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Following supplement is issued for information, guidance and necessary action.



**K. RAMALINGAM**  
CHAIRMAN

**AIRPORTS AUTHORITY OF INDIA**

[Effective from 0803280001]

**STANDARD INSTRUMENT ARRIVAL PROCEDURES (STARs)**  
**RWY 09/27 – BIAL RNAV (VOR DME)**

- I. General
  - (i) The STARs are designed for Rwy 09/27 based on the provisions of DOC 8168, VOL II for aircraft equipped with RNAV capability.
  - (ii) STARs shall be applicable under radar control environment only.
  - (iii) STARs are designed to reduce pilot and controller workload, maximize traffic handling capacity, minimize conflict with departing traffic as far as practical.
  - (iv) The STARs are presented in the diagrammatic and textual format.
  - (v) In order to avoid conflict with departing traffic, descent upto FL85 has been specified to a particular way point on the arrival route. Descent below FL85 shall be specified by ATC. ATC will ensure that sufficient distance is available for the aircraft to reach 5500 feet prior to crossing BL 173 (IF Rwy 27) and 6600 feet prior to crossing BL 174 (IF Rwy 09.)

(vi) All aircraft shall follow the speed control as given below:

At or below FL 150 and within 40 DME (BIA) : 220 KT (MAX)

At or below FL 85 and within 20 DME (BIA) : 210 KT ((MAX)

Final Approach : 170 KT (MAX)

Speed control is necessary for maintaining and orderly flow of traffic and also ensure that aircraft do not cross the final approach track when executing the turn for final approach.

(vii) STARs terminate on the interception the localizer after crossing the IF of the ILS approach of the applicable Rwy. Specific clearance shall be issued by ATC for commencing the ILS procedures before crossing the IF.

(viii) Aircraft cleared for ILS approach shall follow the descent profile as provided in the instrument approach chart of the applicable Rwy. Aircraft shall contact Tower prior to crossing 5DME and obtain the landing clearance.

(ix) Way points have been designated with reference to BIAL VOR/DME (13°12'23.39"N 077° 43'51.25" E). The coordinates have been specified in WGS-84 system.

(x) The following way points have been designated for development of STARs.

S.NO	NAME	RADIAL/DISTANCE (NM) VOR DME (BIA)	WGS-84 COORDIANTES	ATS ROUTES
1.	AKAGA	R-088/21	13° 14'0.82" N 78° 05' 18.98" E	W117
2.	BIBDU	R-077/21	13° 17' 39.31" N 78° 04' 42.07" E	Holding Fix
3.	BEGRA	R-027/21	13° 31'31.22 " N 77° 52' 55.14" E	W57S/W47S
4.	TAREX	R-310/21	13° 25'24.89 " N 77° 26' 55.06" E	W56S/W101E
5.	EKVOG	R-282/21	13° 16' 13.32" N 77° 22' 41.09" E	Holding Fix
6.	OPABO	R-268/21	13° 10' 37.55" N 77° 22' 24.35" E	W81

NOTE : All the way points are FLY BY.

- (xi) The following additional way points have been designated for transition from beginning of arrival route until the interception of final approach track of ILS procedures Rwy 09/27.

Sl.No.	Name	Track and Distances (NM)	WGS-84 Coordinates	Remarks
1.	BL 170	R-310/13	13° 20' 30.54" N 77° 33' 22.47" E	BANGO 4, BEGRA 4, BIBDU 4
2.	BL 171	R-026/8.8	13° 20' 24.05" N 77° 47' 34.13" E	TAREX 3, BANGO 3, EKVOG 3, OPABO 3
3.	BL 172	R-061/15.3	13° 20' 19.17" N 77° 57' 14.70" E	BASELEG TURN POINT FOR RWY 27
4.	BL 173	R-092/13	13° 12' 17.14" N 77° 57' 10.38" E	IF FOR RWY 27
5.	BL 174	R-272/17	13° 12' 33.06" N 77° 26' 25.41" E	IF FOR RWY 09
6.	BL 175	R-297/18.8	13° 20' 35.09" N 77° 26' 29.80" E	BASELEG TURN POINT FOR RWY 09

**NOTE :** All the way points are FLY BY.

- (xii) Aircraft following the STARs may be vectored by Radar Controller if required for the purpose of sequencing, spacing, delaying or separation w.r.t. the other traffic. However, the phrase CANCEL STARs shall be used prior to issuing the instruction for vectoring.
- (xiii) In radio communication phraseology the word *Arrival* shall be used after STAR Designator e.g. TAREX 1 Arrival.
- (xiv) **Radio Communication Failure Procedures (RCF)**
- Aircraft equipped with transponder will select MODE A code 7600 with MODE C.
  - When following the STARs under pilot's own navigation and clearance for instrument approach procedure has been issued aircraft shall continue to follow the STAR and land.

