

2. ARRIVAL**2.1. SPEED RESTRICTIONS****2.1.1. SPEED CONTROL PROCEDURES IN THE PROVISION OF RADAR CONTROL SERVICE**

For detailed information, affecting several major APTs, refer to ATC pages INDIA.

2.2. CAT II OPERATIONS

RWY 19L approved for CAT II operations, special aircrew and ACFT certification required.

2.3. OTHER INFORMATION**2.3.1. COMMUNICATION FAILURE UNDER RADAR VECTORS**

If radio communication failure takes place prior to interception on final apch, maintain last assigned altitude or 2000' whichever is higher and proceed to CEA VOR via shortest route to join holding procedure.

If radio communication failure takes place after establishing final apch track, ACFT may continue apch and land if visual or go around and carry out missed apch procedure and join CEA VOR holding. After joining holding commence instrument apch procedure (ILS or VOR) for RWY for which SRA was being provided.

3. DEPARTURE**3.1. START-UP & PUSH-BACK PROCEDURES**

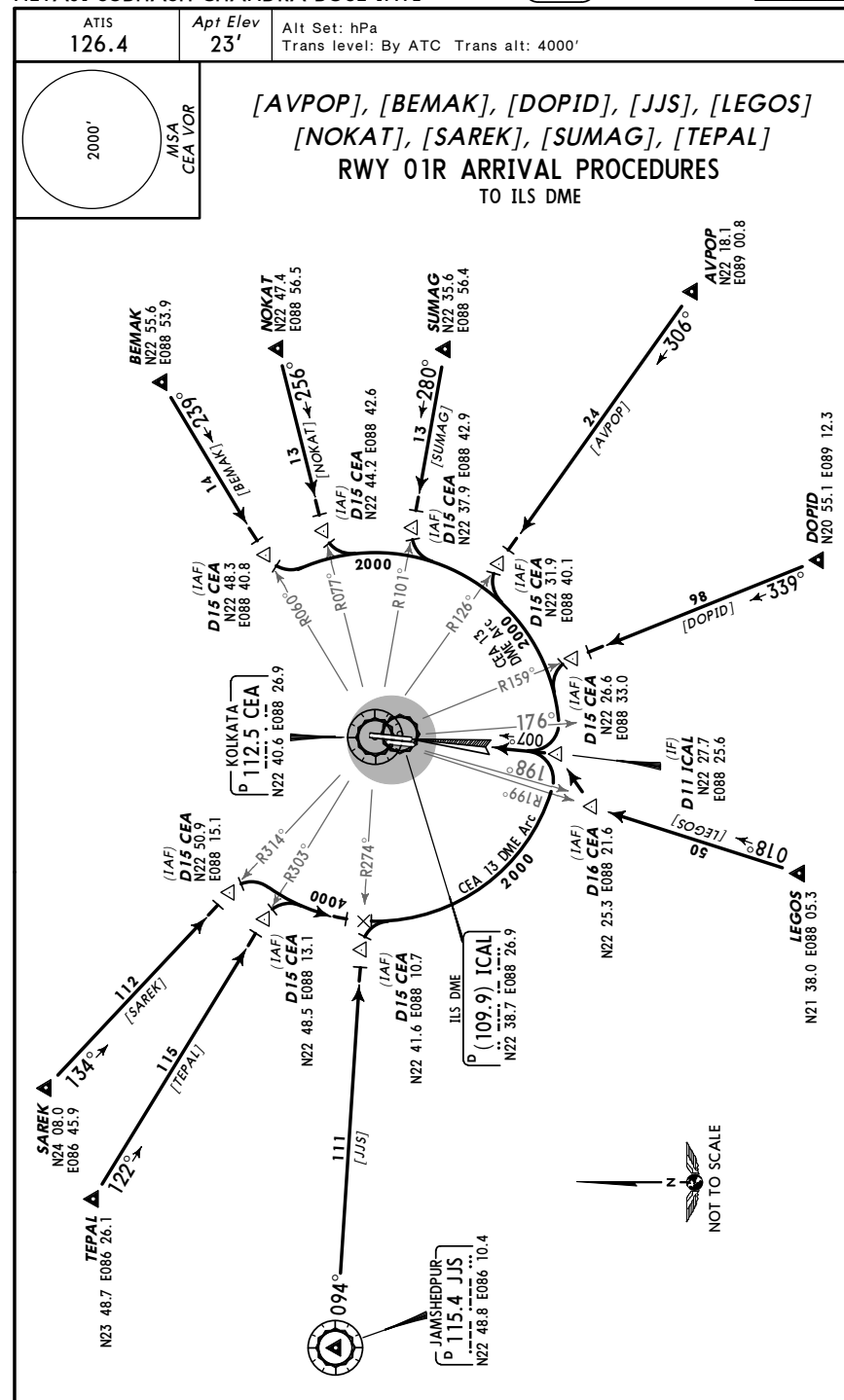
From stands 28 and 29 push-back required facing North on TWY F1 East of stands 52 and 53.

From stand 51 push-back required facing North on TWY F1. Engine start-up is permitted ABEAM stand 50.

From stands 52 and 53 push-back required facing North on TWY F1. Start engines only after reaching ABEAM stand 51.

3.2. OTHER INFORMATION

Pilots have to use turning pad RWY 19L while lining up for departure in order to avoid RWY surface damage.



CHANGES: Arrivals completely revised.



NETAJI SUBHASH CHANDRA BOSE INTL 17 DEC 10 (10-2C)

ARRIVAL

2000'

MSA
CEA VOR

CHANGES: IAF revised.

NETAJI SUBHASH CHANDRA BOSE INTL 11 MAR 11 (10-2D)

RNAV STAR

MSA
CEA VOB

2000'

ROUTING
AVPOP - CC210 (FL140+) - CC304 (K210-).



