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AIC
A
19/17
12 OUT 2017

SUPPLEMENTARY INFORMATION TO AIR NAVIGATION PROCEDURES

Period of validity: from 12 OCT 2017 to PERM.

1 PRELIMINARY ARRANGEMENTS

1.1 PURPOSE

This Aeronautical Information Circular (AIC) aims at disseminating supplementary information related to the new Coding Table layout that will be provided by DECEA.

1.2 SCOPE

The provisions set out in this AIC apply to all SISCEAB users who, in the performance of their activities, need to know in more detail the criteria and parameters used in the design of air navigation procedures published by DECEA.

1.3 ATTACHMENT

A – Parameters Related to the new Coding Tables

1.4 REFERENCES

- Doc 8168 – *Procedures for air navigation services – Aircraft operations*;
- Doc 9613 – *Performance-based navigation (PBN) manual*;
- ARINC 424 – *Navigation system database specification*;
- MACAR – *Manual de Confecção de Cartas Aeronáuticas*.

2 GENERAL ARRANGMENTS

2.1 Due to changes in the layout and in the information line-up in the Coding Table (TAB COD), as of October 12, 2017, there will be two Coding Table templates in force. The former Coding Table template is presented in AIC 02/17. The new Coding Table template is presented in this AIC.

3 SPECIFIC ARRANGMENTS

3.1 CONCEPTS

3.1.1 PATH AND TERMINATOR (PATH TERMINATOR):

A two-letter code which defines a specific type of flight path along a segment of a procedure and a specific type of termination of that flight path.

3.1.2 SPECIAL PROCEDURES:

Air navigation procedures for which criteria or parameters other than those contained in the reference guides or recommended by ICAO have been used, or that have a structure or profile that is difficult to execute and which are therefore subject to stricter operational approval procedure to ensure that the adequate levels of safety are met.

3.1.3 DATABASE PROVIDERS:

International organizations or companies that operate in the segment of providing navigation data to its users. Aeronautical charts that contain air navigation procedures are sent to these institutions for the coding and production of the database used in the Flight Management Systems (FMS) of the aircraft.

3.1.4 CODING TABLE (TAB COD):

Tabular description of all the characteristics of an air navigation procedure, which are used in the coding and preparation of the navigation database.

3.1.5 SPECIAL PARAMETERS TABLE:

Table containing the specific values (or parameters) used in the design of special procedures.

3.2 ACRONYMS AND ABBREVIATIONS

AIP - Aeronautical Information Publication

FMS - Flight Management System

IAC – Instrument Approach Chart

NDB – Navigation Database

NOTAM – Notice to Airmen

RNP AR – Required Navigation Performance – Authorization Required

ROTAER – *Manual de Rotas Aéreas* (Air Routes Manual)

SID - Standard Instrument Departure

SISCEAB - Brazilian Airspace Control System

STAR - Standard Instrument Arrival

TAB COD - Coding Table

3.3 GENERAL GUIDELINES

3.3.1 FMS used in modern aircraft on-board equipment require that air navigation procedures (IAC, SID and STAR) be properly inserted and stored in aircraft Navigation Data Base (NDB) so that they can be appropriately used by certified systems for operations based on area navigation (RNAV/RNP).

3.3.2 The Aeronautical Industry, in order to allow an adequate conversion of the information contained in IAC, SID and STAR into a NDB, developed the ARINC 424 standard and the "Path and Terminator" or "Path Terminator" concept, among other requirements, which are used for codification of the procedures.

3.3.3 The coding of a procedure is the process of inserting all relevant aeronautical information (fixes, paths, altitudes, distances, headings and turns, among others) so that the FMS can interpret

this information and cause the aircraft to perform the air navigation procedure as designed and published. This coding shall be the same for the most varied types of aircraft and for the various types of systems.

3.3.4 In addition to the coding standards considered, it is important to emphasize that the production task of the navigation database also depends on the correct interpretation of the procedure by the database provider, and the quality, integrity and correctness of the information made available to the database users.