If RCF takes place prior to clearance for instrument approach procedure is issued, aircraft shall maintain the last assigned level or FL85 whichever is higher and proceed to join holding at BIBDU for Rwy 27 and at EKVOG for Rwy 09. Thereafter, carry out the instrument approach procedures for the Rwy for which the initial STARs clearance was issued.

- c) When under radar vector and clearance for approach has been issued aircraft shall continue the final approach and land.

If the RCF takes place prior to clearance for Approach has been issued, aircraft shall maintain the last assigned heading and level for one minute and thereafter climb to FL85 or the last assigned level whichever is higher and proceed to join holding at BIBDU for Rwy 27 and at EKVOG for Rwy 09. Thereafter, carry out the instrument approach procedure for the Rwy for which the initial cleared was issued.

2. Standard Instrument Arrival Procedure (STAR) Rwy 27  
(RNAV) – BIAL

**NOTE :**

(i) : Descent below FL85 shall be authorized by ATC.

(ii) : For final approach procedure refer the instrument approach chart ILS Rwy 27

S.No.	ATS ROUTES	STAR DESIGNATOR	STAR DESCRIPTION	REMARKS
(i)	W42N/W43N/ W118N	BANGO 3	From VOR (BIA) proceed on track 026 Deg M to BL 171 descending to FL85. Then turn right track 092 Deg M to BL 172 descending to 7000 feet. Then turn right track 182 Deg M to BL 173 to intercept the LLZ (108.3 IDEV) inbound track 272 Deg M for final approach descending to 5500 feet.	
(ii)	W56S/W101E	TAREX 3	From TAREX proceed on track 130 Deg M to BL 170 descending to FL100. Then on track 092 Deg M to BL 171 descending to FL85. Then on track 092 Deg M to BL 172 descending to 7000 feet. Then turn right track 182 Deg M to BL 173 to intercept the LLZ (108.3 IDEV) inbound track 272 Deg M for final approach descending to 5500 feet.	Refer Instrument Approach Chart ILS Rwy 27 for Holding Procedure.
(iii)	Holding Fix	EKVOG 3	From EKVOG proceed on track 069 Deg M to BL170 descending to FL100. Thereafter follow the procedure as specified for TAREX 3.	Refer Instrument Approach Chart ILS Rwy 27 for Holding Procedure.

(iv)	W81	OPABO 3	From OPABO proceed on track 049 Deg M to BL170 descending to FL 100. Thereafter follow the procedure as specified for TAREX 3.	
(v)	W47S/W57S	BEGRA 3	From BEGRA proceed on track 161 Deg M to BL 172 descending to 7000 feet. Thereafter follow the procedure as specified for BANGO 3.	Cross BEGRA FL85 or above.  For Holding Procedure refer Instrument Approach Chart ILS Rwy 27.
(vi)	W117	AKAGA 3	From AKGA proceed on track 259 Deg M to BL 173 to intercept LLZ (108.3 IDEV) inbound track 272 Deg M for final approach descending to 5500 feet.	Cross 25DME (BIA) FL85 or above and AKAGA 7000 feet or above.
(vii)	Holding Fix	BIBDU 3	From BIBDU proceed on track 236 Deg M to BL 173 to intercept LLZ (108.3 IDEV) inbound track 272 Deg M for final approach descending to 5500 feet.	Cross BIBDU 7000 feet or above.  For Holding Procedure refer Instrument Approach Chart ILS Rwy 27.

3. Standard Instrument Arrival Procedure (STAR) Rwy 09  
(RNAV) – BIAL

**NOTE**

(i) : Descent below FL85 shall be authorized by ATC.

