



- Cuestión del Orden del Día:** **Optimización del espacio aéreo SAM**
- a) **PBN en Rutas**
 - b) **PBN en Áreas Terminales**
 - c) **Procedimientos PBN**

ENMIENDA A LA FRASEOLOGÍA BILINGÜE ATC DEL DOCUMENTO 4444

(Presentada por Secretaría)

RESUMEN	
<p>Esta nota de estudio tiene por objeto presentar a los Estados participantes los cambios realizados al PANS-ATM, Doc. 4444 como parte de las enmiendas 7-A y 7-B de la 15ª edición, específicamente en lo que se refiere a la fraseología bilingüe ATC. Estos cambios a la fraseología tendrán un impacto operacional importante en los servicios de tránsito aéreo y en la operación de las aeronaves por lo que los Estados deberán tomar las medidas adecuadas respecto a los cambios incorporados al documento de la OACI. .</p>	
<p>Referencias:</p> <ul style="list-style-type: none">- Informe reunión SAM/IG/17- PANS-ATM, Doc. 4444 - Procedimientos para los servicios de navegación aérea - Gestión del tránsito aéreo	
<p>Objetivos estratégicos de la OACI:</p>	<p><i>A - Seguridad operacional.</i> <i>B - Capacidad y eficiencia de la navegación aérea.</i> <i>E - Protección del medio ambiente.</i></p>

1. Antecedentes

1.1 El 1 de marzo de 2016, la Comisión de Aeronavegación aprobó la Enmienda 7, que incluye las Enmiendas 7-A y 7-B de la 15ª edición de los Procedimientos para los Servicios de Navegación Aérea - Gestión del tránsito aéreo (PANS-ATM, Doc. 4444). Esta enmienda será aplicable a partir del 10 de noviembre de 2016. La Enmienda 7 incluye, entre otros elementos, los siguientes:

- a) Las mínimas de separación longitudinal y lateral basadas en la performance y el procedimiento de ascenso y descenso (CDP) con vigilancia dependiente automática-contrato (ADS-C);
- b) La separación entre las aeronaves que salen y las que llegan y siguen una ruta de navegación de área (RNAV), o de performance de navegación requerida (RNP);
- c) Los procedimientos de descenso de emergencia;
- d) El sistema autónomo de advertencia de incursión en la pista (ARIWS);
- e) Cambio a la fraseología bilingüe ATC;
- f) El formato mundial de notificación mejorado para evaluar y notificar el estado de la superficie de la pista (para su aplicación en el año 2020).

2. **Análisis**

2.1 En lo que se refiere a la fraseología bilingüe ATC, la enmienda del Doc. 4444 incorpora cambios significativos que deben ser del conocimiento del personal involucrado en las comunicaciones aeroterrestres, sean estos controladores de tránsito aéreo o tripulaciones de vuelo.

2.2 El uso de una fraseología bilingüe estandarizada es uno de los elementos que los Estados deben asegurarse en todas las operaciones en el espacio aéreo bajo su responsabilidad. Una fraseología no estandarizada puede ser un elemento latente que puede impactar negativamente en la seguridad operacional.

2.3 Considerando la importancia del uso de la fraseología estandarizada ATC, las Autoridades de Aeronáutica Civil de la Región deben de implementar las medidas adecuadas para informar a los usuarios del espacio aéreo bajo su responsabilidad de los cambios en la fraseología aeronáutica, como parte de la enmienda del Doc. 4444. Entre estas medidas, los Estados podrían publicar un AIC con los cambios en la fraseología ATC, especificando la fecha en la que la misma entrará en vigencia en los servicios provistos en el espacio aéreo bajo responsabilidad del Estado. Asimismo se podría emitir un NOTAM informando de la fecha de entrada en vigencia del cambio de la fraseología.

2.4 Como parte de las medidas, los Estados deben de asegurarse que los proveedores de servicios ATS y los usuarios del espacio aéreo, como son las líneas aéreas, la aviación general y cualquier otro involucrado en las operaciones en el espacio aéreo, deberían de enmendar los documentos pertinentes para incorporar los cambios a la fraseología bilingüe ATC.

2.5 Entre las medidas que los proveedores de servicios de tránsito aéreo y los usuarios del espacio aéreo deberían de implementar, está la familiarización del personal competente (controladores de tránsito aéreo y pilotos) con los cambios en la fraseología bilingüe ATC.

2.6 Como **Apéndice A** a esta nota de estudio se adjuntan los cambios en la fraseología bilingüe ATC.

3. **Acción sugerida:**

3.1 Se invita a la Reunión a:

- a) Analizar esta nota informativa.
- b) Se tomen las acciones que consideren necesarias respecto a los cambios en el Doc. 4444.

APÉNDICE A

ESCENARIO SID/STAR

EJEMPLOS DE FRASEOLOGÍA

(Inglés únicamente)

Summary of phraseologies to be applied when issuing or receiving an ATC clearance on a SID or STAR with charted restrictions.

SID/STAR SCENARIO

Phraseology examples

ICAO – ATMOPS PANEL

Introduction

The amendment to SID and STAR procedures addresses the difficulties reported by a number of States, air navigation services providers and aircraft operators on the application of existing PANS provisions, most notably with the issue of the applicability of published level or speed restrictions.

The established solution was designed to provide aircraft with explicit indications with regard to what is expected in terms of speed and level at all times.

The new procedures rely on the use of key phraseologies (CLIMB VIA / DESCEND VIA) to explicitly indicate to flight crews if they should abide by speed and level restrictions associated to a given procedure.

Specific phraseology is introduced to instruct an aircraft to cancel level and procedure speed restrictions, as well as to instruct an aircraft to leave and rejoin a procedure.

