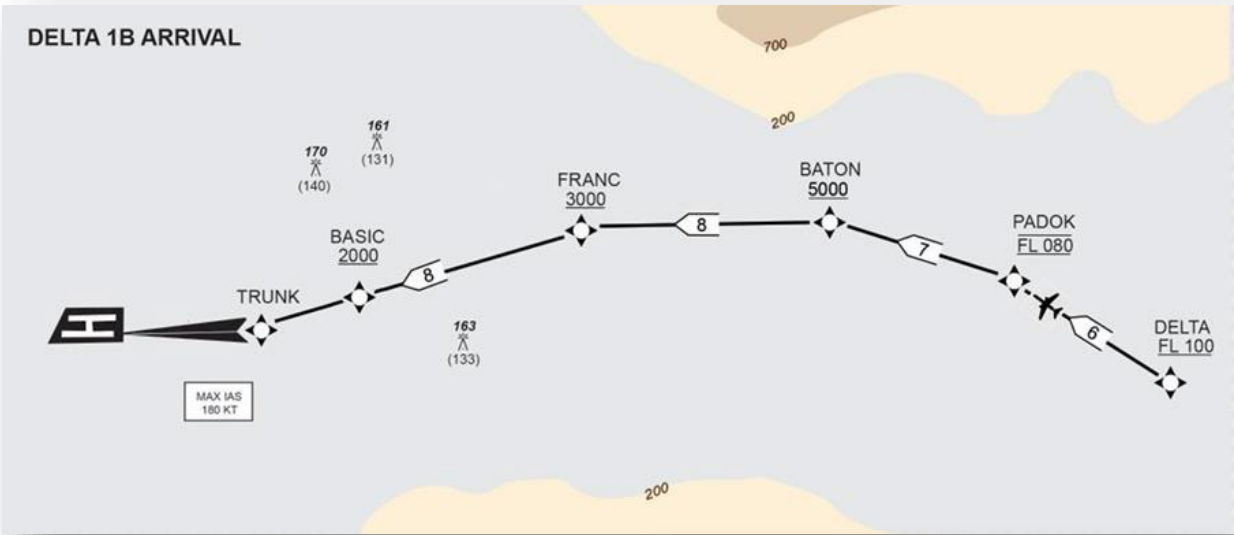
- Uses “Cancel” instead of “Delete”

ICAO Descend Via STAR

Cancellation Of All Restrictions Above The Cleared Level

DESCEND UNRESTRICTED TO *(level)* or DESCEND TO *(level)*, CANCEL LEVEL AND SPEED RESTRICTION(S):

- Descend to the cleared level, published level restrictions are cancelled
- Follow the lateral profile of the STAR
- Published speed restrictions and ATC-issued speed control instructions are cancelled



Context: FASTAIR 345 has previously been cleared to descend via STAR DELTA 1B to FL 080 and complying with the charted restrictions.

ATC clearance and pilot read back

ATC	"FASTAIR 345 DESCEND UNRESTRICTED TO 4 000 FEET" or "FASTAIR 345 DESCEND TO 4 000 FEET CANCEL LEVEL AND SPEED RESTRICTIONS"
Pilot	"DESCEND UNRESTRICTED TO 4 000 FEET FASTAIR 345" or "DESCEND TO 4 000 FEET CANCEL LEVEL AND SPEED RESTRICTIONS FASTAIR 345"

Subsequently...

ATC	"FASTAIR 345 DESCEND VIA STAR TO 3 000 FEET"
Pilot	"DESCEND VIA STAR TO 3 000 FEET FASTAIR 345"

Pilot anticipated action

FASTAIR 345 will descend **unrestricted to 4 000 feet** and is not required to meet the level and speed restrictions above 4 000 feet.

FAA – ICAO Differences

FAA

- “*Descend And Maintain*” clearance, pilot is expected to vacate current altitude and commence an unrestricted descent to comply with the clearance. For aircraft already descending via a STAR, published altitude restrictions are deleted unless reissued by ATC. Pilots must comply with published speed restrictions
- “*Delete Speed Restrictions*” cancels ATC assigned or published speed restrictions
- FAA equivalent clearance: “*Descend and maintain six thousand, delete speed restrictions*”

ICAO

- Two separate options for phraseology:
 - *DESCEND UNRESTRICTED TO (level) or*
 - *DESCEND TO (level), CANCEL LEVEL AND SPEED RESTRICTION(S)*
- Clearance cancels both published altitude restrictions and published/ATC-assigned speed restrictions

ICAO Descend Via STAR

Descend To <Level>

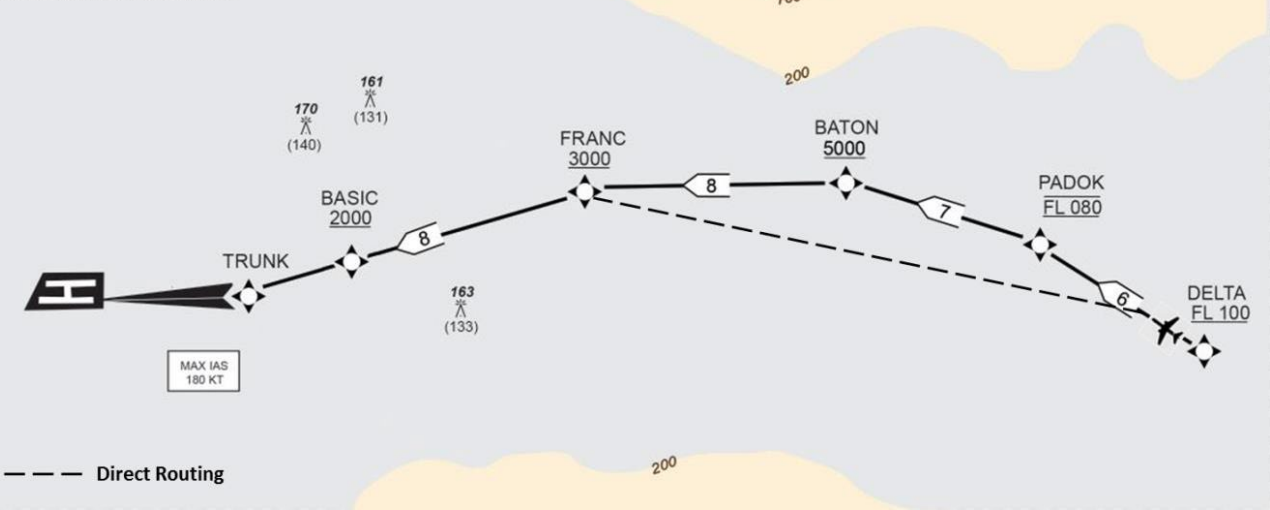
- When no charted restrictions exist, or when there are no other remaining published restrictions, nor remaining level or speed restrictions on the STAR, the phrase or “DESCEND TO (Level)” should be used

ICAO Descend Via STAR

Proceeding Direct To A Point On STAR

When an arriving aircraft is cleared to proceed direct to a published waypoint on the STAR, the speed and level restrictions associated with the bypassed waypoints are cancelled. All remaining published speed and level restrictions shall remain applicable

DELTA 1B ARRIVAL



Context: FASTAIR 345 has previously been cleared to descend via STAR DELTA 1B to FL 080 and complying with the charted restrictions.