3.3.5 In this sense, a precise, complete and unambiguous description of air navigation procedures is an essential requirement to assist the database provider in coding the procedure. This aspect is achieved through the publication of the procedure chart, in association with an additional description, textual and/or tabular, of this procedure.

3.3.6 The dissemination of supplementary information to air navigation procedures is an ICAO recommendation, as provided for in Doc 8168 (PANS-OPS), and has been adopted by DECEA since 2013, as provided for in MACAR - Aeronautical Chart Manual.

3.3.7 In Brazil, this information is disseminated to users through supplementary information tables, also called Coding Tables (TAB COD), as they are used by database providers for the coding of air navigation procedures.

3.3.8 Other important information on air navigation procedures refers to the special criteria or parameters that may have been used in the preparation of a procedure.

3.3.9 These special requirements are based on flight performance or specific functionalities and are used in some cases to achieve significant benefits such as accessibility or efficiency, which could not be achieved with the general criteria recommended by ICAO.

3.3.10 Air navigation procedures developed considering special criteria or parameters, different from those contained in the reference guides, are called "Special Procedures" and their specific characteristics must be known by the users, in order to clarify the used criteria and, in this way, assure that the adequate process of operational approval be accomplished by the Civil Aviation National Agency (ANAC).

3.4 SUPPLEMENTARY INFORMATION

3.4.1 The supplementary information to the air navigation procedures is disseminated to the users by means of an electronic file, associated with the respective IAC, SID or STAR, containing the following set of information:

- a) Coding Table (TAB COD); and
- b) Special Parameters Table, if any.

NOTE: Procedures that require special authorization for approval will contain the text: "Special Authorization Required, according to ANAC legislation".



Figure 1 – Example of "Specific Authorization Required" for IAC, SID or STAR

3.5 CODING TABLE (TAB COD) OF AIR NAVIGATION PROCEDURES

The national standard used in the preparation of the TAB COD is based on the requirements laid out in Doc 8168 (PANS-OPS), ARINC 424 code and international best practices, in order to meet most of the specifications and needs of several users.

NOTE 1: The database provider may use specific and particular standards for encoding procedures. However, coded procedures may not result in (vertical or lateral) paths or parameters and restrictions (such as minimum altitudes, minimum gradients, speed restrictions, etc.) other than those contained in the procedure charts published by DECEA.

NOTE 2: DECEA does not impose any restrictions on the activities and standards used by database providers, nor is it responsible for the quality, reliability or any characteristics of the products offered by them.

3.5.1 The information contained in TAB COD is complementary to the information contained in the aeronautical charts, as well as to all other aeronautical information published in other sources, such as AIP Brazil, ROTAER, NOTAM, etc.

3.5.2 In this sense, it is important to highlight that the use of the information contained in the TAB COD does not exempt the database providers from the need to consult other sources for the proper coding of the procedures.

3.5.3 A full description of the requirements and parameters used for the preparation of the TAB COD is attached to this Circular.



CODING TABLE

SID RNAV GEPVO 1A 33				JOINVILLE / Lauro Carneiro de Loyola (SBJV)								SBJV_SID_00U		12 OCT 17	
Seq Num	Transition Identifier	Fly Over	Rec Navaid	Fix Ident	Path and Terminator	Course Angle	Turn	Upper Limit Altitude (FT)	Lower Limit Altitude (FT)	Speed Limit (KT)	Speed Limit Description	TM DST	VA (°)	Role of the Fix	Navigation Specification
10	RWY	N/A	N/A	N/A	VA	328.18° Mag 308.58° True	N/A	N/A	+550	210	-	N/A	2.98	N/A	RNAV 1 or RNP 1
20	RWY	Y	N/A	GEPVO	DF	N/A	R	N/A	N/A	210	-	N/A	2.98	OTHER	RNAV 1 or RNP 1
10	CTB	N/A	N/A	GEPVO	IF	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	OTHER	RNAV 1 or RNP 1
20	CTB	N	N/A	OGLUT	TF	14.32° Mag 354.61° True	L	B13000	B10000	N/A	N/A	15.61	N/A	OTHER	RNAV 1 or RNP 1
30	CTB	N	N/A	CTB	TF	327.44° Mag 307.84° True	L	N/A	N/A	N/A	N/A	23.06	N/A	OTHER	RNAV 1 or RNP 1

Figure 2 – Excerpt of a TAB COD

3.6 SPECIAL PARAMETERS

3.6.1 “Special” Air Navigation Procedures are those that were designed taking in account criteria or parameters other than those contained in the reference guides or recommended by ICAO, or those that have a structure or profile that is difficult to carry out.