Considerations

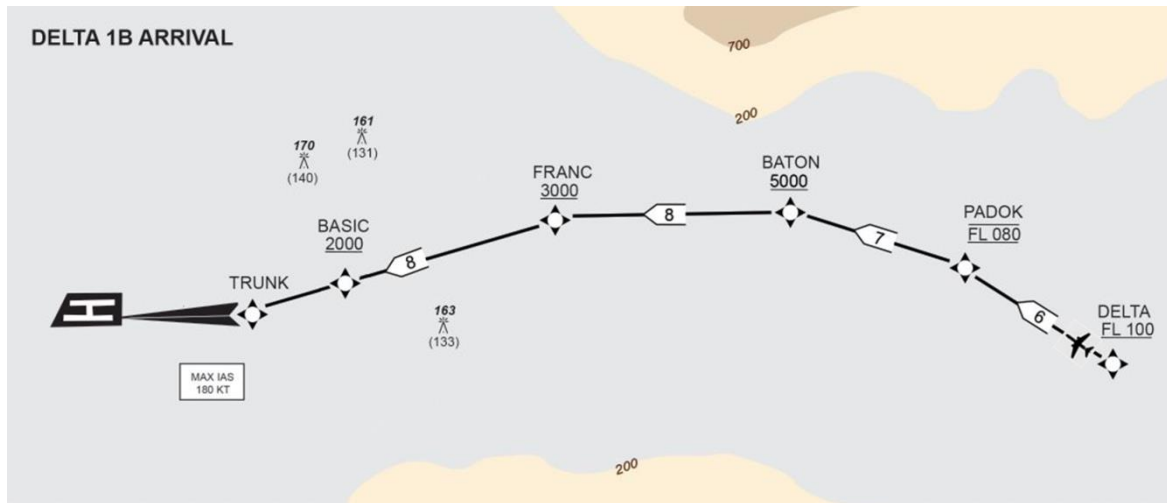
The following information must be considered, and is not expressed in the scenario examples for brevity:

- Unless an aircraft is cleared direct a point, or specifically given a vector, the flight crew must always comply with the lateral profile of the SID/STAR.
- When ATC assigns an altitude the aircraft must always climb or descend to the ATC assigned altitude.
- The use of a SID or STAR designator without a cleared level does not authorize the aircraft to climb or descend on the SID or STAR vertical profile. (PANS-ATM 6.3.2.3 Note 2 and 6.5.2.3 Note 2)
- In the event that a flight crew assesses that a published restriction cannot be met, they must inform ATC as soon as possible.
- The scenarios are designed for SIDs and STARs with charted restrictions. When no charted restrictions exists or when there are no remaining published or remaining level or speed restrictions on the SID or STAR, the phrase CLIMB TO *(level)* or DESCEND TO *(level)* should be used.
- **For terrain clearance responsibilities refer to PANS-ATM, para. 8.6.5.2.**

Clearances via a STAR

SID/STAR SCENARIO

STAR Scenario 1: descent via a STAR with charted restrictions



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 DESCEND VIA STAR TO 3 000 FEET"</i>
Pilot	<i>"DESCEND VIA STAR TO 3 000 FEET FASTAIR 345"</i>

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.

Doc 4444 - PANS-ATM reference

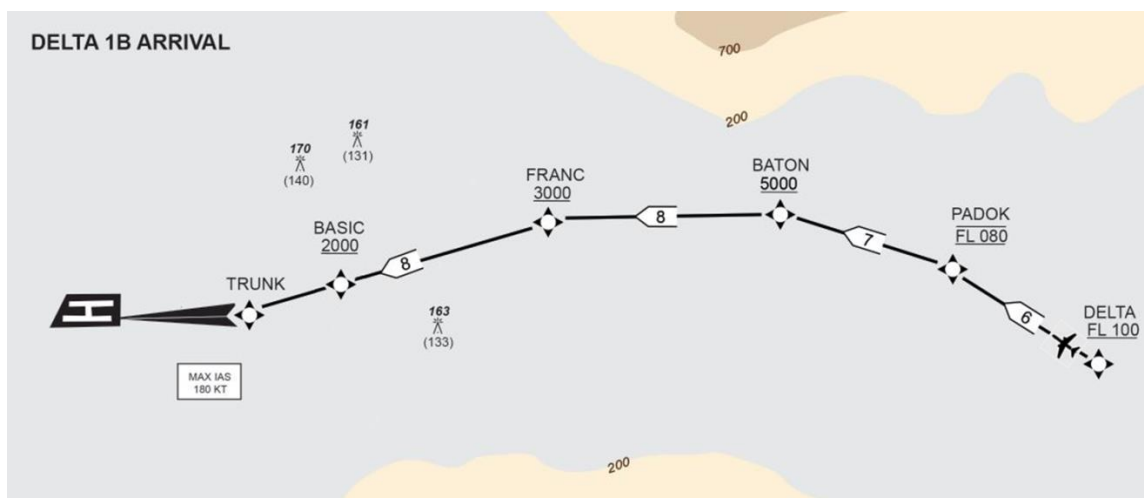
6.5.2.4.1 Clearances to aircraft on a STAR with remaining published, level and/or speed restrictions shall indicate if such restrictions are to be followed or are cancelled. The following phraseologies shall be used with the following meaning:

- a) DESCEND VIA STAR TO (*level*):
 - i) descend to the cleared level and comply with published level restrictions;
 - ii) follow the lateral profile of the STAR; and
 - iii) comply with published speed restrictions or ATC-issued speed control instructions as applicable.

[...]

SID/STAR SCENARIO

STAR Scenario 2: descent when ready via a STAR with charted restrictions



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 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.

Doc 4444 - PANS-ATM reference

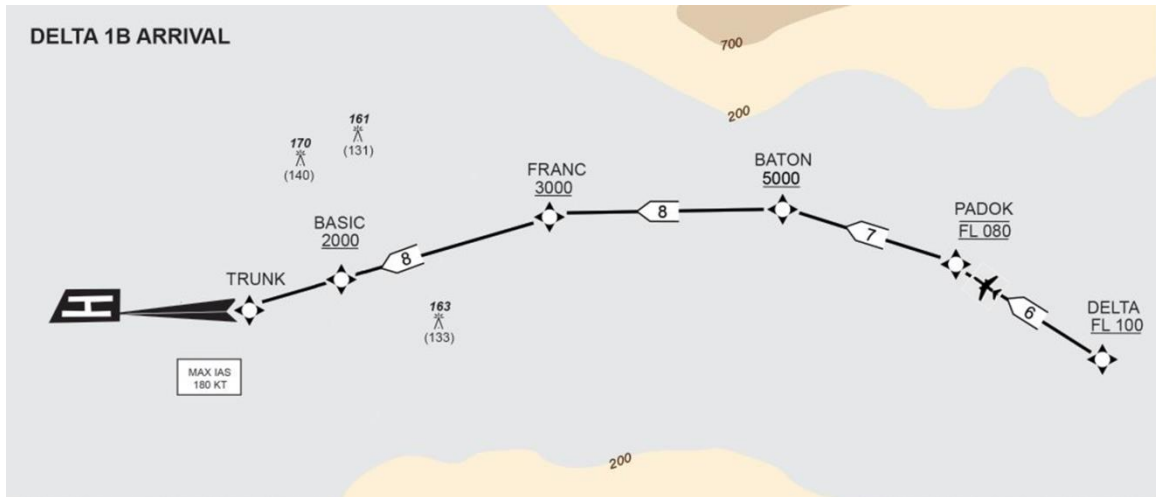
6.5.2.4.1 Clearances to aircraft on a STAR with remaining published, level and/or speed restrictions shall indicate if such restrictions are to be followed or are cancelled. The following phraseologies shall be used with the following meaning:

- a) DESCEND VIA STAR TO (*level*):
 - i) descend to the cleared level and comply with published level restrictions;
 - ii) follow the lateral profile of the STAR; and
 - iii) comply with published speed restrictions or ATC-issued speed control instructions as applicable.