(ii) : For final approach procedure refer the instrument approach chart ILS Rwy 09

S.No.	ATS ROUTES	STAR DESIGNATOR	STAR DESCRIPTION	REMARKS
(i)	W42/W43/ W118	BANGO 4	From VOR (BIA) proceed on track 310 Deg M to BL 170 descending to FL85. Then turn left track 272 Deg M to BL 175 descending to 7000 feet. Then turn left track 182 Deg M to BL 174 descending to 6600 feet. Then turn left to intercept the LLZ (109.3 IBAN) inbound track 092 Deg M for final approach descending to 5900 feet.	
(ii)	W117	BIBDU 4	From BIBDU proceed on track 281 Deg M to BL 171 descending to FL100. Then on track 272 Deg M to BL170 descending to FL85. Then on track 272 Deg M to BL 175 descending to 7000 feet. Then turn left track 182 Deg M to BL 174 descending to 6600 feet. Then turn left to intercept the LLZ (109.3 IBAN) inbound track 092 Deg M for final approach descending to 5900 feet.	For Holding Procedure refer Instrument Approach Chart ILS Rwy 09.  From XIVIL proceed on track 272 Deg M to BIBDU.
(iii)	W56S/W101E	TAREX 4	From TAREX proceed on track 187 Deg M to BL 175 descending to 7000 feet. Thereafter, follow the procedure as specified for BANGO 4.	For Holding Procedure refer Instrument Approach Chart ILS Rwy 09.

(iii)	Holding Fix	EKVOG 4	From EKVOG proceed on track 137 Deg M to BL174 descending to 6600 feet. Then turn left to intercept LLZ (109.3 IBAN) inbound track 092 Deg M descending to 5900 feet.	For Holding Procedure refer Instrument Approach Chart ILS Rwy 09.
(iv)	W81	OPABO 4	From OPABO proceed on track 066 Deg M to BL174 descending to 6600 feet. Then turn right to intercept LLZ (109.3 IBAN) inbound track 092 Deg M descending to 5900 feet.	
(v)	W47S/W57S	BEGRA 4	From BEGRA proceed on track 207 Deg M to BL171 descending to FL100. Thereafter follow the procedure as specified for BIBDU 4.	For Holding Procedure refer Instrument Approach Chart ILS Rwy 09.



STANDARD ARRIVAL CHART  
INSTRUMENT(S) STAR) RNAV (VOR/DME)