NOTE: The procedures can be of any type (approach, departure or arrival procedure), but are more common in the case of RNP AR based approach procedures.

3.6.2 The specific criteria or parameters used in the design of special procedures shall be confirmed with the operators, in order to verify the performance or functional requirements of a given aircraft or set of aircraft may be used for optimization of the procedure in order to achieve greater benefits.

3.6.3 It should be emphasized, however, that specific criteria of procedure design, such as criteria for the construction of protection areas, obstacle assessment or calculation of operational minima, cannot be ignored.

3.6.4 Therefore, special procedures must be subject to a stricter operational approval process, in order to assure that the adequate safety levels are being met.

3.6.5 Therefore, information concerning the specific parameters used in the design of the Special Procedure will be disclosed, when necessary, in order to assist the operational approval process with the competent Aeronautical Authority.

SPECIAL PROCEDURE								
INITIAL APPROACH SEGMENT								
Track	Bank Angle(°) Used / STD	TWC (KT) Used / STD	IAS (KT) Used / STD	TrD (NM) Used / STD	Gradient (%) Used / STD	RNP (NM) Used / STD		
All parameters used have default values.								
INTERMEDIATE APPROACH SEGMENT								
Track	Bank Angle(°) Used / STD	TWC (KT) Used / STD	IAS (KT) Used / STD	TrD (NM) Used / STD	Gradient (%) Used / STD	RNP (NM) Used / STD		
All parameters used have default values.								
FINAL APPROACH SEGMENT								
Track	Bank Angle(°) Used / STD	TWC (KT) Used / STD	IAS (KT) Used / STD	Dfrop (NM) Used / STD	TrD (NM) Used / STD	Gradient (%) Used / STD	RNP (NM) Used / STD	TP Altitud (FT)
RJ808-RJ807	27 / 18	41 / 41	140 / 160	N/A	N/A	-4.98 / -5.24	0.1 / (0.1 to 0.3)	N/A
RJ806-RJ804	25 / 03	26 / 26	140 / 160	N/A	N/A	-4.98 / -5.24	0.1 / (0.1 to 0.3)	296 / 492
RJ804-RW02R	N/A	N/A	140 / 160	0.9 / 3.07	N/A	-4.98 / -5.24	0.1 / (0.1 to 0.3)	N/A

Figure 3 – Excerpt of Special Parameters Table

3.6.6 The Special Procedures will be listed in the “Special Procedures” tab at AISWEB.

The screenshot shows the AISWEB interface. At the top, there is a logo for 'AIS Serviço de Informação Aeronáutica' and language options for 'Português' and 'English'. A navigation bar includes links for 'Início', 'Abreviaturas', 'Cartas', 'NOTAM', 'Publicações', 'Suplemento AIP', 'Nascer/Pôr do Sol', and 'Plano de Voo'. The main content area is titled 'Cartas' and 'Cartas Aeronáuticas'. Below this, there are tabs for 'Aeródromos/TMA', 'Rotas', 'Visuais', and 'Procedimentos Especiais'. The 'Procedimentos Especiais' tab is active, displaying a table titled 'Tabela de Procedimentos Especiais'. The table lists procedures for SBRJ with columns for 'Aeródromo', 'Tipo', 'Carta', and 'Identificação'. The text above the table states that these procedures are considered 'Procedimentos Especiais' and require an operational approval process from ANAC.