[...]

SID/STAR SCENARIO

STAR Scenario 3: descent via a STAR – tactical cancellation of a speed restriction



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.

Doc 4444 - PANS-ATM reference

6.5.2.4.1 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:

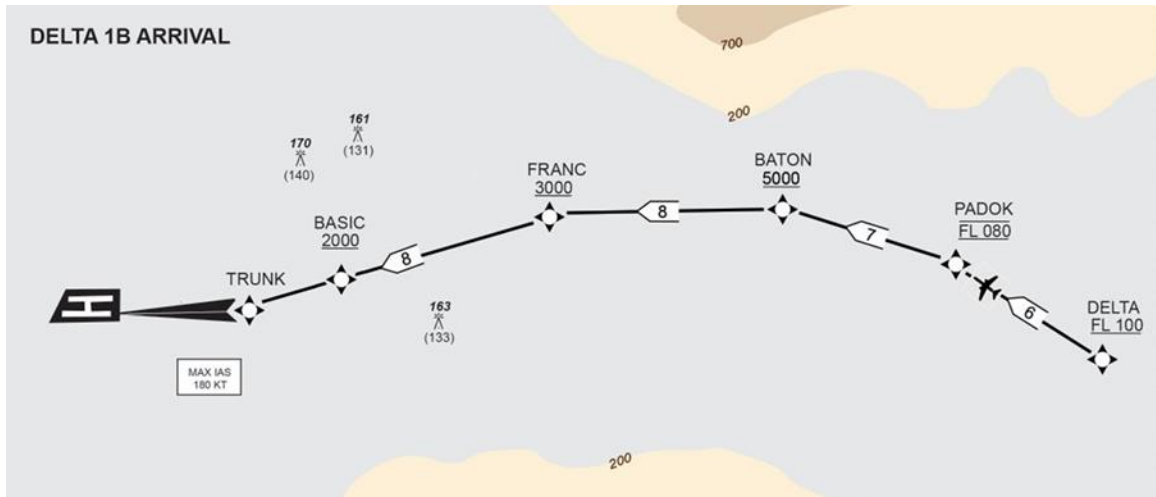
[...]

- e) DESCEND VIA STAR TO (level), CANCEL SPEED RESTRICTION(S) AT (*point(s)*):
 - i) descend to the cleared level and comply with published level restrictions;
 - ii) follow the lateral profile of the STAR; and
 - iii) published speed restrictions are cancelled at the specified point(s).

[...]

SID/STAR SCENARIO

STAR Scenario 4: descent via a STAR – tactical cancellation of a level restriction



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.

Doc 4444 - PANS-ATM reference

6.5.2.4.1 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:

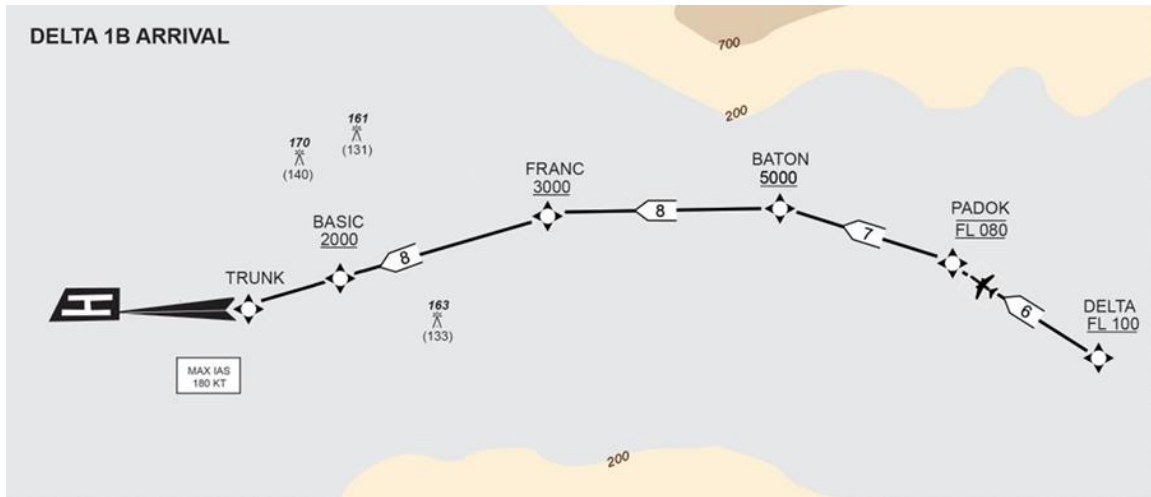
[...]

- c) DESCEND VIA STAR TO (*level*), CANCEL LEVEL RESTRICTION(S) AT (*point(s)*):
- i) descend to the cleared level, published level restriction(s) at the specified point(s) are cancelled;
 - ii) follow the lateral profile of the STAR; and
 - iii) comply with published speed restrictions or ATC-issued speed control instructions as applicable.

[...]

SID/STAR SCENARIO

STAR Scenario 5: descent via a STAR – cancellation of all restrictions above the cleared level



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.

Subsequently, FASTAIR 345 will descend to 3 000 feet while complying with all the STAR restrictions at and after FRANC.

Doc 4444 - PANS-ATM reference

6.5.2.4.1 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:

[...]