KOLKATA
D 112.5 CEA
N22 40.6 E088 26.9

▶ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼

Maintain last assigned level till the next waypoint. Follow STAR and adjust descent to take suitable turn to intercept FAT/LLZ.

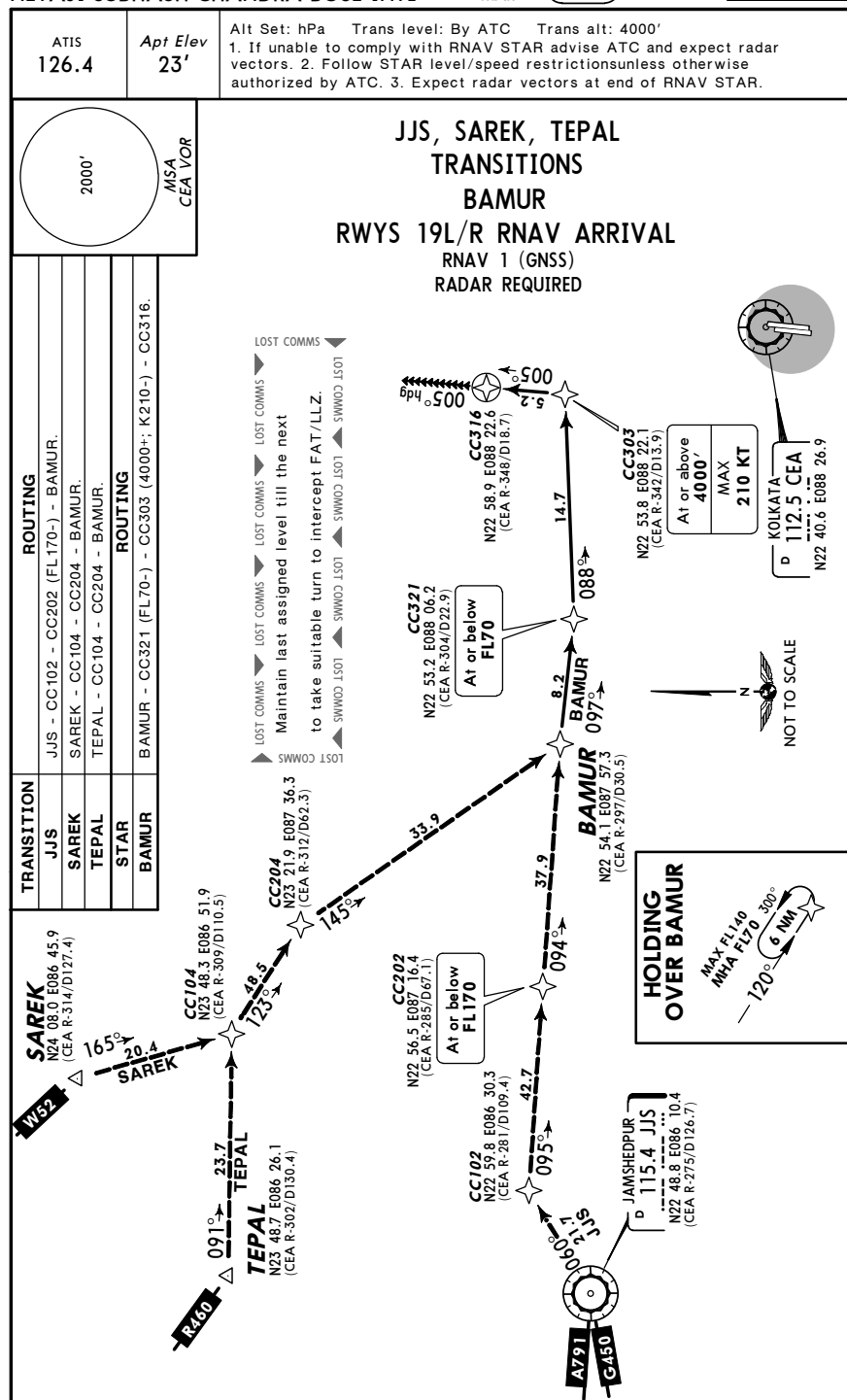
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CC304