TRANSITION ALTITUDE  
7000

BANGALDRE INTERNATIONAL/INDIA  
RWY 27

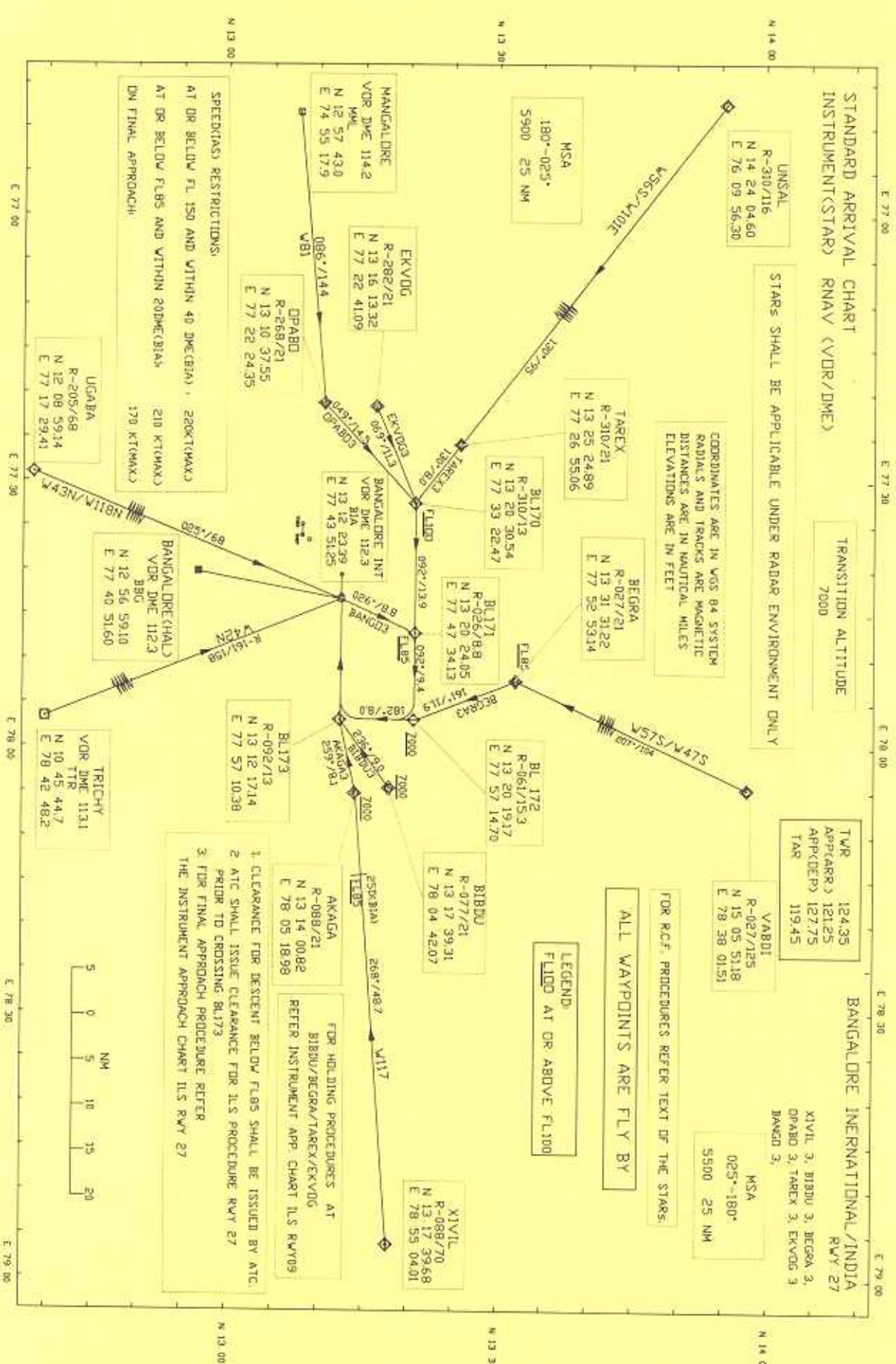
XIVIL 3, BIBDU 3, BEGRA 3,  
DPABO 3, TAREX 3, EKVDG 3  
BANGD 3

STARS SHALL BE APPLICABLE UNDER RADAR ENVIRONMENT ONLY

COORDINATES ARE IN WGS 84 SYSTEM  
RADIALS AND TRACKS ARE MAGNETIC  
DISTANCES ARE IN NAUTICAL MILES  
ELEVATIONS ARE IN FEET

ALL WAYPOINTS ARE FLY BY

LEGEND  
FLI00 AT OR ABOVE FL100



STANDARD ARRIVAL CHART  
INSTRUMENT(STAR) RNAV (VOR/DME)

TRANSITION ALTITUDE  
7000

BANGALDRE INTERNATIONAL/INDIA  
RWY 09

BEGRA 4, BIBDU 4, TARX 4  
EKVDC 4, DPABD 4, BANGD 4

COORDINATES ARE IN WGS 84 SYSTEM  
RADIALS AND TRACKS ARE MAGNETIC  
DISTANCES ARE IN NAUTICAL MILES  
ELEVATIONS ARE IN FEET

ALL WAYPOINTS ARE FLY BY

STARs SHALL BE FLICABLE UNDER RADAR ENVIRONMENT ONLY

FOR HOLDING PROCEDURE AT TARX/EKVDC/BEGRA/BIBDU  
REFER INSTRUMENT APP. CHART ILS RWY 09

FOR RCF PROCEDURES REFER TEXT OF THE STARs.

LEGEND  
FL100 AT OR ABOVE FL100

TWR 12435  
APP(ARR.) 12125  
APP(DEP) 12775  
TAR 11945

VABDI  
R-027/125  
N 15 05 5118  
E 78 38 0151

MSA  
025°-180°  
5500 25 NM

MSA  
180°-025°  
5900 25 NM

TARX  
R-310/21  
N 13 25 2489  
E 77 26 5506

BEGRA  
R-027/21  
N 13 31 3122  
E 77 52 5314

BL175  
R-297/188  
N 13 20 3509  
E 77 26 2980

BL170  
R-310/13  
N 13 20 3054  
E 77 33 2247

EKVDC  
R-282/21  
N 13 16 1332  
E 77 22 4109

BIBDU  
R-027/88  
N 13 20 2405  
E 77 47 3413

BIBDU  
R-077/21  
N 13 17 3931  
E 78 04 4207

XIVIL  
R-082/70  
N 13 17 3968  
E 78 55 0401

DPABD  
R-268/21  
N 13 10 3755  
E 77 22 2435

BL174  
R-272/17  
N 13 12 3306  
E 77 26 2541

BANGALDRE INT  
VOR DME 112.3  
BIA  
N 13 12 2339  
E 77 43 5125

BIRDU  
R-077/21  
N 13 17 3931  
E 78 04 4207

FL100  
272°/491

DPABD  
R-268/21  
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R-310/116  
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TARX  
R-310/21  
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BEGRA  
R-027/21  
N 13 31 3122  
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VABDI  
R-027/125  
N 15 05 5118  
E 78 38 0151

MSA  
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