ATC clearance and pilot read back

ATC	<i>"FASTAIR 345 PROCEED DIRECT FRANC DESCEND VIA STAR TO 3 000 FEET"</i>
Pilot	<i>"PROCEED DIRECT FRANC DESCEND VIA STAR TO 3 000 FEET FASTAIR 345"</i>

Pilot anticipated action

FASTAIR 345 will proceed direct to FRANC and descend to 3 000 feet. FASTAIR 345 is not required to comply with the published level or speed restrictions at waypoints being bypassed.

FASTAIR 345 must however comply with all published level and speed restrictions at and after FRANC.

FAA – ICAO Differences

FAA

- FAA uses the STAR arrival name
- An altitude is not included in the “Descend Via” clearance unless the “Bottom Altitude” is changed by ATC
- An altitude will be assigned to cross the fix that the aircraft is cleared direct to if no altitude restriction is published at the fix:
 - *“Proceed direct Denis, cross Denis at or above flight level two zero zero, then descend via the MMELL One arrival.”*

ICAO

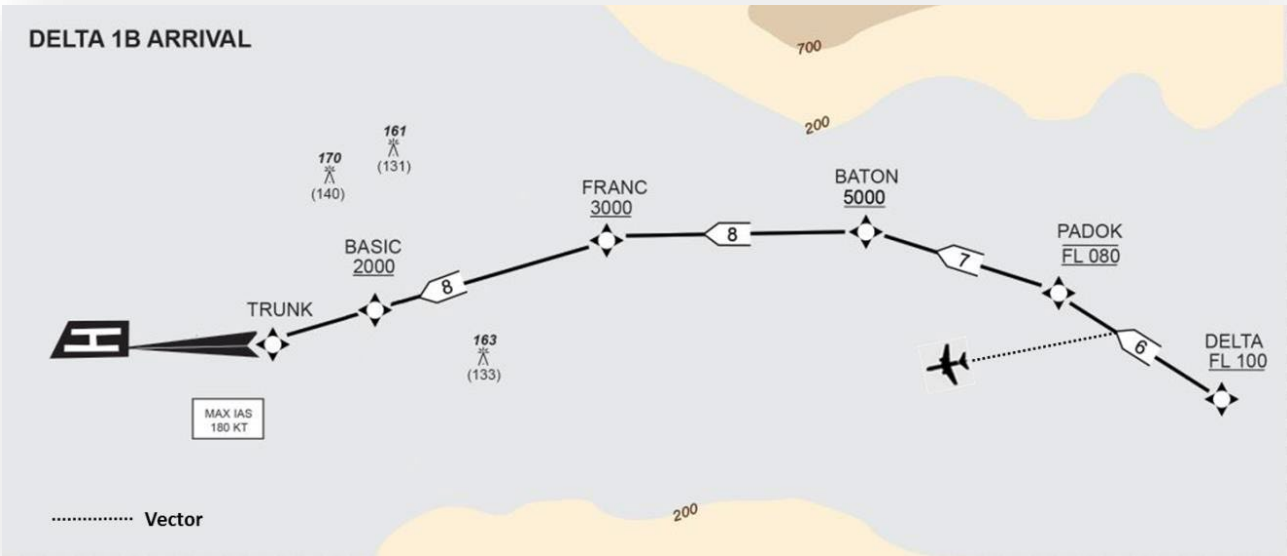
- Cleared level is always assigned in the “*Descend Via STAR*” clearance

ICAO Descend Via STAR

Vector Flight Off A STAR

When an arriving aircraft is vectored or cleared to proceed to a point that is not on the STAR, all the published speed and level restrictions of the STAR are cancelled and the controller shall:

- Reiterate the cleared level
- Provide speed and level restrictions as necessary
- Notify the pilot if it is expected that the aircraft will be instructed to subsequently rejoin the STAR



Context: FASTAIR 345 has previously been cleared to descend via STAR DELTA 1B to FL 080 and ATC vectors FASTAIR 345 off the STAR. ATC intends that FASTAIR 345 will rejoin the STAR.

ATC clearance and pilot read back

ATC	"FASTAIR 345 TURN LEFT HEADING 2-6-0 DUE TRAFFIC DESCEND TO 5 000 FEET EXPECT TO REJOIN STAR AT FRANC"
Pilot	"TURN LEFT HEADING 2-6-0 DESCEND TO 5 000 FEET FASTAIR 345"

Pilot anticipated action

FASTAIR 345 will turn left heading 260° and descend to 5 000 feet. All the STAR restrictions are cancelled. The pilot will retain the STAR in the FMS for future rejoin instructions.

FAA – ICAO Differences

FAA

- FAA states the procedure by name:
 - *“Gulfstream one echo mike, fly heading one eight zero, descend and maintain one two thousand, expect to resume the DYAMD Three arrival”*
 - *“Gulfstream one echo mike, deviations left of course approved, descend and maintain one two thousand, expect to resume the DYAMD Three arrival”*

ICAO

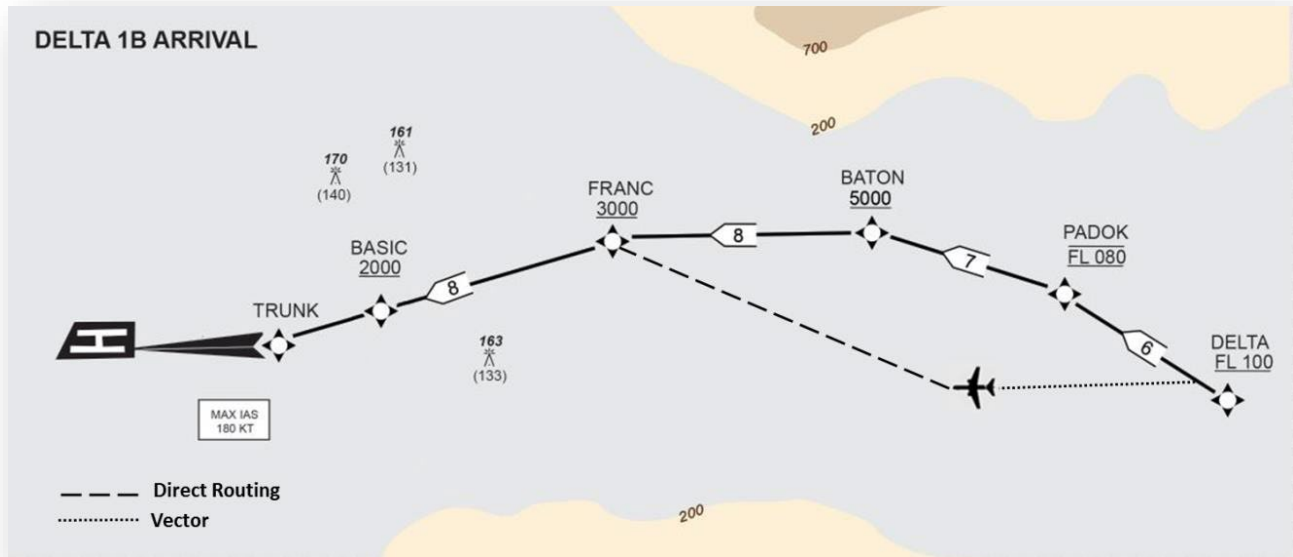
- ICAO phraseology “EXPECT TO REJOIN STAR”
- STAR <Name> is not used

ICAO Descend Via STAR

STAR Rejoin Instruction

ATC instructions to an aircraft to rejoin a STAR shall include:

- The designator of the STAR to be rejoined, unless advance notification of rejoin has been provided
- The cleared level on rejoining the STAR
- The position at which it is expected to rejoin the STAR.