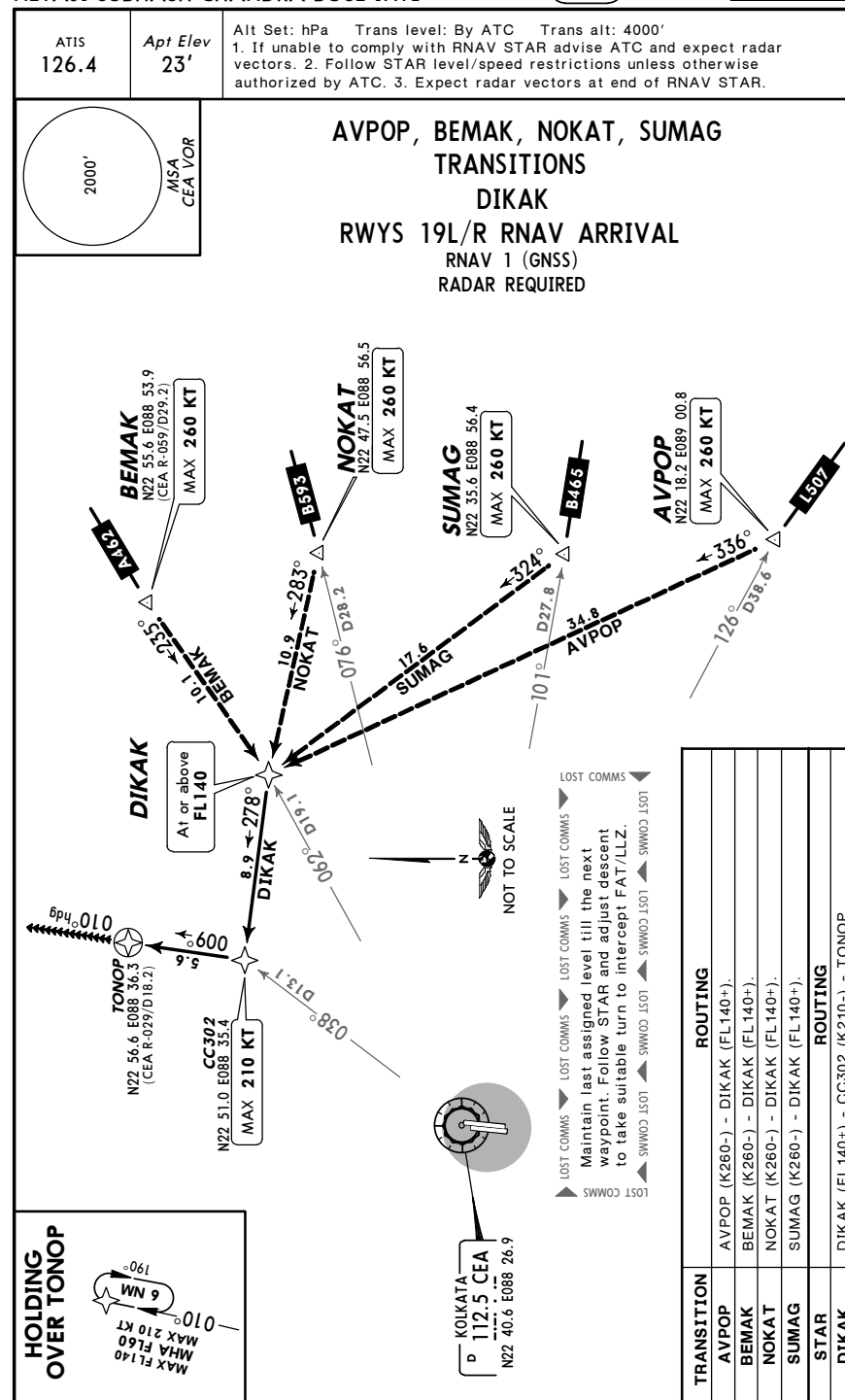
Diagram illustrating the flight path and associated data for the CC210 aircraft:

- CC210** (N22 19.6 E088 48.6)
- AVPOP** (N22 18.2 E089 00.8)
- 1507**
- 070 gph**
- A1 or above FL140**
- Distances:** 22.6, 11.5, 12.6, 137°, 279°, 278°, 28.6°

CHANGES: New chart.



CHANGES: New chart.

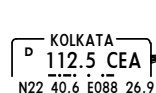


CHANGES: New chart.

Alt Set: hPa Trans level: By ATC Trans alt: 4000'

1. If unable to comply with RNAV STAR advise ATC and expect radar vectors. 2. Follow STAR level/speed restrictions unless otherwise authorized by ATC. 3. Expect radar vectors at end of RNAV STAR.

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DIXON
RWYS 01L/R RNAV ARRIVAL
RNAV 1 (GNSS)
RADAR REQUIRED

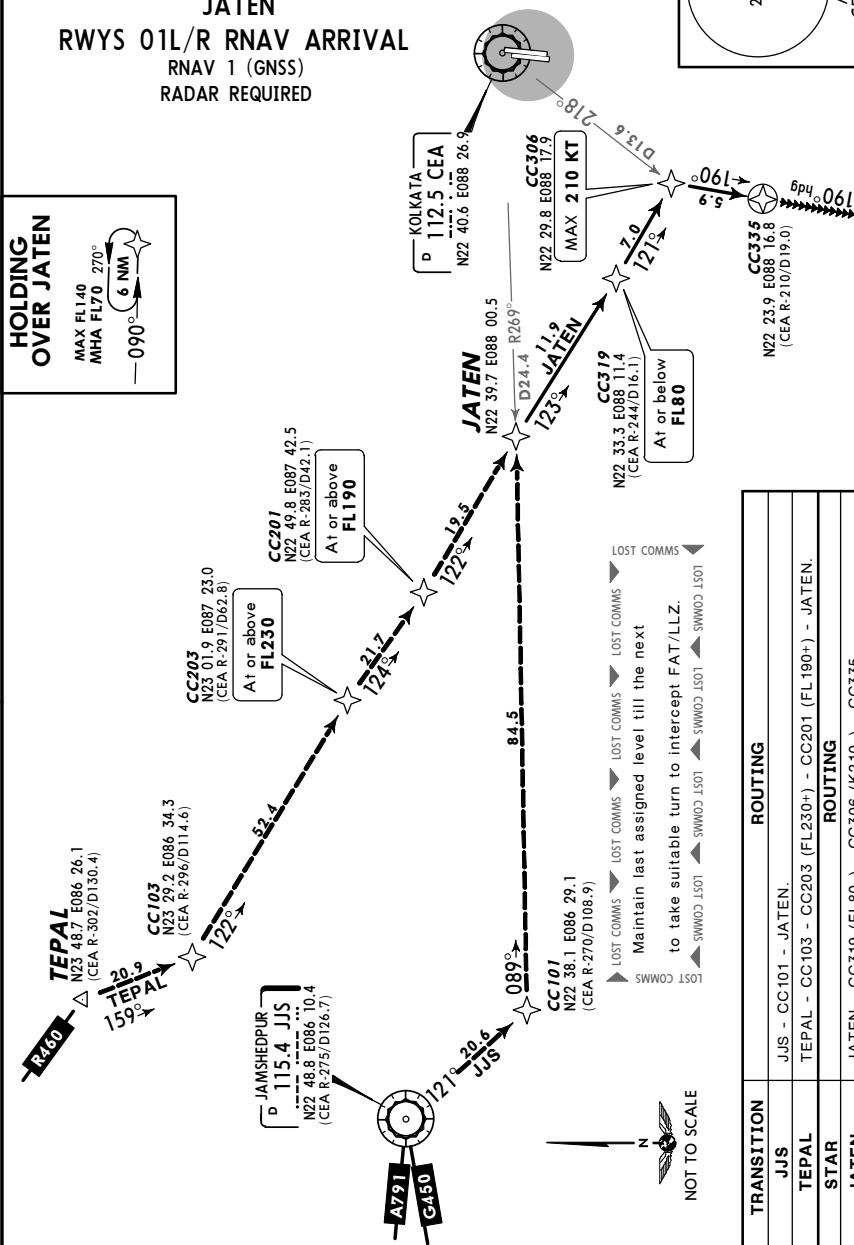
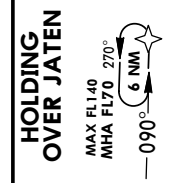