Aeródromo	Tipo	Carta	Identificação
SBRJ	IAC	RNAV (RNP) X RWY20L	RJ01G
SBRJ	IAC	RNAV (RNP) W RWY20L	RJ01H
SBRJ	IAC	RNAV (RNP) W RWY 02R	RJ01E
SBRJ	IAC	RNAV (RNP) X RWY02R	RJ01F
SBRJ	IAC	IAC RNAV (RNP) T RWY 02R	RJ02C

Figure 4 – Special Procedures List

3.6.7 In the tab "Charts" you can also identify (through an icon) the procedures classified as special. See figure below:

Cartas Aeronáuticas

Aeródromos/TMA | Rotas | Visuais | Procedimentos Especiais

Indicadores de Localidade: Tipo de Carta:

Até 5 indicadores de localidade padrão ICAO separados por vírgula
 Não sabe o Indicador de Localidade? Clique aqui

Emendas futuras disponíveis: [17.08.2017] [14.09.2017] [12...17] 15 resultados

Faça do download de mais de uma carta por vez clicando nos checkboxes selecionando o botão "Fazer download das cartas selecionadas" no fim da listagem.

Localidade	Tipo	Carta	ICP	Emenda
SBRJ	IAC	RNAV (RNP) X RWY20L <small>279Kb</small> PE	RJ01G	28.05.2015
SBRJ	IAC	RNAV (GNSS) Y RWY02R <small>471Kb</small>	RJ00L	25.06.2015
SBRJ	IAC	RNAV (GNSS) Y RWY20L <small>587Kb</small>	RJ00M	25.06.2015
SBRJ	IAC	RNAV (RNP) W RWY20L <small>172Kb</small> PE	RJ01H	25.06.2015

3.7 SUPPLEMENTARY INFORMATION TO THE PROCEDURES

3.7.1 The electronic file containing supplementary information to the air navigation procedures is made available in two ways:

- a) To database providers, through a FTP link;
- b) To the other users, through the AISWEB, at <http://www.aisweb.aer.mil.br/>.

Note: On the AISWEB portal, additional information regarding a procedure can be viewed in the "ICP" column. See the example in Figure 4 below.

Localidade	Tipo	Carta	ICP	Emenda
SBRJ	IAC	RNAV (RNP) X RWY20L <small>279Kb</small>	RJ01G	28.05.2015
SBRJ	IAC	RNAV (GNSS) Y RWY02R <small>471Kb</small>	RJ00L	25.06.2015
SBRJ	IAC	RNAV (GNSS) Z RWY20L <small>364Kb</small>	RJ00J	25.06.2015
SBRJ	IAC	RNAV (GNSS) Y RWY20L <small>587Kb</small>	RJ00M	25.06.2015
SBRJ	IAC	RNAV (RNP) W RWY20L <small>172Kb</small>	RJ01H	25.06.2015

Figure 5 – Disclosure of Supplementary Information to Procedures on AISWEB

4 FINAL ARRANGEMENTS

4.1 Cases not provided for in this AIC shall be settled by the Head of DECEA’s Operations Subdepartment.

ATTACHMENT A

PARAMENTER REQUIREMENTS RELATING TO CODING TABLES

1 PRELIMINARY ARRANGEMENTS

1.1 This Attachment contains information on the requirements and parameters considered in the elaboration of Coding Tables (TAB COD) of air navigation procedures, which will be applied by October 12, and may help database providers in coding the procedures.

STAR RNAV EDREX 1A RWY 33					JOINVILLE / Lauro Carneiro de Loyola (SBJV)							SBJV STAR 00W		12 OCT 17	
Seq Num	Transition Identifier	Fly Over	Rec Navaid	Fix Ident	Path and Terminator	Course Angle	Turn	Upper Limit Altitude (FT)	Lower Limit Altitude (FT)	Speed Limit (KT)	Speed Limit Description	TM DST	VA (°)	Role of the Fix	Navigation Specification
10	EDREX	N/A	N/A	EDREX	IF	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	OTHER	RNAV 1 or RNP 1
20	EDREX	N	N/A	EPKUV	TF	188.35° Mag 168.92° True	N/A	N/A	N/A	N/A	N/A	22.95	N/A	OTHER	RNAV 1 or RNP 1
30	EDREX	N	N/A	JV01B	TF	147.61° Mag 128.15° True	L	B14000	B10000	N/A	N/A	6.40	N/A	OTHER	RNAV 1 or RNP 1
40	EDREX	N	N/A	JV039	TF	147.59° Mag 128.07° True	N/A	-9000	N/A	N/A	N/A	11.85	N/A	OTHER	RNAV 1 or RNP 1
50	EDREX	N	N/A	JV043	TF	147.57° Mag 128.02° True	N/A	N/A	+7000	N/A	N/A	6.41	N/A	OTHER	RNAV 1 or RNP 1
60	EDREX	N	N/A	KIMAD	TF	147.56° Mag 127.97° True	N/A	N/A	+4000	N/A	N/A	8.38	N/A	IAF	RNAV 1 or RNP 1