SID/STAR SCENARIO

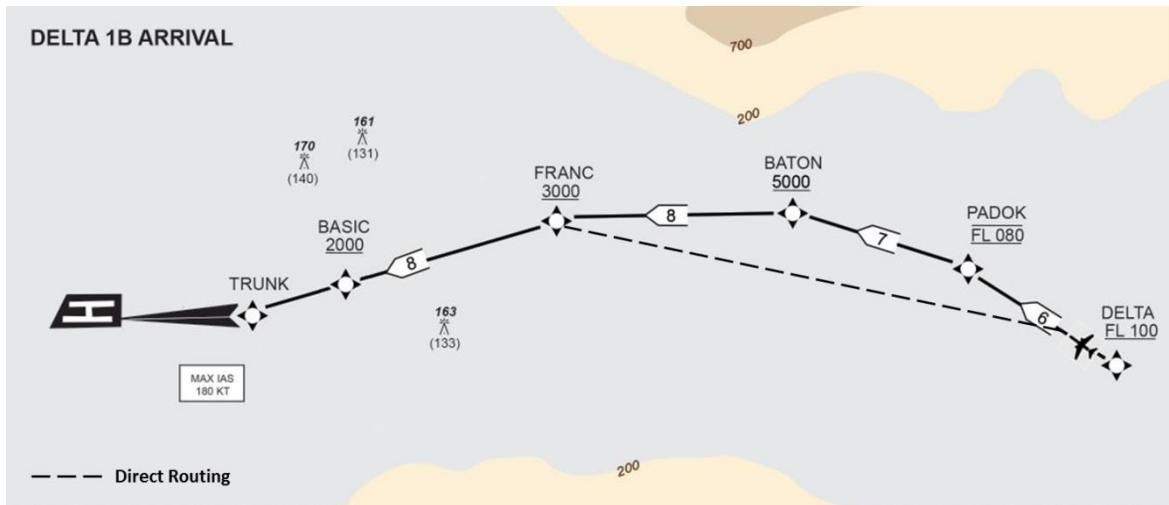
f) DESCEND UNRESTRICTED TO *(level)* or DESCEND TO *(level)*, CANCEL LEVEL AND SPEED RESTRICTION(S):

- i) descend to the cleared level, published level restrictions are cancelled;
- ii) follow the lateral profile of the STAR; and
- iii) published speed restrictions and ATC-issued speed control instructions are cancelled.

[...]

SID/STAR SCENARIO

STAR Scenario 6: proceeding direct to a point on 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	<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.

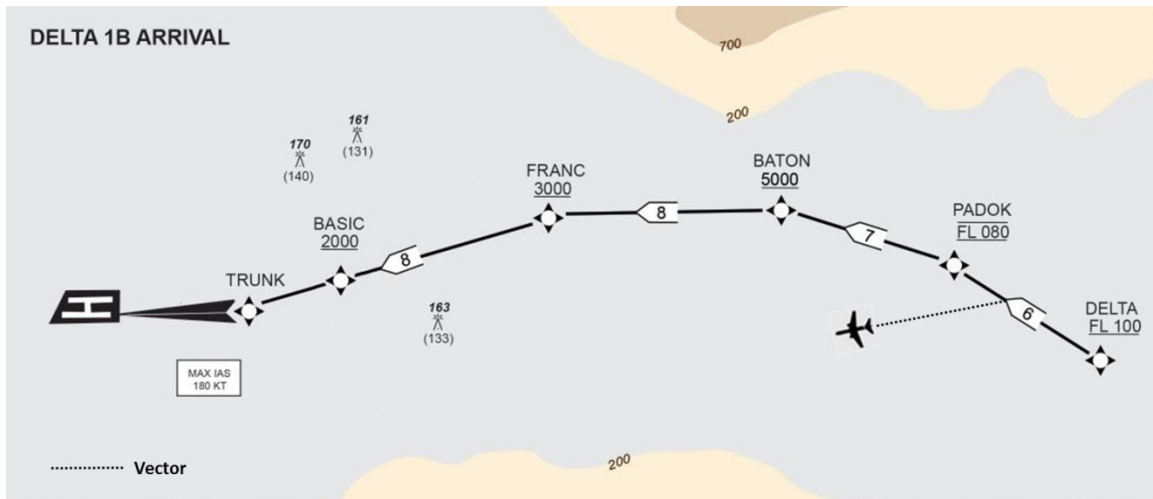
FASTAIR 345 must however comply with all published level and speed restrictions at and after FRANC.

Doc 4444 - PANS-ATM references

6.5.2.4.4 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.

SID/STAR SCENARIO

STAR Scenario 7: vector flight off a 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.

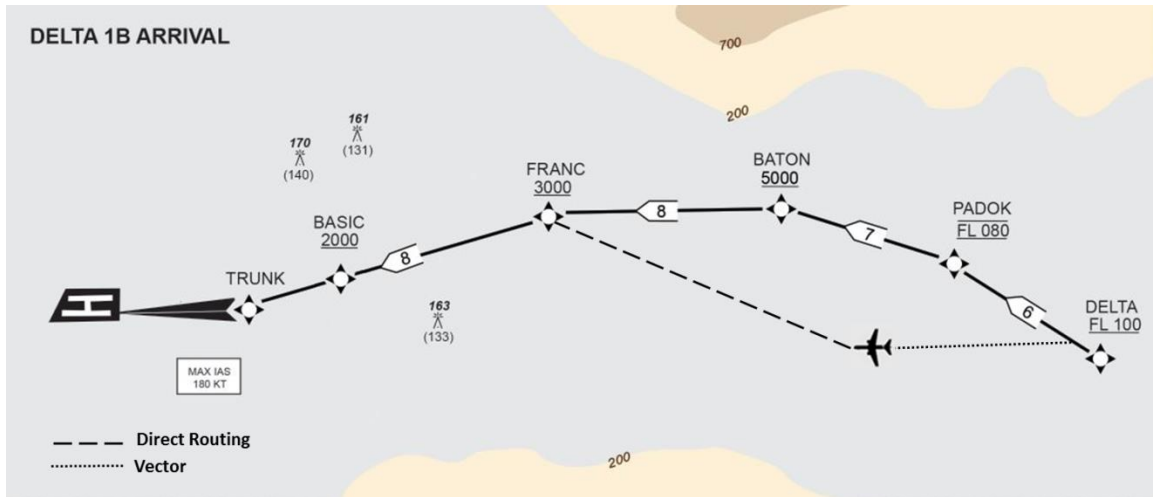
Doc 4444 - PANS-ATM reference

6.5.2.4.5 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 and;
- notify the pilot if it is expected that the aircraft will be instructed to subsequently rejoin the STAR.

SID/STAR SCENARIO

STAR Scenario 8: STAR REJOIN instruction when prior notice has not been issued



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.

Subsequently...

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 <u>DELTA 1B ARRIVAL</u> 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"

SID/STAR SCENARIO

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.