CHANGES: New chart.

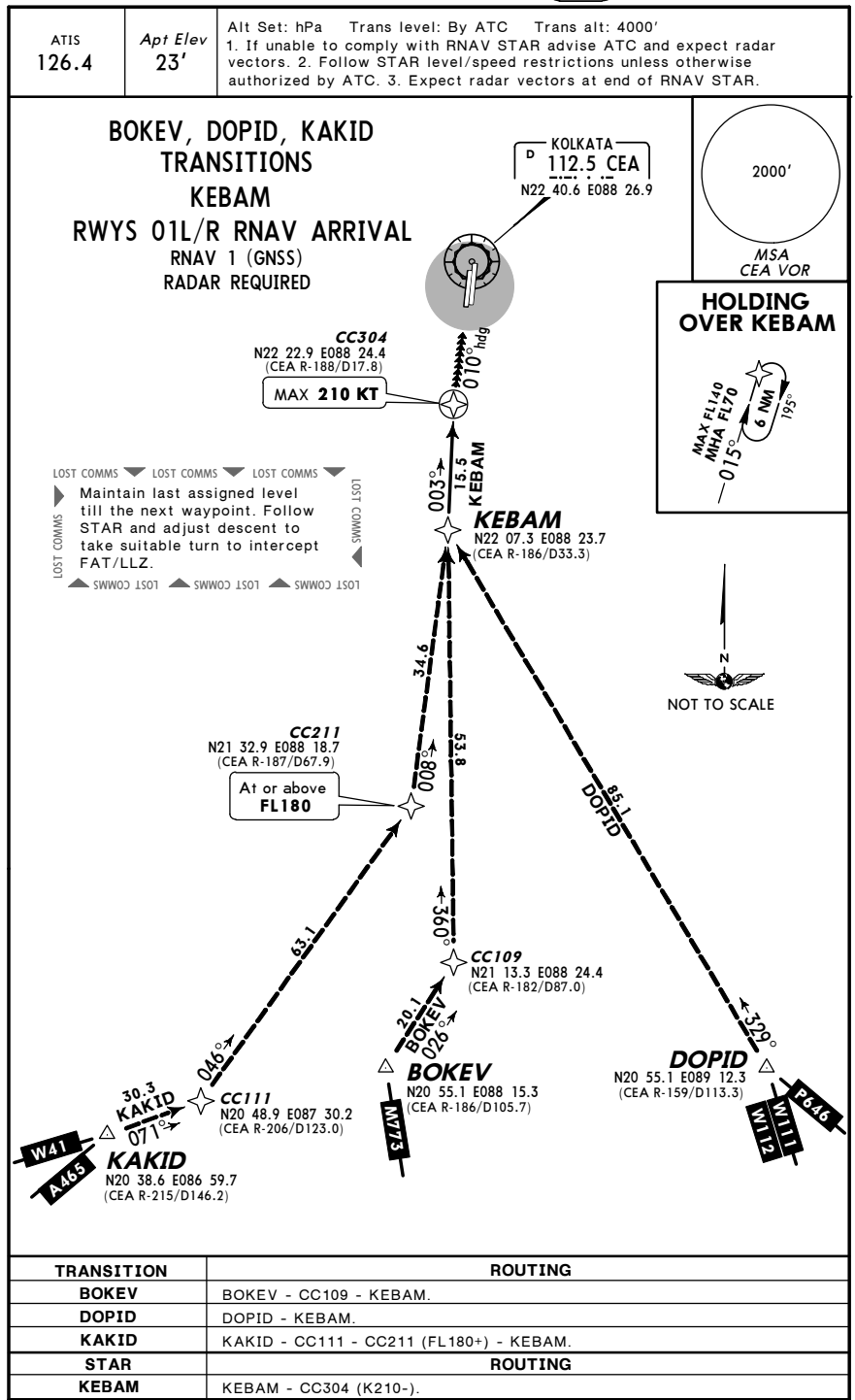
Alt Set: hPa Trans level: By ATC Trans alt: 4000'

1. If unable to comply with RNAV STAR advise ATC and expect radar vectors. 2. Follow STAR level/speed restrictions unless otherwise authorized by ATC. 3. Expect radar vectors at end of RNAV STAR.