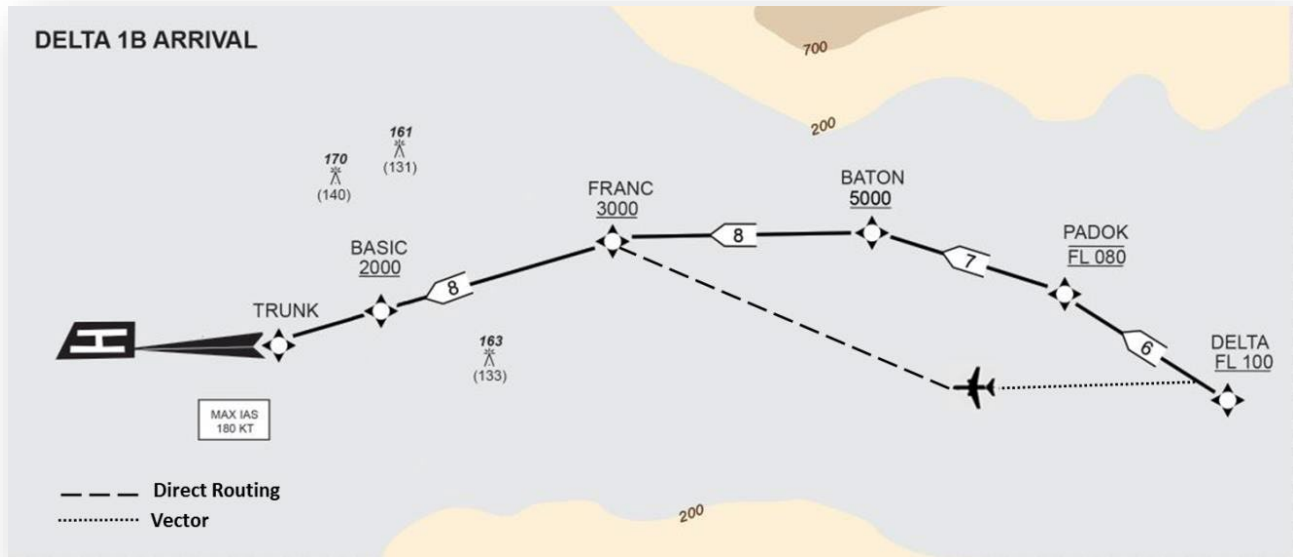
Context: FASTAIR 345 has previously been cleared to descend via STAR DELTA 1B to FL 080 and complying with the charted restrictions.

ATC clearance and pilot read back

ATC	"FASTAIR 345 TURN LEFT HEADING 2-7-0 DUE TRAFFIC DESCEND TO 5 000 FEET"
Pilot	"TURN LEFT HEADING 2-7-0 DESCEND TO 5 000 FEET FASTAIR 345"

Pilot anticipated action

FASTAIR 345 will turn left heading 270° and descend to 5 000 feet. All the STAR restrictions are cancelled.



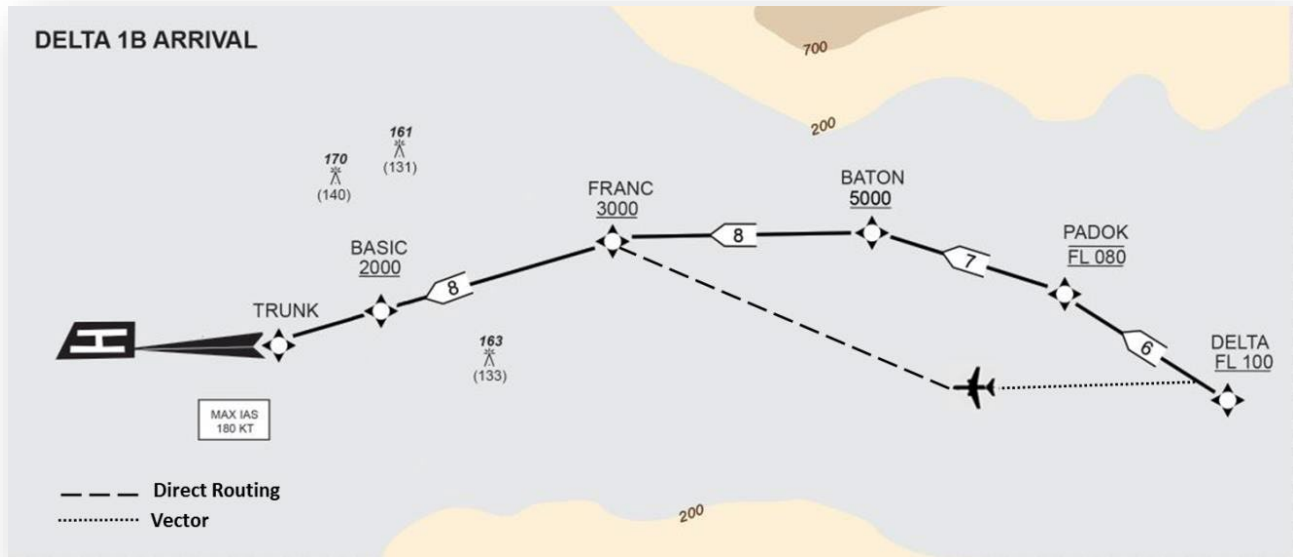
Context: FASTAIR 345 was vectored off the STAR and **was not advised** to expect to rejoin DELTA 1B Arrival. FASTAIR 345 is currently flying on heading 270° and descending to 5 000 feet when ATC instructs FASTAIR 345 to rejoin STAR DELTA 1B at FRANC.

ATC clearance and pilot read back

ATC	"FASTAIR 345 PROCEED DIRECT FRANC REJOIN DELTA 1B ARRIVAL DESCEND VIA STAR TO 2 000 FEET"
Pilot	"PROCEED DIRECT FRANC REJOIN <u>DELTA 1B ARRIVAL</u> DESCEND VIA STAR TO 2 000 FEET FASTAIR 345"

Pilot anticipated action

FASTAIR 345 will descend to 3 000 feet, proceed direct to FRANC to REJOIN DELTA 1B Arrival and comply with the published level and speed restrictions at and after FRANC. Complying with the restrictions, FASTAIR 345 will descend to 2 000 feet **after** FRANC.



Context: FASTAIR 345 has previously been cleared to descend via STAR DELTA 1B to FL 080 and complying with the charted restrictions.