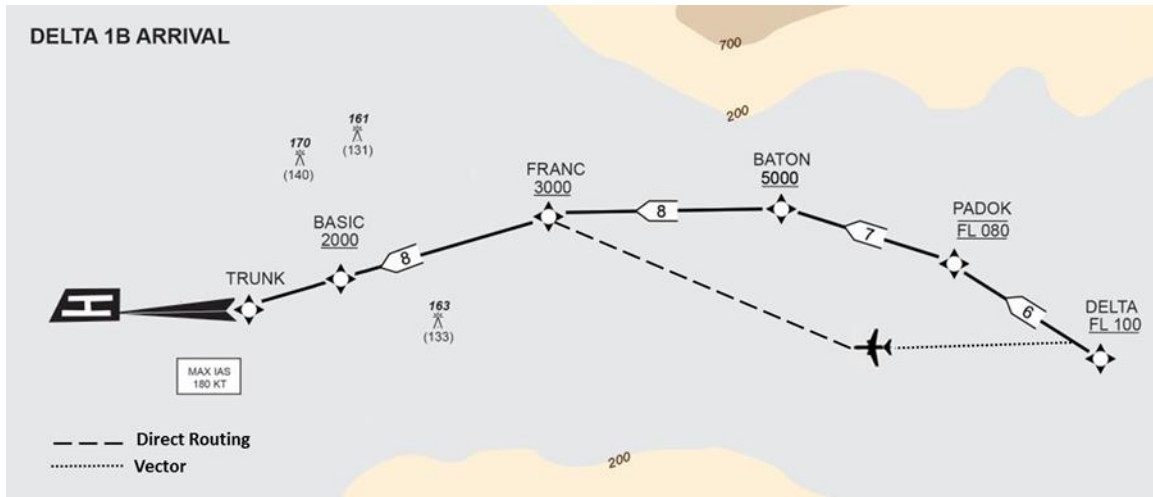
Doc 4444 - PANS-ATM reference

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

- a) the designator of the STAR to be rejoined, unless advance notification of rejoin has been provided in accordance with 6.5.2.4.5;
- b) the cleared level on rejoining the STAR in accordance with 6.5.2.4.1; and
- c) the position at which it is expected to rejoin the STAR.

SID/STAR SCENARIO

STAR Scenario 9: STAR REJOIN instructions when prior notice has been issued



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 EXPECT TO REJOIN STAR"
Pilot	"TURN LEFT HEADING 2-7-0 FASTAIR 345"

Pilot anticipated action

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

Subsequently...

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.

Doc 4444 - PANS-ATM reference

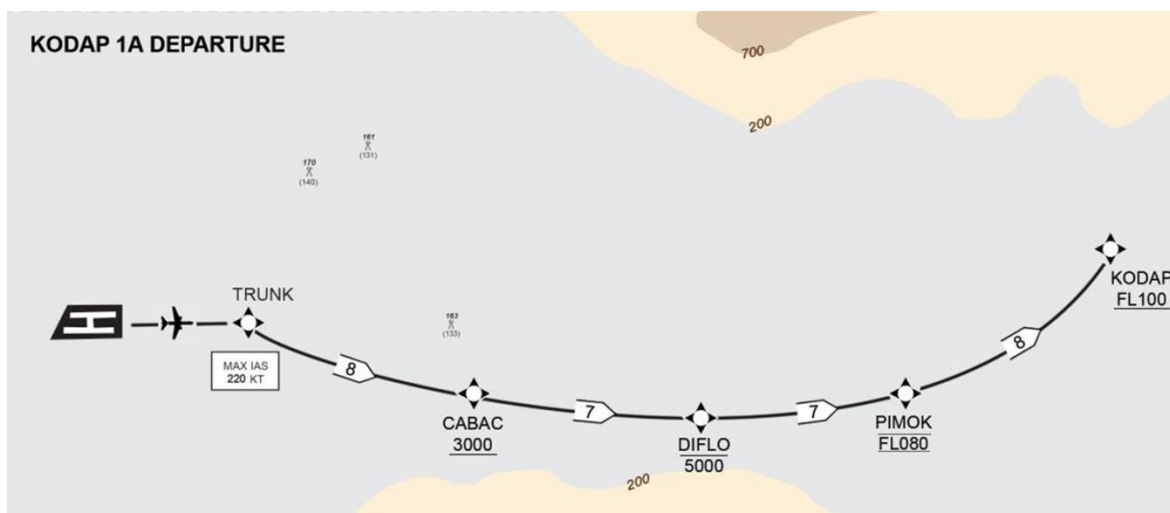
6.5.2.4.6 ATC instructions to an aircraft to rejoin a STAR shall include:

- a) the designator of the STAR to be rejoined, unless advance notification of rejoin has been provided in accordance with 6.5.2.4.5;
- b) the cleared level on rejoining the STAR in accordance with 6.5.2.4.1; and
- c) the position at which it is expected to rejoin the STAR.

Clearances on a SID

SID/STAR SCENARIO

SID Scenario 1: climb on a SID with charted restrictions



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.

Doc 4444 - PANS-ATM reference

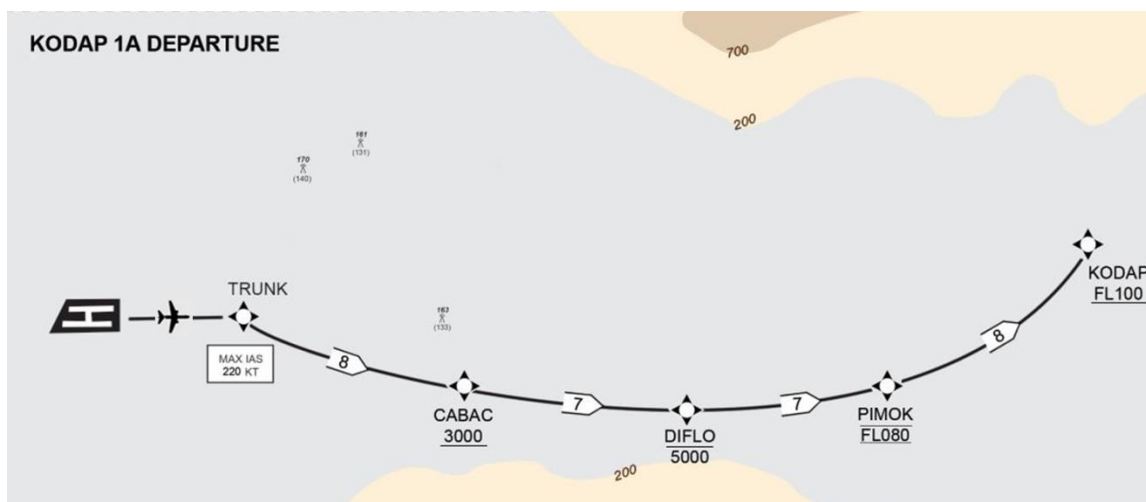
6.3.2.4.1 Clearances to aircraft on a SID with remaining published level and/or speed restrictions shall indicate if such restrictions are to be followed or are cancelled. The following phraseologies shall be used with the following meanings:

- a) CLIMB VIA SID TO (*level*):
 - i) climb to the cleared level and comply with published level restrictions;
 - ii) follow the lateral profile of the SID; and
 - iii) comply with published speed restrictions or ATC-issued speed control instructions as applicable.