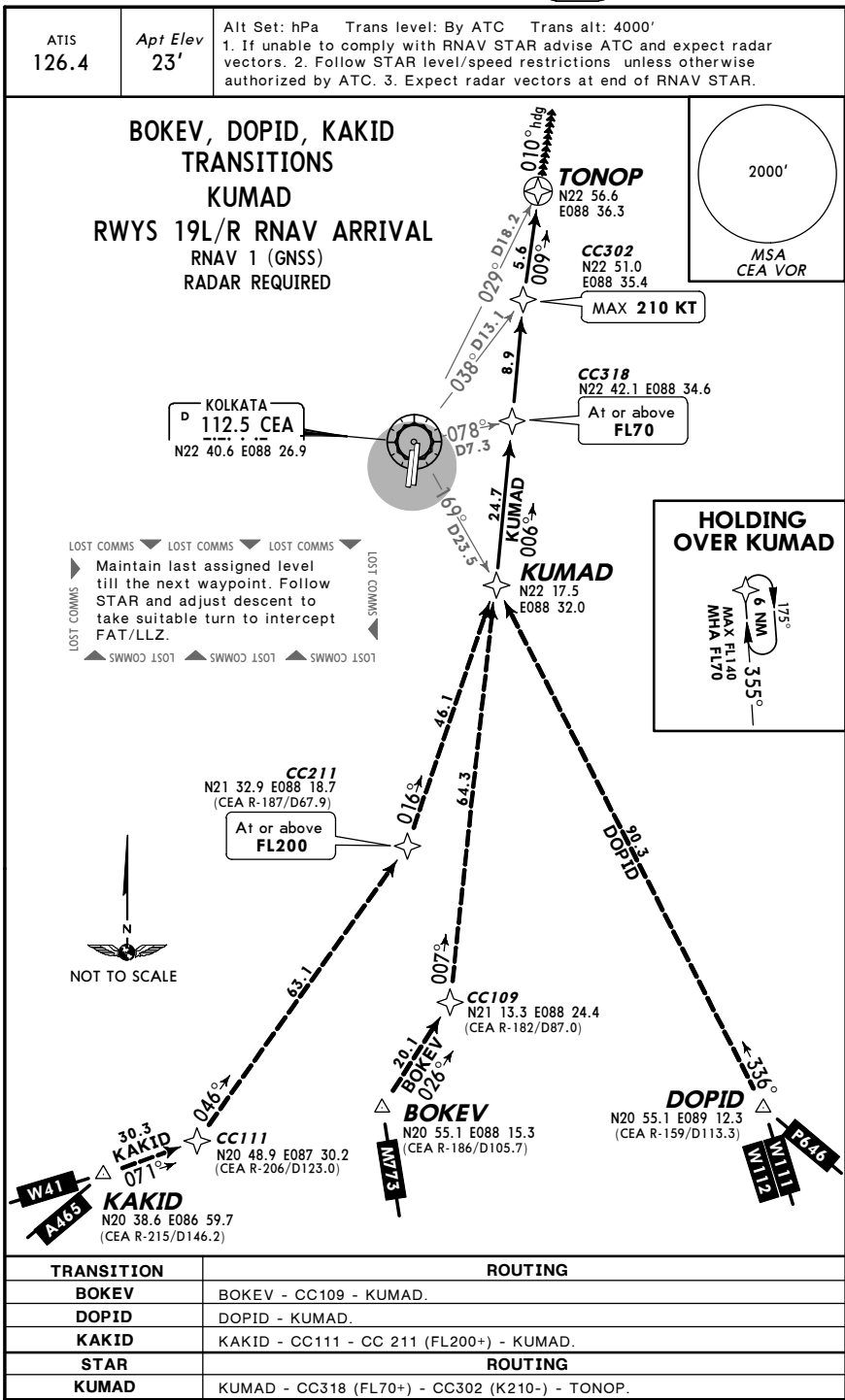
JJS, TEPAL
TRANSITIONS
JATEN
RWYS 01L/R RNAV ARRIVAL
RNAV 1 (GNSS)
RADAR REQUIRED



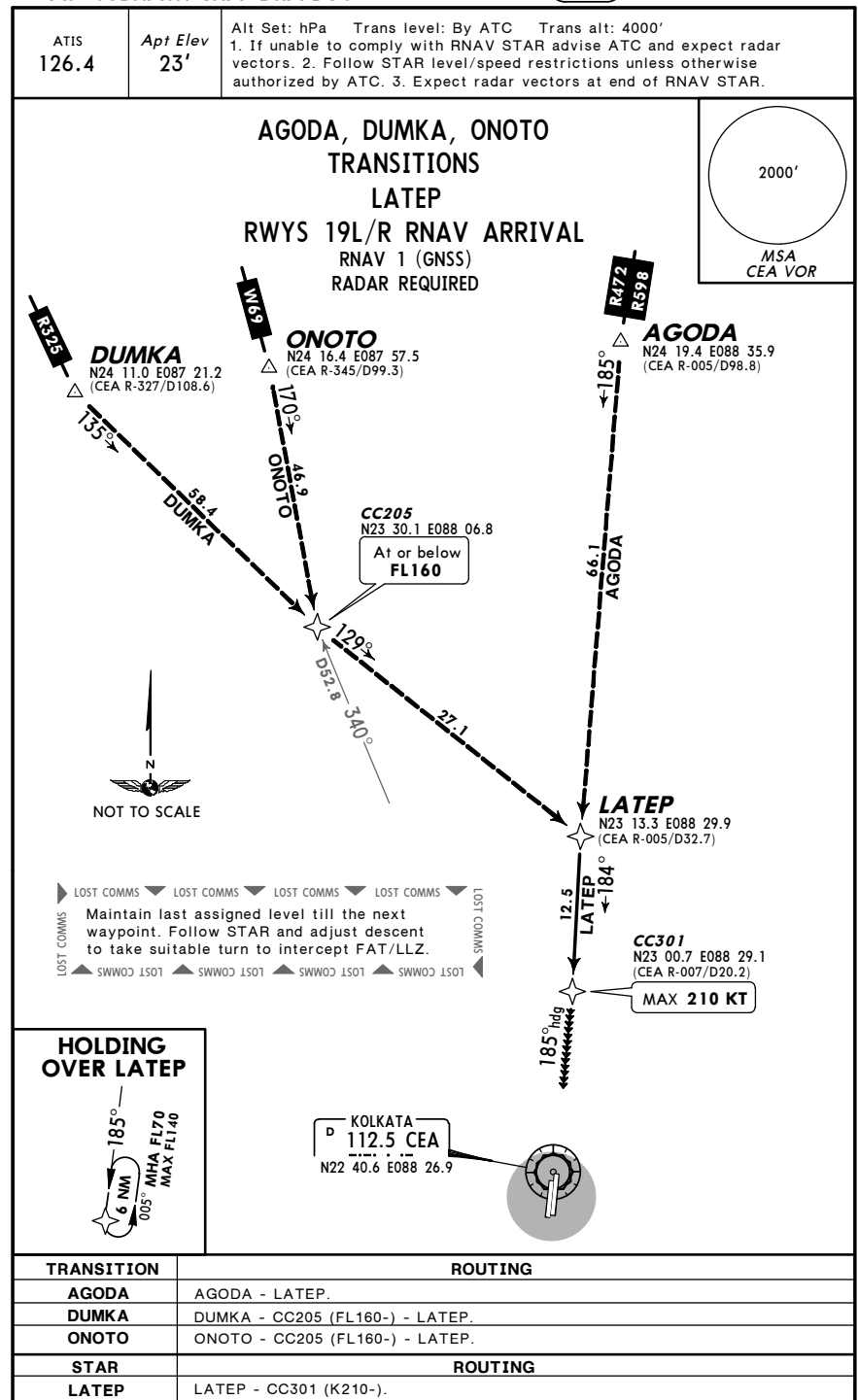
CHANGES: RNAV STAR JATEN, crossing at CC319 raised