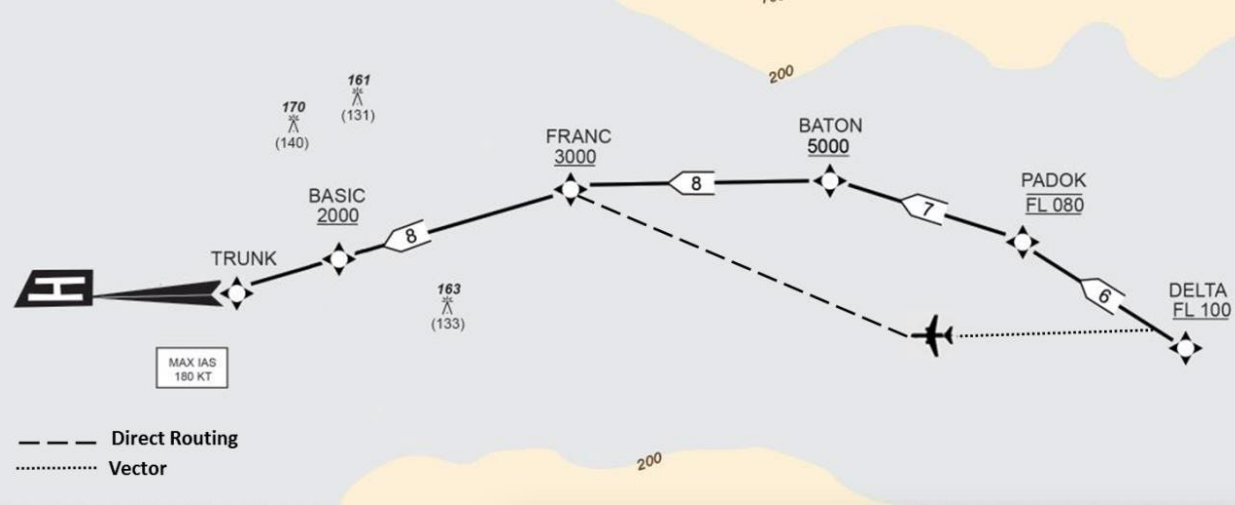
ATC clearance and pilot read back

ATC	"FASTAIR 345 DUE TRAFFIC TURN LEFT HEADING 2-7-0 DESCEND TO 5 000 FEET EXPECT TO REJOIN STAR "
Pilot	"TURN LEFT HEADING 2-7-0 DESCEND TO 5 000 FEET FASTAIR 345"

Pilot anticipated action

FASTAIR 345 will turn left heading 270° and descend to 5 000 feet. All the STAR restrictions are cancelled.

DELTA 1B ARRIVAL



Context: FASTAIR 345 was vectored off the STAR, and was advised to expect to rejoin STAR. FASTAIR 345 is currently flying on heading 270° and descending to 5 000 feet when ATC instructs FASTAIR 345 to rejoin STAR at FRANC.

ATC clearance and pilot read back

ATC	"FASTAIR 345 PROCEED DIRECT FRANC REJOIN STAR DESCEND VIA STAR TO 2 000 FEET"
Pilot	"PROCEED DIRECT FRANC REJOIN STAR DESCEND VIA STAR TO 2 000 FEET FASTAIR 345"

Pilot anticipated action

FASTAIR 345 will descend to 3 000 feet, proceed direct to FRANC to REJOIN STAR and comply with the published level and speed restrictions at and after FRANC. Complying with the restrictions, FASTAIR 345 will descend to 2 000 feet **after** FRANC.

FAA – ICAO Differences

FAA

- FAA does not use “Rejoin” or “Resume” phraseology in conjunction with a “Descend Via” clearance.
- A “Descend Via” authorizes the aircraft to rejoin the STAR’s lateral path.
- An altitude will not be issued unless it is necessary to change the “Bottom Altitude”:
 - *“Proceed direct DENIS, cross DENIS at or above flight level two zero zero, then descend via the MMELL One arrival”*

ICAO

- Both “Rejoin STAR” & Descend Via STAR” used in the clearance
- If aircraft was not told to expect to rejoin STAR, name of the procedure will be included in the clearance:
 - *“FASTAIR 345 proceed direct FRANCO rejoin DELTA 1b arrival descend via STAR to 2 000 feet”*
- If aircraft was told to expect to rejoin, procedure name is excluded:
 - *“FASTAIR 345 proceed direct FRANCO rejoin STAR descend via star to 2 000 feet”*
- A level will always be issued with the “Descend Via STAR” clearance

Canada STAR Chart Changes

Chart Note Removal

- Nav Canada is removing the following chart note from all STARS:

When a lower altitude is issued, pilots shall descend on the STAR profile to the ATC assigned altitude. Charted restrictions above the assigned altitude remain mandatory.

- “Descend Via STAR” replaces this note

ICAO & Canada

Use of “Via” Phraseology

- To avoid potential confusion, “Via” will only be used in conjunction with a “Climb Via SID” or “Descend Via STAR” clearance
- The word “Via” will not be used in any other context for airborne clearance
- The word VIA will no longer be used in conjunction with the route. For example, controllers will no longer say:

“Cleared To The Quebec Airport Via ...”

The word “VIA” will still appear in Controller-Pilot Data Link Communications (CPDLC) messages, however, it is not use it in Direct Controller Pilot Communication (DCPC).

FAA vs. ICAO & Canada

ATC-Assigned Speeds – **Significant Difference**

- ICAO:
 - ICAO PANS-ATM 4.6.1.2 Speed control instructions shall remain in effect unless explicitly cancelled or amended by the controller.
 - “Climb Via SID” or “Descend Via STAR” **does not cancel** a previously issued ATC-assigned speed restriction:
- FAA:
 - “Climb Via SID” or “Descend Via <name> arrival” **deletes** any previously issued ATC-assigned speed restriction. Published speeds now apply

FAA vs. Canada

ATC-Assigned Speeds

- Canada Examples:

A controller applies a speed reduction to 230K. or less, and then subsequently clears an arrival "VIA STAR." If the first speed restriction on the STAR is 250K at a fix, the 230K ATC speed restriction still applies.

Or...

A controller applies a speed restriction to maintain 300K, and then subsequently clears an arrival "VIA STAR." If the first speed restriction on the STAR is 250K at a fix, the 300K ATC speed restriction still applies until CARs supersedes this speed assignment.

- In Canada, pilots should inform ATC when they start to reduce speed to conform to the Canadian Aviation Regulations (CARs)

FAA vs. Canada Only

“Resume Normal Speed”

- Canada:
 - To cancel an ATC-assigned speed restriction, ATC will inform the pilot to “*Resume Normal Speed*”.
 - This will **ensure that upcoming speed restrictions on the SID/STAR will be adhered to**. When applicable, normal speed implies “published” speeds.
 - SID/STAR published speeds apply after “Resume Normal Speed”
- FAA:
 - Cancels ATC issued speed restrictions and instructs pilot to return to normal aircraft speed **where no restrictions are published**. This does not relieve the pilot of those speed restrictions which are applicable to 14 CFR Section 91.117.

FAA vs. ICAO

Additional Differences

Initial Contact Phraseology

- ICAO:
 - Pilots must provide the phrase “Climb Via SID” or “Descend Via STAR” and the cleared level on initial contact
- FAA:
 - Pilots must only provide the cleared altitude/flight level when any ATC-assigned restrictions are not published on the procedure
 - If ATC does not assign an altitude with a “Climb Via” or “Descend Via” clearance, the assigned level is not used on initial contact

ICAO vs. Canada

Additional Differences

- ICAO:
 - Climb Via SID and Descend Via STAR are not “when ready” or “at pilot’s discretion” instructions
 - Pilots must vacate previously assigned altitudes and climb/descend to meet the next published restriction
- Canada
 - Climb Via SID and Descend Via STAR are “when ready” instructions
 - Pilots may begin climb/descend at their discretion