[...]

SID/STAR SCENARIO

SID Scenario 2: climb on a SID – tactical cancellation of a speed restriction



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 080 CANCEL SPEED RESTRICTION AT TRUNK"</i>
Pilot	<i>"CLIMB VIA SID TO FL 080 CANCEL SPEED RESTRICTION AT TRUNK FASTAIR 345"</i>

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.

Doc 4444 - PANS-ATM reference

6.3.2.4.1 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 following phraseologies shall be used with the following meanings:

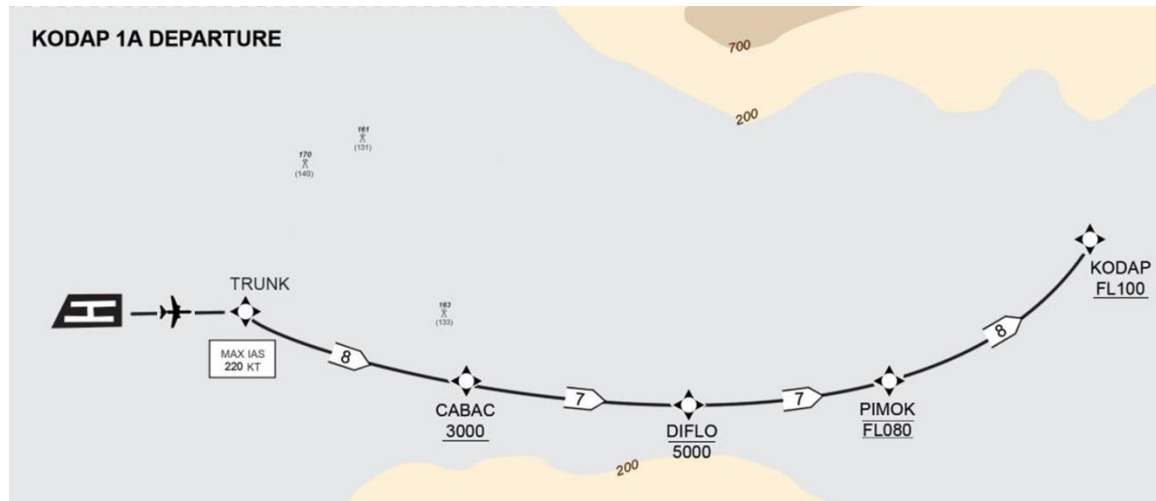
[...]

- e) CLIMB VIA SID TO *(level)*, CANCEL SPEED RESTRICTION(S) AT *(point(s))*;
- i) climb to the cleared level and comply with published level restrictions;
- ii) follow the lateral profile of the SID; and
- iii) published speed restrictions are cancelled at the specified point(s).

[...]

SID/STAR SCENARIO

SID Scenario 3: climb on a SID – tactical cancellation of a level restriction



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.

Doc 4444 - PANS-ATM reference

6.3.2.4.1 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 following phraseologies shall be used with the following meanings:

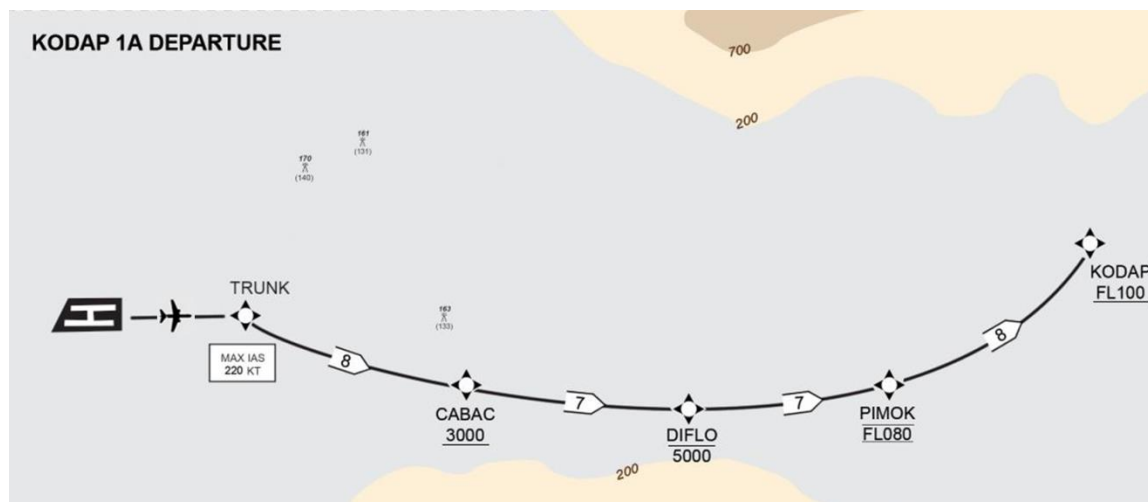
[...]

- c) CLIMB VIA SID TO *(level)*, CANCEL LEVEL RESTRICTION(S) AT *(point(s))*:
 - i) climb to the cleared level, published level restriction(s) at the specified point(s) are cancelled;
 - ii) follow the lateral profile of the SID; and
 - iii) comply with published speed restrictions or ATC-issued speed control instructions as applicable.

[...]

SID/STAR SCENARIO

SID Scenario 4: climb on a SID – cancellation of all restrictions below the cleared level



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"

Subsequently...

ATC	"FASTAIR 345 CLIMB VIA SID TO FL 120"
Pilot	"CLIMB VIA SID TO FL 120 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.

Subsequently, FASTAIR 345 will climb to FL 120 and comply with all the published restrictions above FL 070.