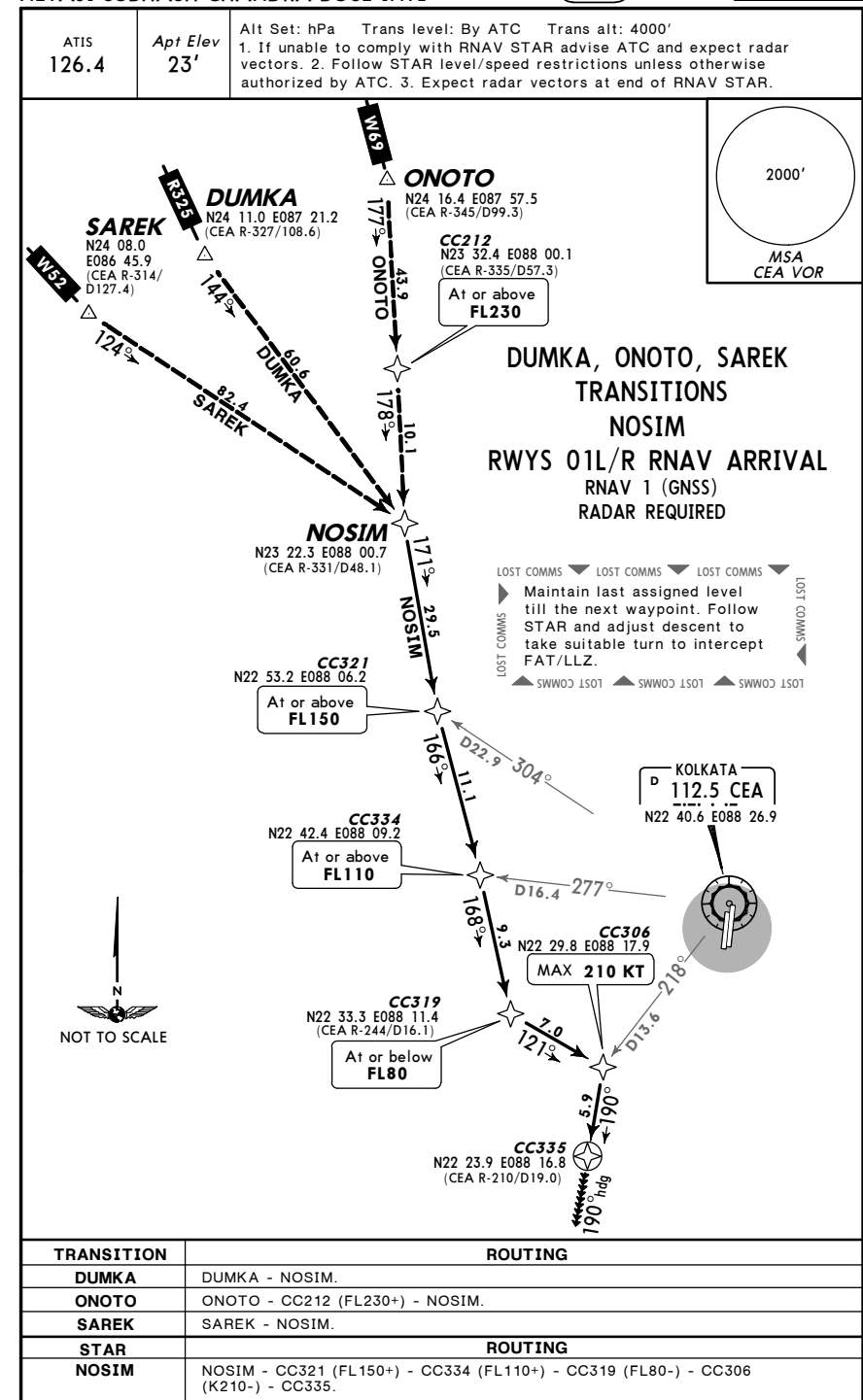
CHANGES: None.