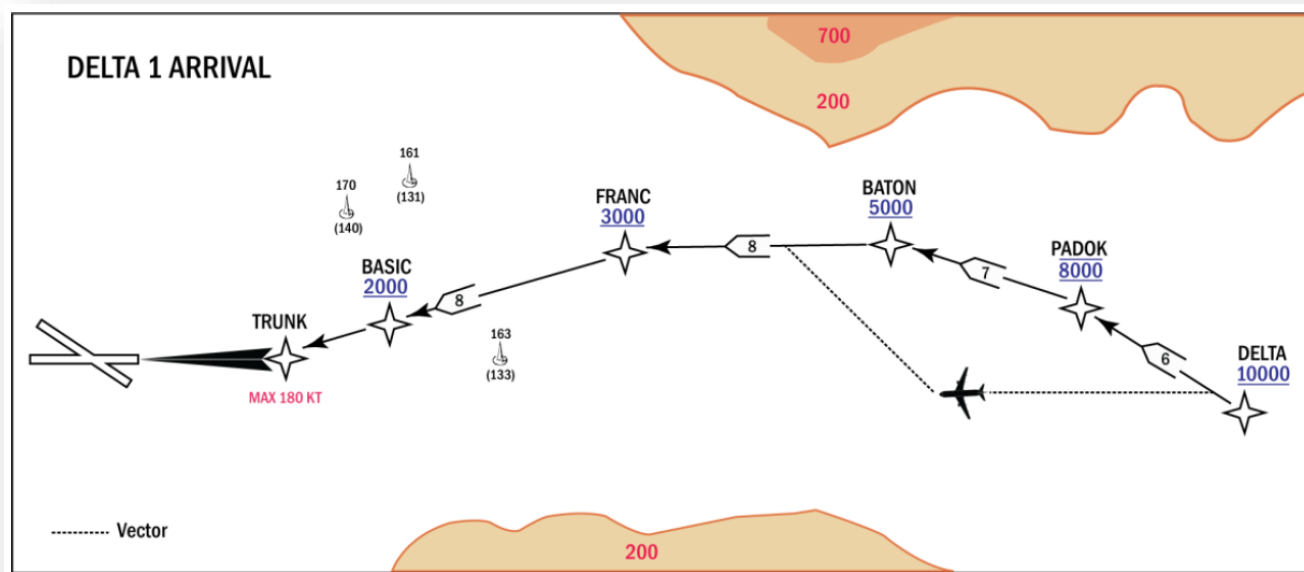
Off Published Routes

PANS-ATM 4444

8.6.5.2 When vectoring an IFR flight and when giving an IFR flight a direct routing which takes the aircraft off an ATS route, the controller shall issue clearances such that the prescribed obstacle clearance will exist at all times until the aircraft reaches the point where the pilot will resume own navigation. When necessary, the relevant minimum vectoring altitude shall include a correction for low temperature effect.

8.6.5.5 In terminating vectoring of an aircraft, the controller shall instruct the pilot to resume own navigation, giving the pilot the aircraft's position and appropriate instructions, as necessary, in the form prescribed in 8.6.4.2 b), if the current instructions had diverted the aircraft from a previously assigned route.

Canada: Vector To Re-intercept STAR Track



Controllers may need to provide vectors to re-intercept a STAR after the aircraft has been vectored off of the STAR. Controllers must add the via STAR phraseology if there are published restrictions remaining on the STAR after the aircraft re-intercepts.

"WestJet One-Two-Three, Turn right heading zero-three-zero, intercept LATTs Two arrival Descend Via STAR four thousand"

FAA – Canada Differences

FAA

- FAA procedures are to clear an aircraft direct to a waypoint, then clear the aircraft to “Climb Via” or “Descend Via”.

Canada

- May vector to re-join a SID or STAR between two waypoint

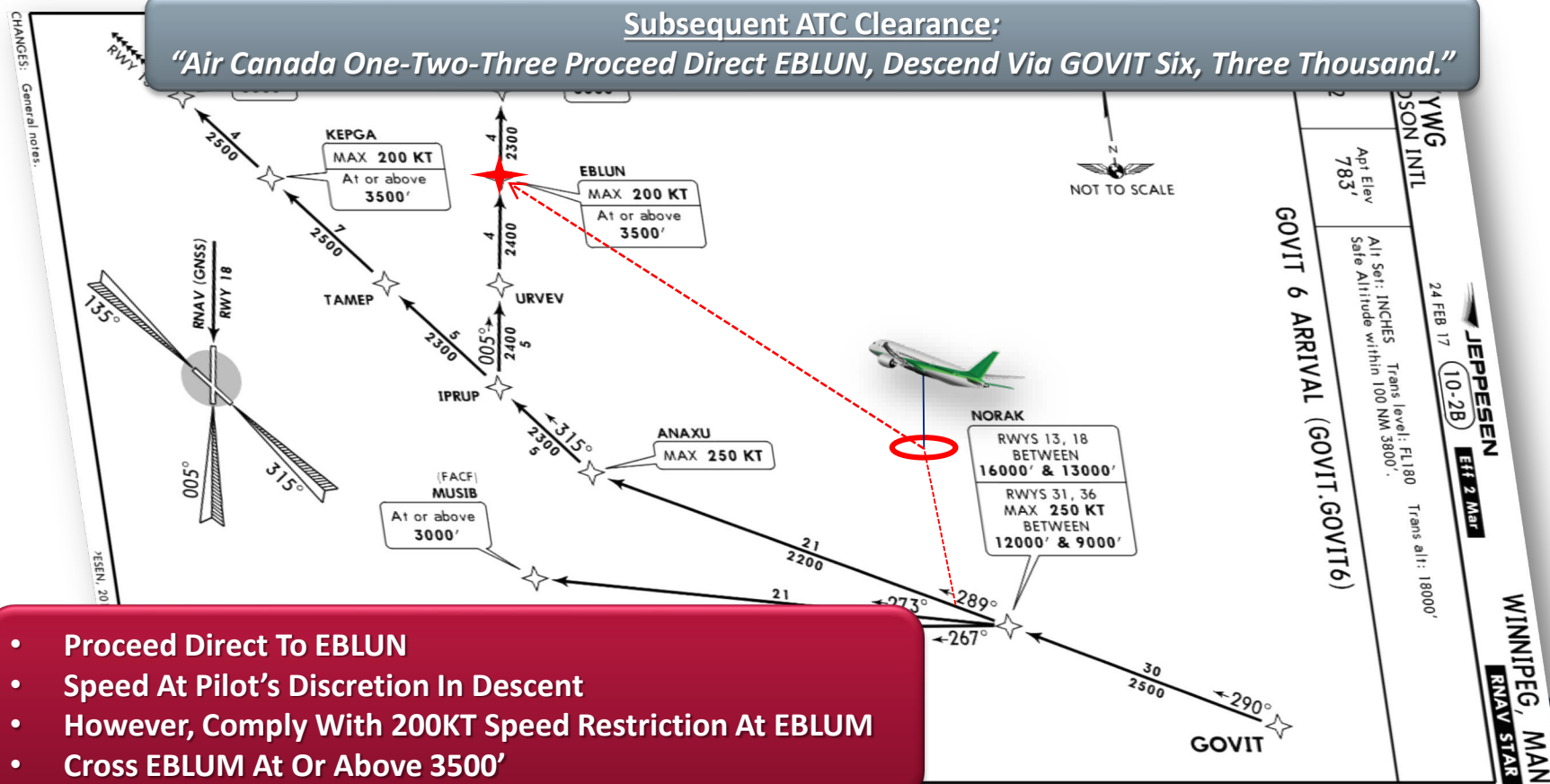


Canadian Examples Of “Descend Via STAR”

Initial ATC Clearance:

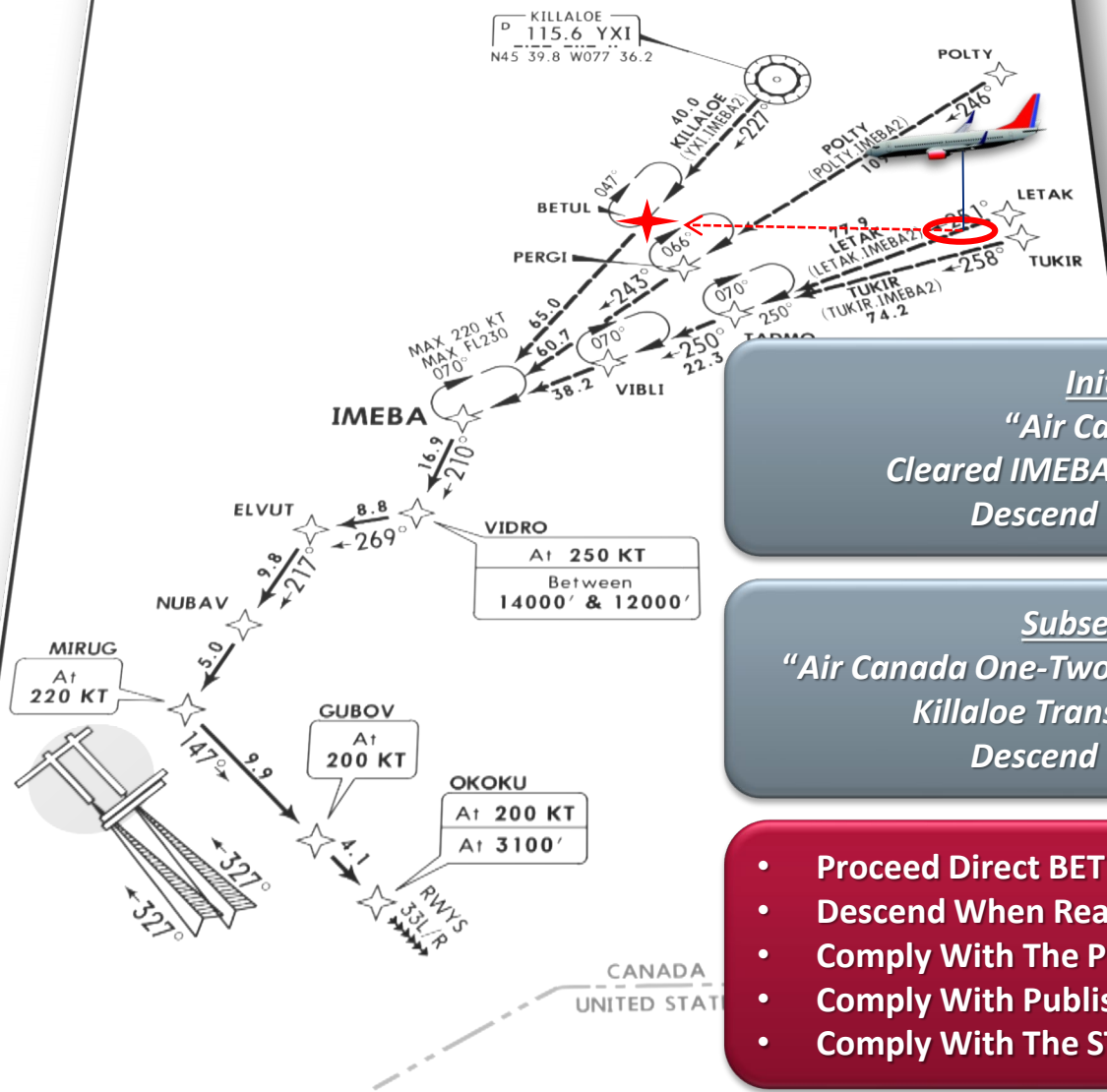
Subsequent ATC Clearance:

"Air Canada One-Two-Three Proceed Direct EBLUN, Descend Via GOVIT Six, Three Thousand."



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Clearance - Revised STAR Transition



Initial ATC Clearance:
"Air Canada One-Two-Three ,
Cleared IMEBA Two Arrival, LETAK Transition,
Descend Via STAR Five Thousand"

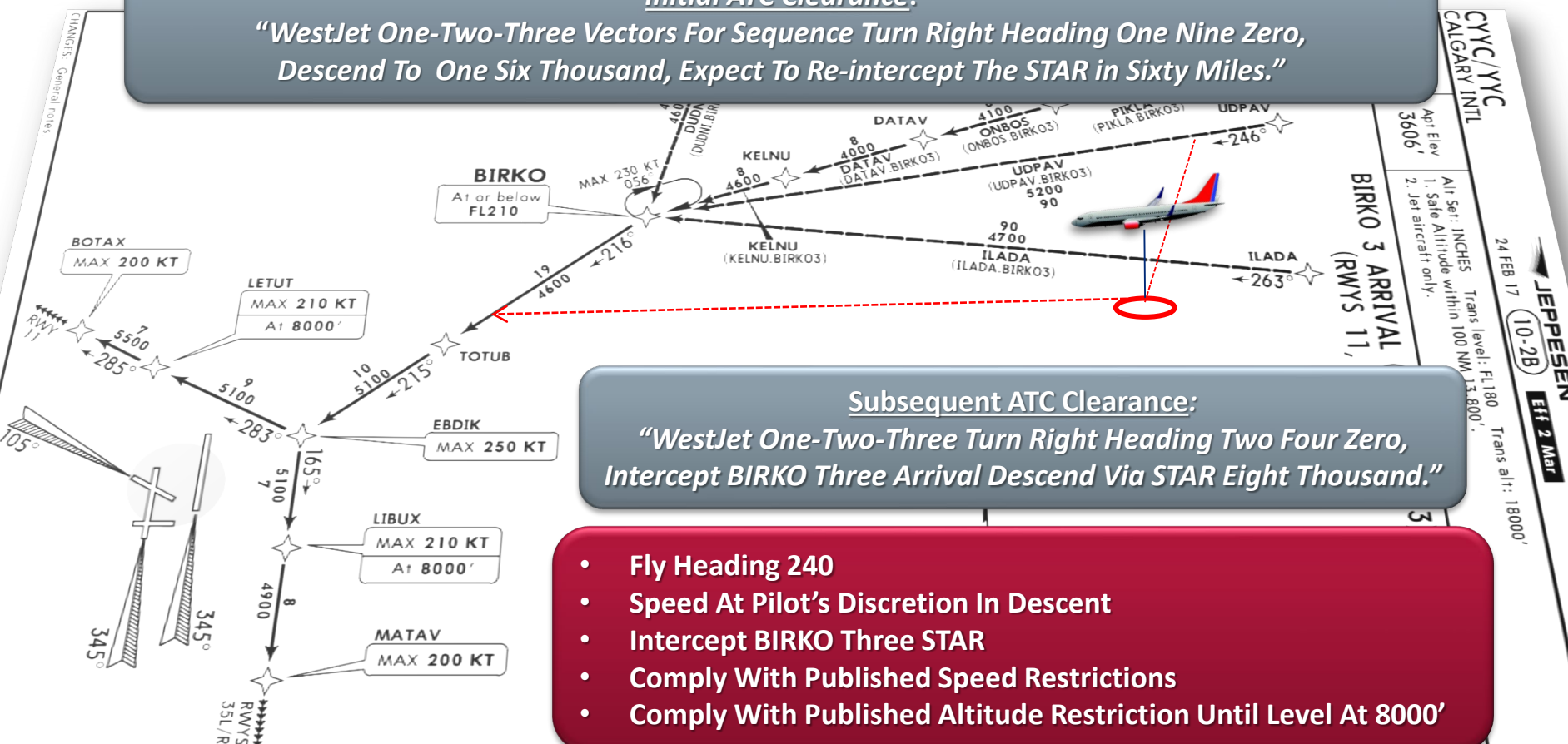
Subsequent ATC Clearance:
"Air Canada One-Two-Three Recleared IMEBA Two Arrival,
Killaloe Transition, Proceed Direct BETUL,
Descend Via STAR Five Thousand"