Figure 1 – Example of TAB COD in force by 12 OCT 2017

2 GENERAL RULES

The air navigation procedures coding tables, published by DECEA, have four (04) sets of information:

- a) Identification and General Information of the Procedure Chart;
- b) Coding Table itself;
- c) Fix/Waypoints Table;
- d) Symbol Table

NOTE: The information contained in the TAB COD is published only in English, to optimize the space available for data entry.

2.1 IDENTIFICATION AND GENERAL INFORMATION OF THE PROCEDURE CHART

1	2	3	4
STAR RNAV EDREX 1A RWY 33	JOINVILLE / Lauro Carneiro de Loyola (SBJV)	SBJV_STAR_00W	12 OCT 17

Figure 2 – Identification and General Information of Procedure Chart

Field 1: Identification of the Procedure;

Field 2: Aerodrome to which the procedure refers;

Field 3: Code used to individualize a given procedure chart.

Field 4: AIRAC cycle for effectiveness of the procedure chart.

2.2 CODING TABLE

STAR RNAV EVPUK 1B RWY 33					JOINVILLE / Lauro Carneiro de Loyola (SBJV)							SBJV_STAR_00W		12 OCT 17	
Seq Num	Transition Identifier	Fly Over	Rec Navaid	Fix Ident	Path and Terminator	Course Angle	Turn	Upper Limit Altitude (FT)	Lower Limit Altitude (FT)	Speed Limit (KT)	Speed Limit Description	TM DST	VA (°)	Role of the Fix	Navigation Specification
10	ORANA	N/A	N/A	ORANA	IF	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	OTHER	RNAV 1 or RNP 1
20	ORANA	N	N/A	EVPUK	TF	209.08° Mag 189.00° True	N/A	-18000	N/A	N/A	N/A	34.62	N/A	OTHER	RNAV 1 or RNP 1
10	SOVSI	N/A	N/A	SOVSI	IF	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	OTHER	RNAV 1 or RNP 1
20	SOVSI	N	N/A	EVPUK	TF	239.85° Mag 219.77° True	N/A	-18000	N/A	N/A	N/A	83.23	N/A	OTHER	RNAV 1 or RNP 1
10	COMMOM	N/A	N/A	EVPUK	IF	N/A	N/A	-18000	N/A	N/A	N/A	N/A	N/A	OTHER	RNAV 1 or RNP 1
20	COMMOM	N	N/A	EGDIB	TF	202.79° Mag 182.76° True	L	-17000	N/A	N/A	N/A	10.03	N/A	OTHER	RNAV 1 or RNP 1
30	COMMOM	N	N/A	GEPGU	TF	207.81° Mag 187.84° True	R	N/A	+13000	N/A	N/A	10.01	N/A	OTHER	RNAV 1 or RNP 1
40	COMMOM	N	N/A	EDRAD	TF	207.53° Mag 187.66° True	N/A	-9000	N/A	N/A	N/A	17.86	N/A	OTHER	RNAV 1 or RNP 1
50	COMMOM	N	N/A	ARNED	TF	206.32° Mag 186.61° True	L	N/A	+4000	N/A	N/A	26.96	N/A	IAF	RNAV 1 or RNP 1

Figure 3 – Coding Table

NOTE: The coding table may not contain empty cells. If there is no information to be provided or if two values are possible, the symbol “N/A” is inserted.