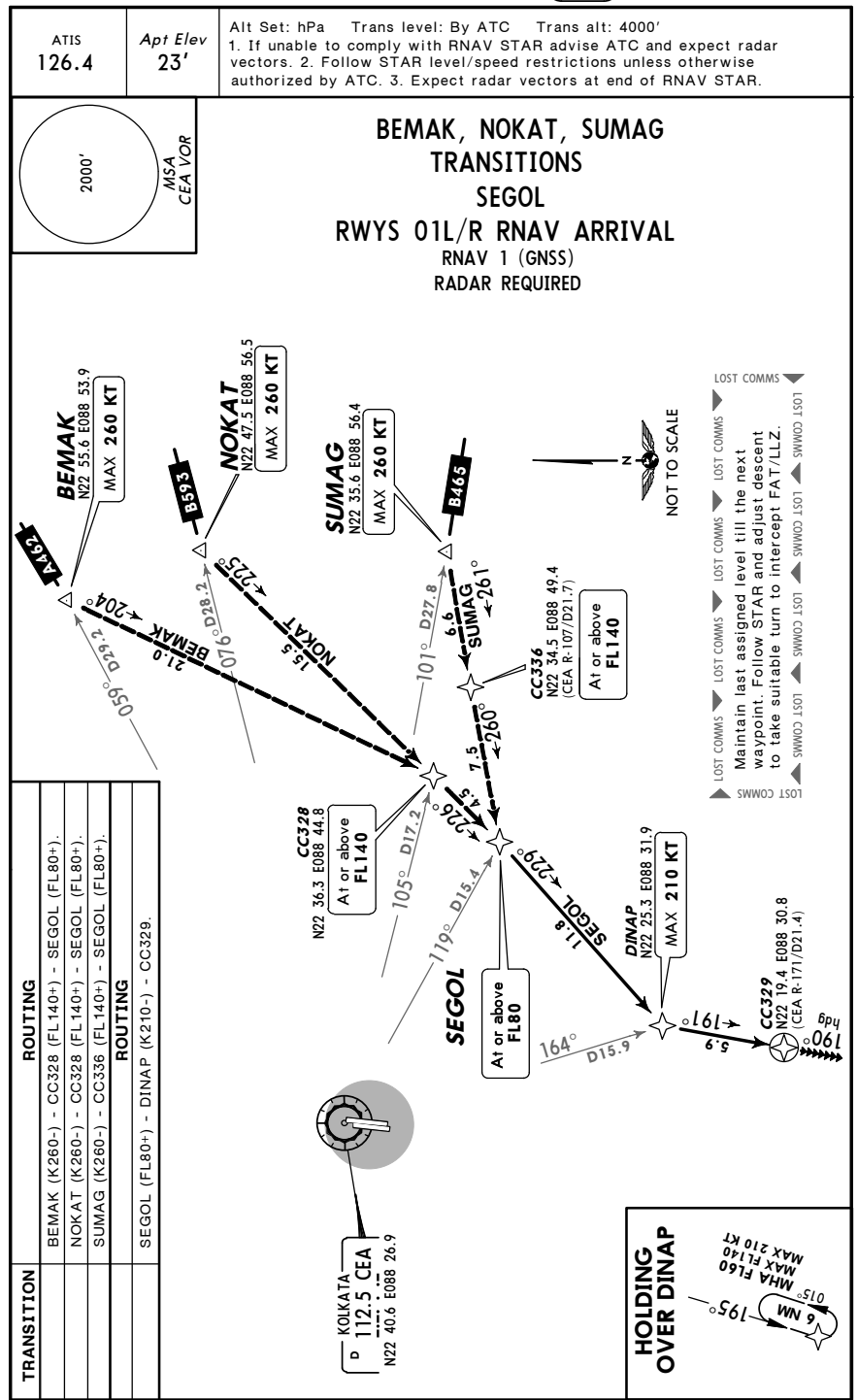
CHANGES: New chart.



CHANGES: New chart.



CHANGES: RNAV STAR NOSIM, crossing at CC319 raised.