Doc 4444 - PANS-ATM reference

6.3.2.4.1 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 following phraseologies shall be used with the following meanings:

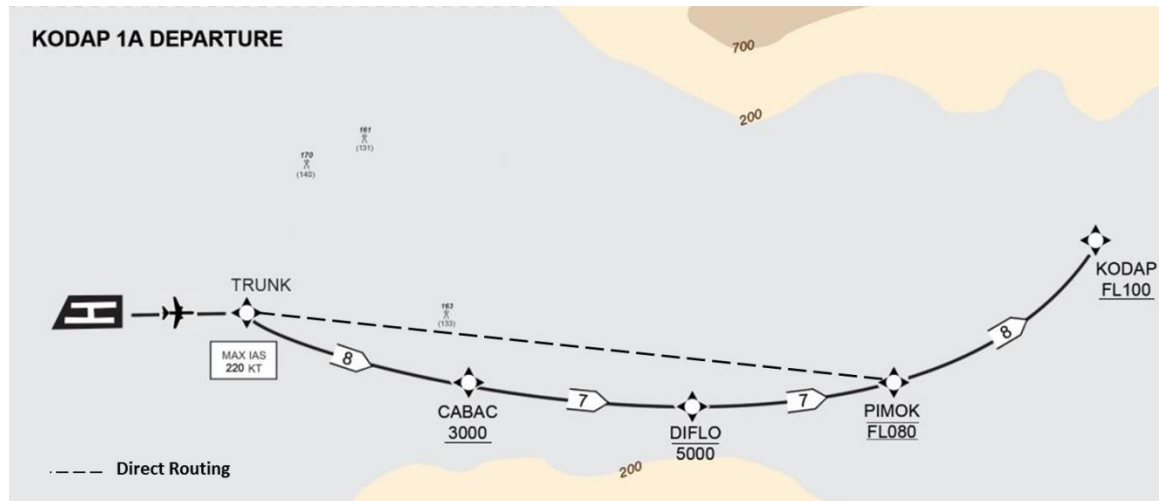
[...]

SID/STAR SCENARIO

- f) CLIMB UNRESTRICTED TO (*level*) or CLIMB TO (*level*), CANCEL LEVEL AND SPEED RESTRICTION(S):
- i) climb to the cleared level, published level restrictions are cancelled;
 - ii) follow the lateral profile of the SID; and
 - iii) published speed restrictions and ATC-issued speed control instructions are cancelled.
- [...]

SID/STAR SCENARIO

SID Scenario 5: proceeding direct to a point on 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	<i>"FASTAIR 345 PROCEED DIRECT PIMOK CLIMB VIA SID TO FL 120"</i>
Pilot	<i>"PROCEED DIRECT PIMOK CLIMB VIA SID TO FL 120 FASTAIR 345"</i>

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.

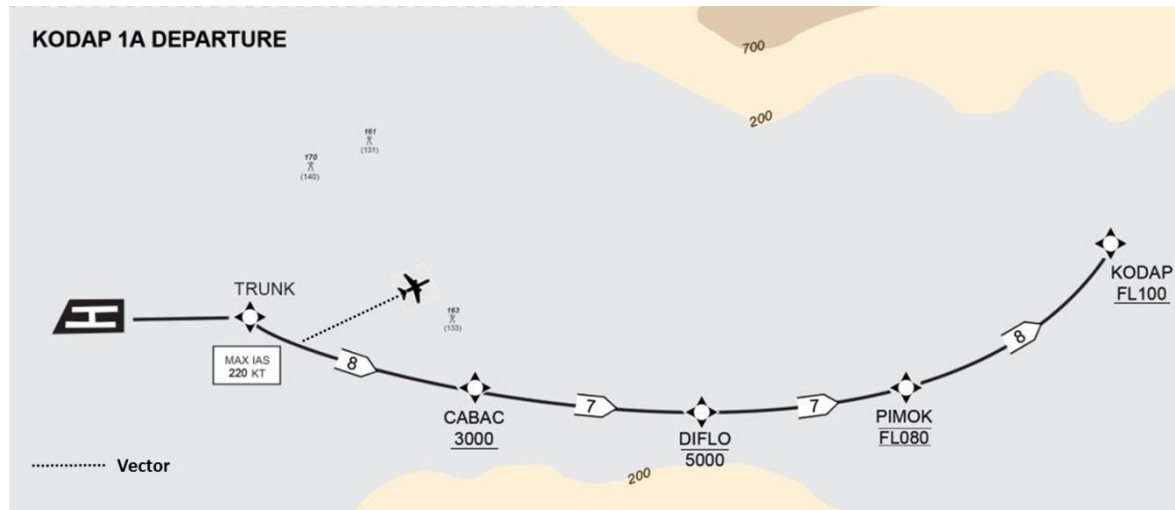
FASTAIR 345 must however comply with all the published level and speed restrictions at and after PIMOK.

Doc 4444 - PANS-ATM reference

6.3.2.4.4 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.

SID/STAR SCENARIO

SID Scenario 6: vector flight off a 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	<i>"FASTAIR 345 TURN LEFT HEADING 0-6-0 DUE TRAFFIC CLIMB TO FL 080 EXPECT TO REJOIN SID"</i>
Pilot	<i>"TURN LEFT HEADING 0-6-0 CLIMB TO FL 080 FASTAIR 345"</i>

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.

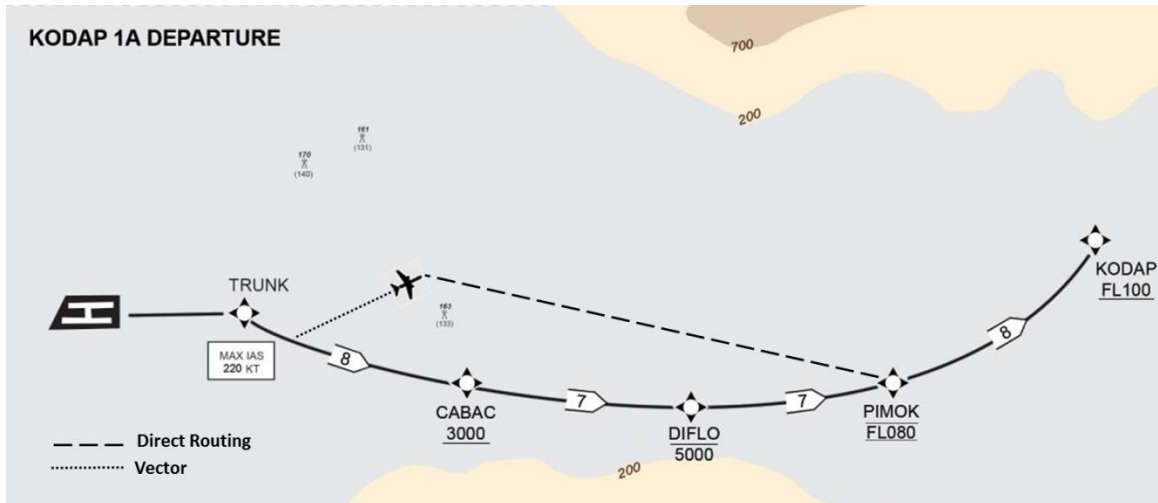
Doc 4444 - PANS-ATM reference

6.3.2.4.5 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; and
- notify the pilot if it is expected that the aircraft will be instructed to subsequently rejoin the SID.