- Proceed Direct BETUL To Join The New STAR Transition;
- Descend When Ready To The To 5000'
- Comply With The Published Altitude Restrictions
- Comply With Published Speed Restrictions
- Comply With The STAR Charted Airspeed Restrictions

Vector, Followed By An Assigned Heading And Clearance To Re-Intercept The STAR

Initial ATC Clearance:

“WestJet One-Two-Three Vectors For Sequence Turn Right Heading One Nine Zero, Descend To One Six Thousand, Expect To Re-intercept The STAR in Sixty Miles.”



Subsequent ATC Clearance:

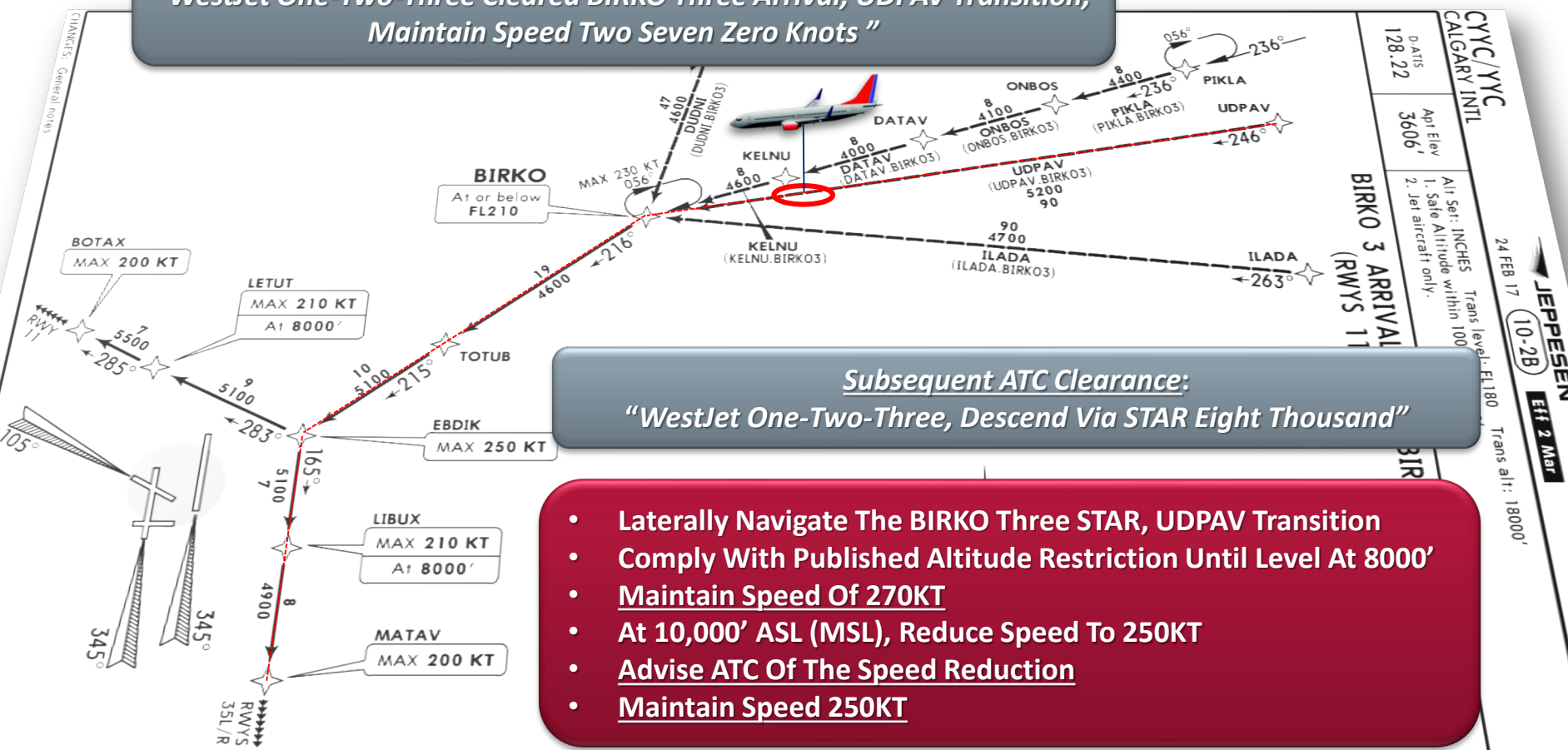
“WestJet One-Two-Three Turn Right Heading Two Four Zero, Intercept BIRKO Three Arrival Descend Via STAR Eight Thousand.”

- Fly Heading 240
- Speed At Pilot’s Discretion In Descent
- Intercept BIRKO Three STAR
- Comply With Published Speed Restrictions
- Comply With Published Altitude Restriction Until Level At 8000’

Speed Reduction Required by Canada CARs – 250KT Below 10,000’ ASL

Initial ATC Clearance:

“WestJet One-Two-Three Cleared BIRKO Three Arrival, UDPAV Transition, Maintain Speed Two Seven Zero Knots”



Speed Reduction Required by Canada CARs –
200KT Below 3,000 Feet AGL Within 10 Nautical Miles Of A Controlled
Aerodrome Unless Authorized To Do So In An Air Traffic Control Clearance