2.2.1 **Seq Num:** Sequence of procedure segments.

- a) It must contain 3 digits, starting by 10;
- b) The values are multiples of 10;

2.2.2 **Transition Identifier:** Type of procedure transition:

- a) IAC: Initial, Approach and Missed Approach;
- b) SID/STAR: Runway, Common and En-route;

NOTE 1: The Common transition not always will be necessary and/or in place. The procedure may contain only Runway or En-route transitions.

NOTE 2: When there is no transition (SID/STAR), the field will be filled with the name of the last fix/waypoint of SID or the first fix/waypoint of STAR.

2.2.3 **Flyover (Y/N):** Information on whether the fix/waypoint is of the flyover ("Yes") or fly-by ("No") type.

2.2.4 **Rec Navaid:** Navigation Aid:

- a) Navigation Three-letter acronym of the navigation aid providing positive navigation guide of the corresponding position;
- b) When there are two NAVAIDs with the same three-letter acronym, an additional comment is added (Ex.: CPN VOR and CPN NDB).
- c) The Runway transition of a SID does not contain “IF”, that is, the first line starts with the Path Terminator defined (CA, CF, etc.). The other transitions start normally as “IF”.

2.2.5 **Fix Ident:** Navigation aid, fix or waypoint

- a) Identification of the navigation aid, fix or waypoint;

- b) In the RNAV procedures, restrictions (altitude, IAS, QNH, etc.) receive alphanumeric identification (Ex.: GL303) and are published in the procedure chart;
- c) In the conventional procedures, five-letter identifications will be published for the restrictions (altitude, IAS, QNH, etc.).

2.2.6 **Path Terminator:** Type of Path Terminator, in accordance with ARINC 424 and Doc 8168:

- a) Each transition is started with “IF”, except the first SID segment and Missed Ap transition;
- b) “HM” is not coded to avoid mandatory execution of holding, except for the missed approach holding;
Note: The "plant" design is maintained;
- c) In the conventional procedures, when there is doubt concerning coding or the possibility of more than one Path Terminator, the symbol “N/A” is inserted;
- d) In ILS IAC, the Path Terminator of the final approach is “CF” and NAVAID is ILS (Ex: ILM);
- e) The “VA/CA”, in the SID and Missed Ap segments, will contain the angle information (degrees) corresponding to the calculated climb gradient, when it is different from the standard gradient of 3.3% for SID and 2.5%, for Missed Ap.

2.2.7 **Course Angle:** Magnetic Bearing and True Bearing:

- a) Magnetic bearing (Mag) and True bearing (True), both represented in a hundredth of a degree, for any kind of procedures;
- b) The magnetic bearings are published on the chart plants with values rounded to the nearest integer, and the true bearings with values rounded to the nearest one-tenth of a degree;
- c) The true bearings shall not be published for conventional procedures.

2.2.8 **Turn (L/R):** Direction of the turn: L = Left or R = Right:

NOTE: The symbol “N/A” is inserted when there is the possibility of left or right turns; however, it is not possible to define the side of the turn.

2.2.9 **Upper Limit Altitude:** Upper Limit Altitude in feet (FT):

2.2.9.1 The maximum crossing altitude at the fix/waypoint will be inserted in this column, by adding a minus sign (-) in front of the given altitude.

Ex.: -2100

2.2.10 **Lower Limit Altitude:** Lower Limit Altitude in feet (FT):

2.2.10.1 The minimum crossing altitude at the fix/waypoint will be indicated in this column, adding a plus sign (+) in front of the given altitude.

NOTE 1: In the final segment of the IAC, the threshold crossing altitude (THEL + RDH) is informed and the symbols of mandatory altitude are indicated in the “Lower Limit Altitude (FT) field, “@”.

Ex: @3150 (indication that the aircraft must pass altitude (AT) of 3150FT.

NOTE 2: The altitude window information is represented using the letter B (“between”), as follows:

Ex.: Between levels 100 and 150: “B15000” is inserted in column “Upper Limit

Altitude” and “B11000” is inserted in column “Lower Limit Altitude”.