SID/STAR SCENARIO

SID Scenario 7: SID REJOIN instructions when prior notice has not been issued



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.

Subsequently...

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"

SID/STAR SCENARIO

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.

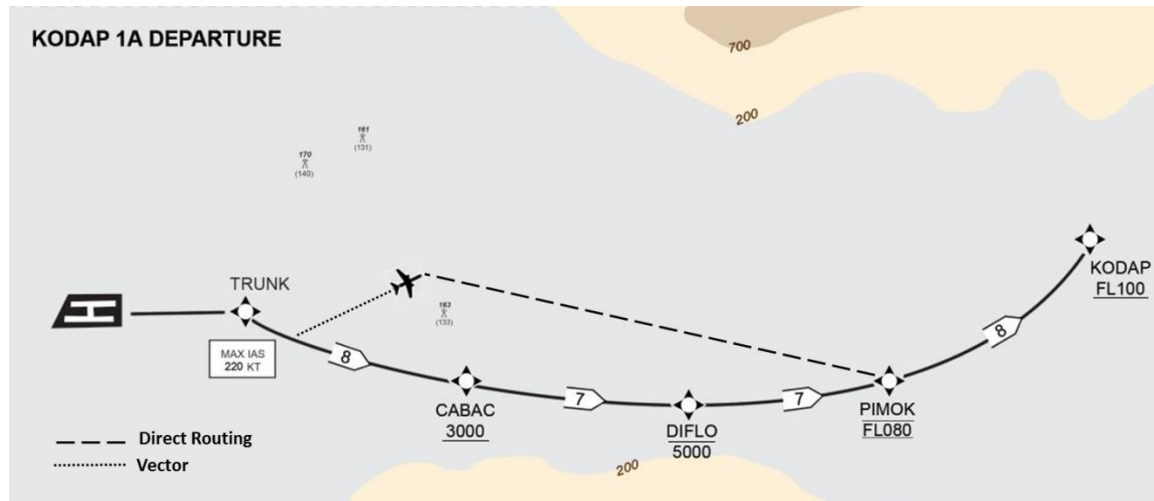
Doc 4444 - PANS-ATM reference

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

- a) the designator of the SID to be rejoined unless advance notification of rejoin has been provided in accordance with 6.3.2.4.5;
- b) the cleared level in accordance with 6.3.2.4.1; and
- c) the position at which it is expected to rejoin the SID.

SID/STAR SCENARIO

SID Scenario 8: SID REJOIN instructions when prior notice has been issued



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.

Subsequently...

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.

Doc 4444 - PANS-ATM reference

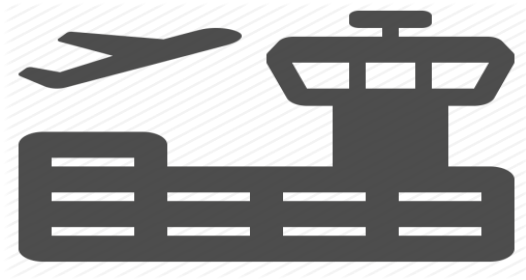
6.3.2.4.6 ATC instructions to an aircraft to rejoin a SID shall include:

- a) the designator of the SID to be rejoined unless advance notification of rejoin has been provided in accordance with 6.3.2.4.5;
- b) the cleared level in accordance with 6.3.2.4.1; and
- c) the position at which it is expected to rejoin the SID.

Ground clearances on a SID

SID/STAR SCENARIO

GROUND SID - Scenario 1



ATC clearance and pilot read back

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>

Pilot anticipated action

FASTAIR 345 will plan to depart from Runway 27 and to climb to 5000 FEET while respecting all the charted restrictions at or below 5000 FEET on the XXX SID.

Doc 4444 - PANS-ATM reference

4.5.7.2 Route of flight

4.5.7.2.1 The route of flight shall be detailed in each clearance when deemed necessary. The phrase "cleared flight planned route" may be used to describe any route or portion thereof, provided the route or portion thereof is identical to that filed in the flight plan and sufficient routing details are given to definitely establish the aircraft on its route. The phrases "cleared (designation) departure" or "cleared (designation) arrival" may be used when standard departure or arrival routes have been established by the appropriate ATS authority and published in Aeronautical Information Publications (AIPs).

Note.— See 6.3.2.3 pertaining to standard clearances for departing aircraft and 6.5.2.3 pertaining to standard clearances for arriving aircraft.

6.3.2 Standard clearances for departing aircraft

6.3.2.3 CONTENTS

Standard clearances for departing aircraft shall contain the following items:

- a) aircraft identification;
- b) clearance limit, normally destination aerodrome;
- c) designator of the assigned SID, if applicable;

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- d) cleared level;
- e) allocated SSR code;
- f) any other necessary instructions or information not contained in the SID description, e.g. instructions relating to change of frequency.

Note 1. — See 6.3.2.4.1 for clearances to aircraft on SID.

Note 2.— The use of a SID designator without a cleared level does not authorize the aircraft to climb on the SID vertical profile.

APÉNDICE B

CAMBIOS EN LA FRASEOLOGÍA

SID/STAR

(Inglés únicamente)

CHANGES TO SID/STAR PHRASEOLOGIES

Background

Standard Instrument Departures (SIDs) and Standard Instrument Arrivals (STARs) provide a safe and efficient way of prescribing a large amount of information through procedure design. Both depict the lateral profile of an instrument departure or arrival route and the level and speed restrictions along it.

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-harmonised 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 harmonised SID/STAR phraseology.

The reason for the Changes

The purposes of this change are to:

- 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;
- harmonise 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.

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.

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

- PROCEED DIRECT (waypoint), or
- VECTURING

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 doesn't change

- 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**.
- The requirement in ICAO Annex 10 for the highest standard of discipline to be applied to all communications at all times **does 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**.

Further information may be found in:

www.icao.int/airnavigation/sidstar/Pages/default.aspx