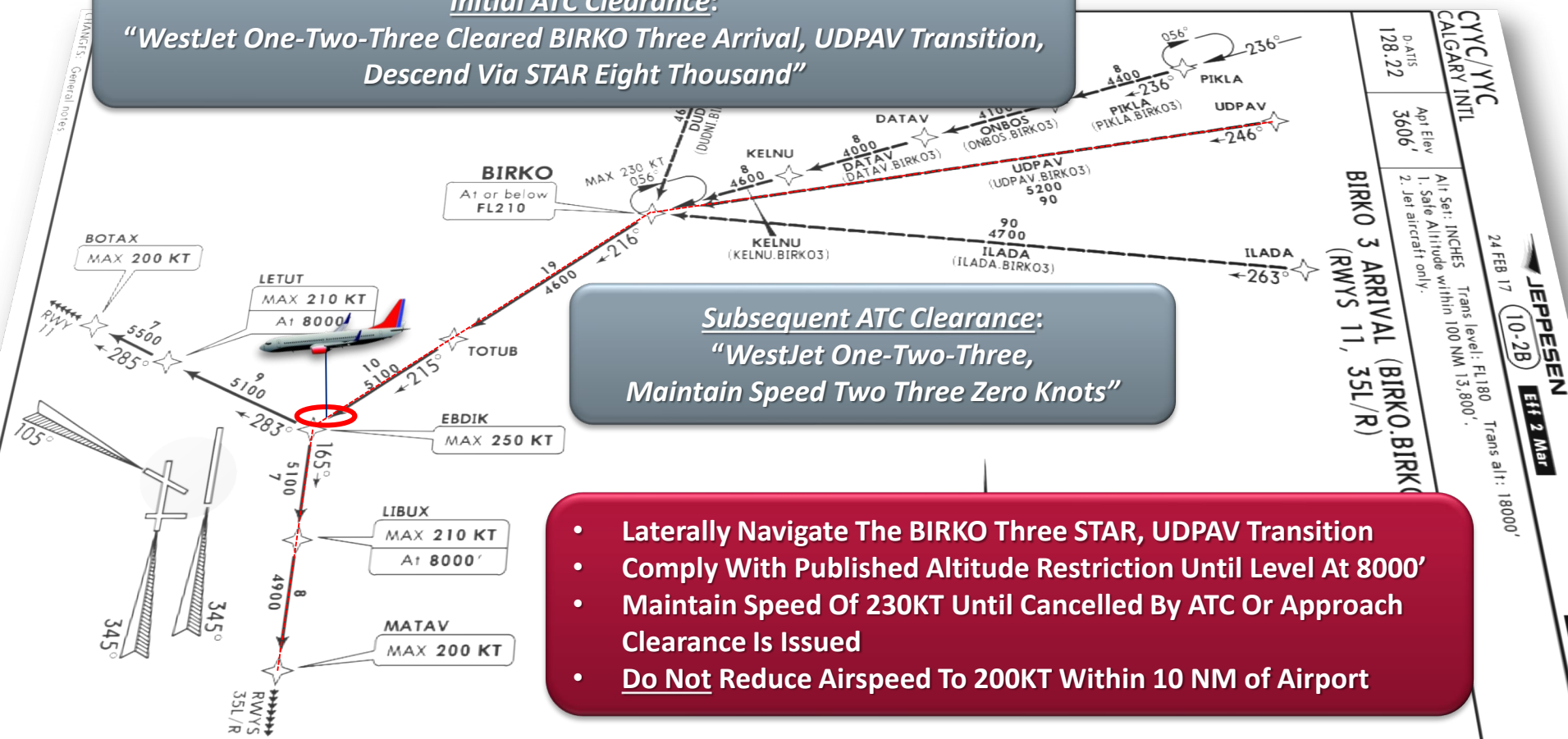
Initial ATC Clearance:

*“WestJet One-Two-Three Cleared BIRKO Three Arrival, UDPAV Transition,
Descend Via STAR Eight Thousand”*

Subsequent ATC Clearance:

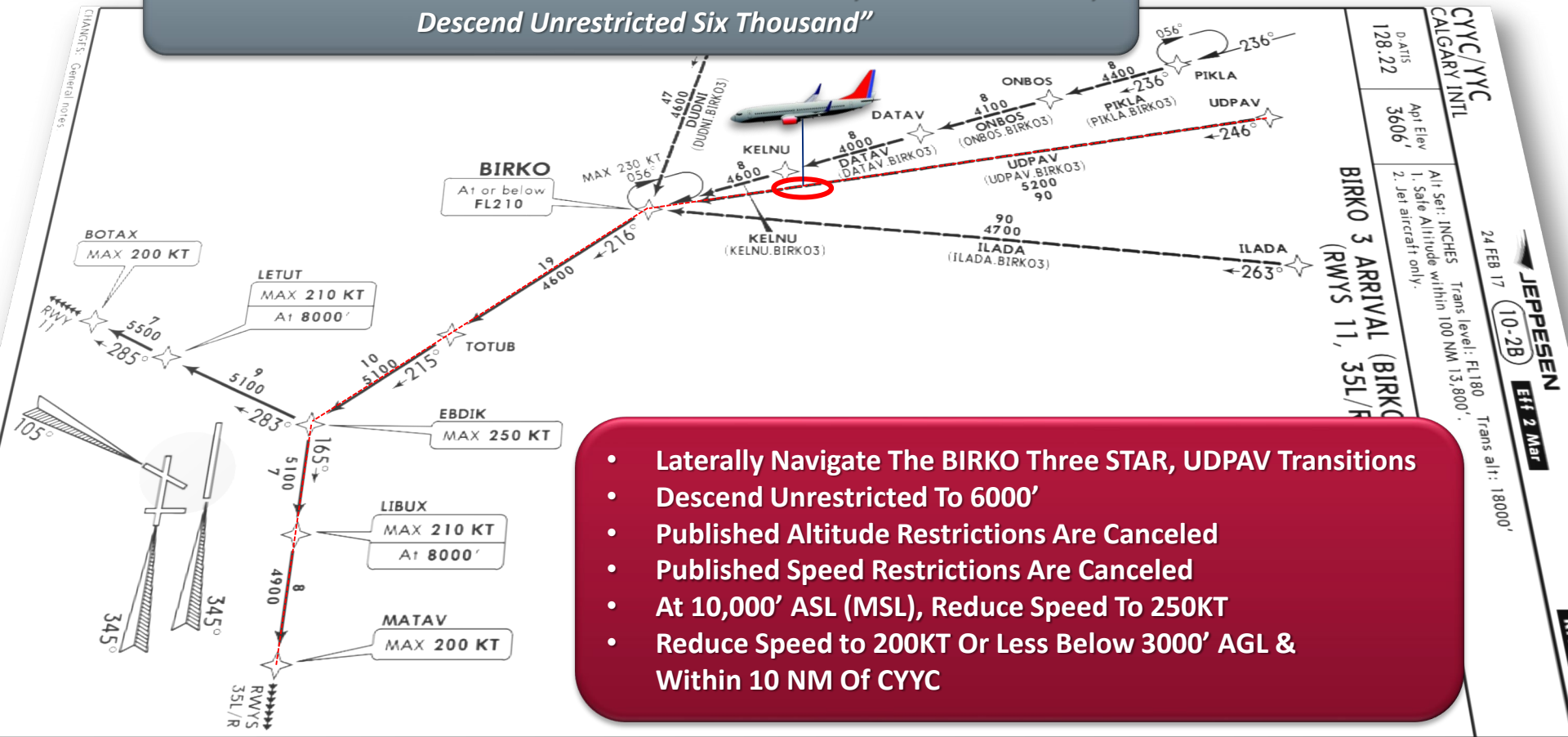
*“WestJet One-Two-Three,
Maintain Speed Two Three Zero Knots”*

- Laterally Navigate The BIRKO Three STAR, UDPAV Transition
- Comply With Published Altitude Restriction Until Level At 8000'
- Maintain Speed Of 230KT Until Cancelled By ATC Or Approach Clearance Is Issued
- Do Not Reduce Airspeed To 200KT Within 10 NM of Airport



Speed Reduction Required by Canada CARs – Descend Unrestricted

Initial ATC Clearance:
"WestJet One-Two-Three Cleared BIRKO Three Arrival, UDPAV Transition, Descend Unrestricted Six Thousand"



Canada Training Links

Canada – April 27, 2017

- [Aeronautical Information Circular \(AIC\)](#) published on January 5, 2017
- [Detailed training video](#), featuring NAV CANADA employees and pilots demonstrating the use of the new phraseology in specific scenarios
- [ICAO's website](#), for information about the global harmonization of phraseology
- For access to NAV CANADA's lesson plan for internal training, please email sid.star@navcanada.ca
- Questions? Email service@navcanada.ca



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