NOTE 3: Field “Lower Limit Altitude (FT) will include the recommended altitude indication, with letter “R” in front of the altitude.

Ex: Recommended passing altitude at FAF of 1650 FT is represented as R1650 in field “Lower Limit Altitude”.

2.2.11 Speed Limit (KT) and Speed Limit Description: Indicated Air Speed (IAS) Restrictions in the beginning of the segment.

Ex.: IAS MAX 210 KT is represented as follows: value of 210 in column “Speed Limit (KT)” and minus sign (-) in column “Speed Limit Description”.

2.2.12 TM DST: Time (min:ss) and Distance (NM):

- a) Travelled distance in one hundredth of NM;
- b) In some cases, it may contain the time information. Ex: Outbound time in an IAC, hold on a MAHF.
- c) For “RF” segments, the value of the turn’s radius is informed in one hundredth of NM;
- d) It’s not necessary to inform the DME distance of the arches, only the coordinates of the “AF” segment fix.

2.2.13 Vertical Angle (VA°): Vertical Angle of climb/descent.

2.2.13.1 The vertical angles of climb/descent will be inserted, in one-hundredth of degrees, corresponding to the calculated gradients.

- a) Insert in the final approach segment, whatever the value;
- b) Insert in the missed approach when different from the calculated gradient of 2.5%; and
- c) It will be inserted in the SID only if the calculated Minimum Climb Gradient is different from 3.3%.

2.2.14 Role of the Fix: Function of the navigation aid, fix or waypoint in the procedure:

2.2.14.1 IAF, IF, FAF, MAPt, MAHF, SDF, FROP, LTP e FTP;

2.2.15 Navigation Specification: Navigation specification

2.2.15.1 Only inserted for RNAV and RNP procedures; “N/A” should be used for the other procedures.

2.3 FIX/WAYPOINTS TABLE

IDENT	Latitude / Longitude (WGS84) DD:MM:SS.SS
GEGIM	S 23:34:33.63W 51:56:33.68
MG102	S 23:34:33.76W 52:03:05.55
MG103	S 23:31:04.21W 52:05:58.57
MG104	S 23:29:06.34W 52:03:43.09
MG100	S 23:31:48.22W 52:03:05.50
RWY10	S 23:28:41.11W 52:01:35.46
MG367	S 23:25:16.60W 51:44:26.30

Figure 4 – Fix/Waypoints Table

- a) IDENT: Fix/waypoints identification;
- b) Latitude/Longitude (WGS84) DD: MM:SS.SS: Fix/waypoints coordinates.

NOTE: The instrument departure procedures also show the departure end of runway (DER) coordinates.

DER	Latitude / Longitude (WGS84) DD:MM:SS.SS	Elevation (FT)
27L	S 23:26:19.67W 46:29:13.31	2449.80
27R	S 23:26:03.96W 46:29:02.15	2444.88

Figure 5 – DER Information Table

2.4 TABLE OF SYMBOLS

SYMBOLS			
RNP AR		EXCEPT RNP AR	
COD	Meaning	COD	Meaning
+	AT OR ABOVE	+	AT OR ABOVE
-	AT OR BELOW	-	AT OR BELOW
@	AT	@	AT
R	RECOMMENDED	R	RECOMMENDED
B	BETWEEN	B	BETWEEN
=	AS ASSIGNED	=	AS ASSIGNED
SDF	STEPDOWN FIX	SDF	STEPDOWN FIX
Y	YES	Y	YES
N	NO	N	NO
L	LEFT	L	LEFT
R	RIGHT	R	RIGHT
N/A	NOT APPLICABLE	N/A	NOT APPLICABLE
FROP	FINAL APPROACH ROLLOUT POINT	LTP	LANDING THRESHOLD POINT
LTP	LANDING THRESHOLD POINT	FTP	FICTITIOUS THRESHOLD POINT
FTP	FICTITIOUS THRESHOLD POINT		

Figure 6 – Symbol Table

- a) COD: Symbol used in the coding table;
- b) Meaning: Meaning of the symbols used in the coding tables.