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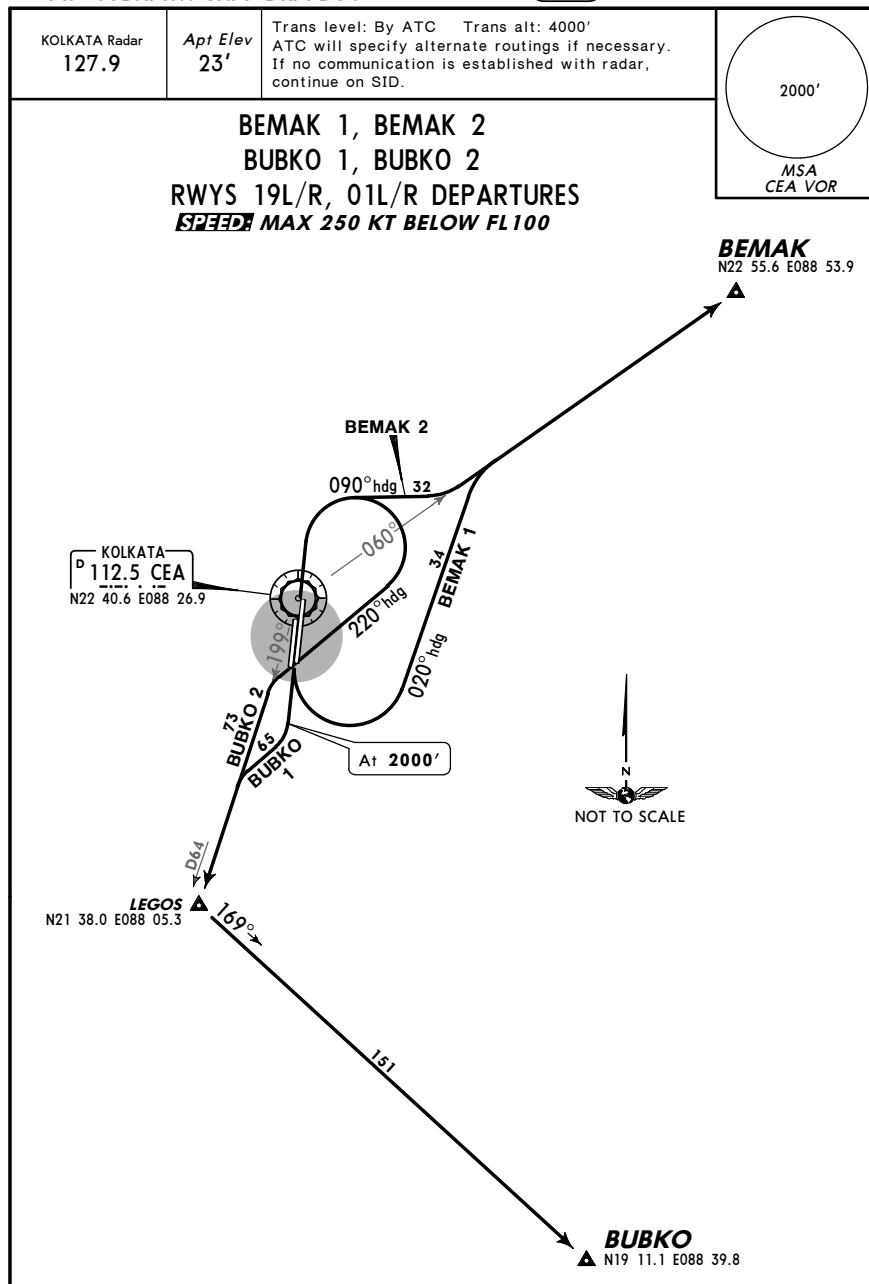
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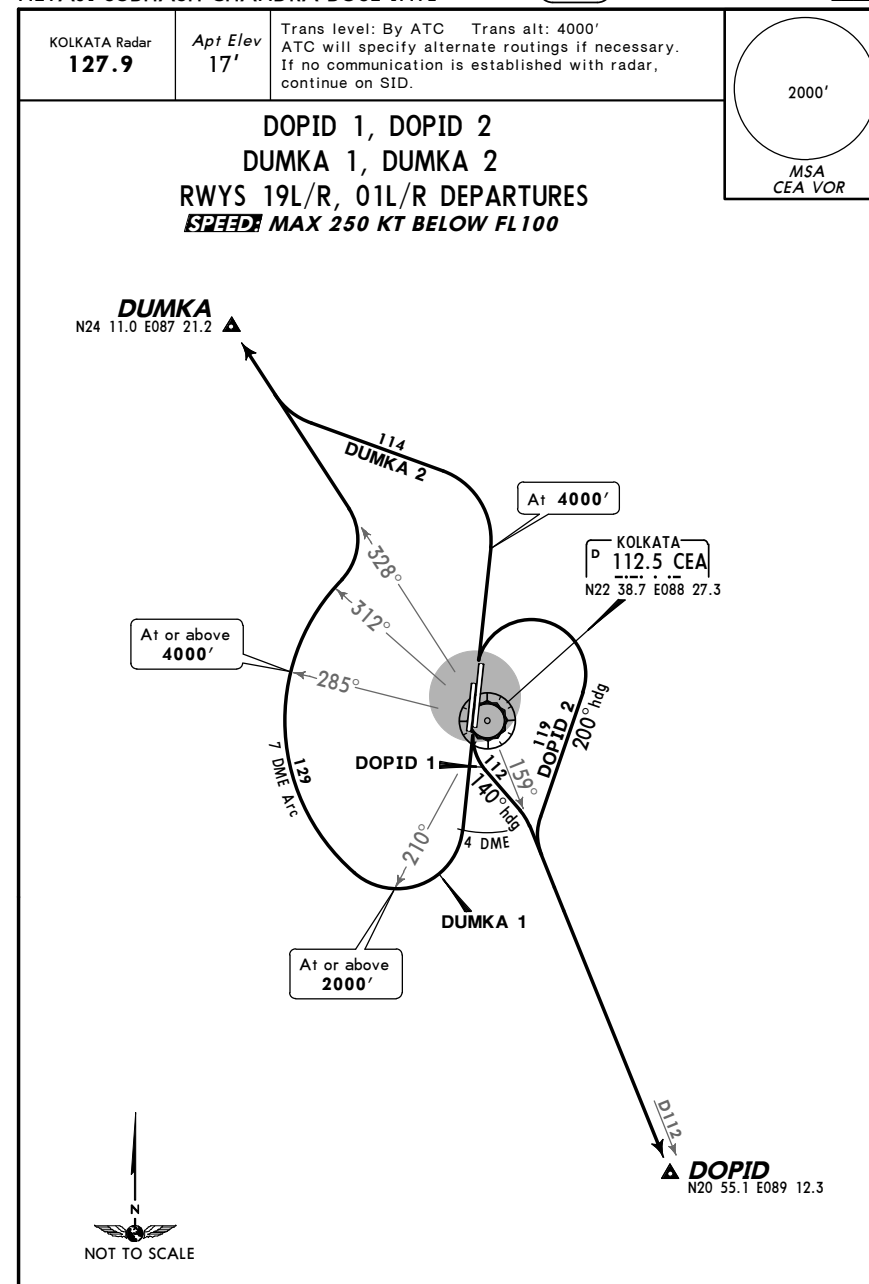
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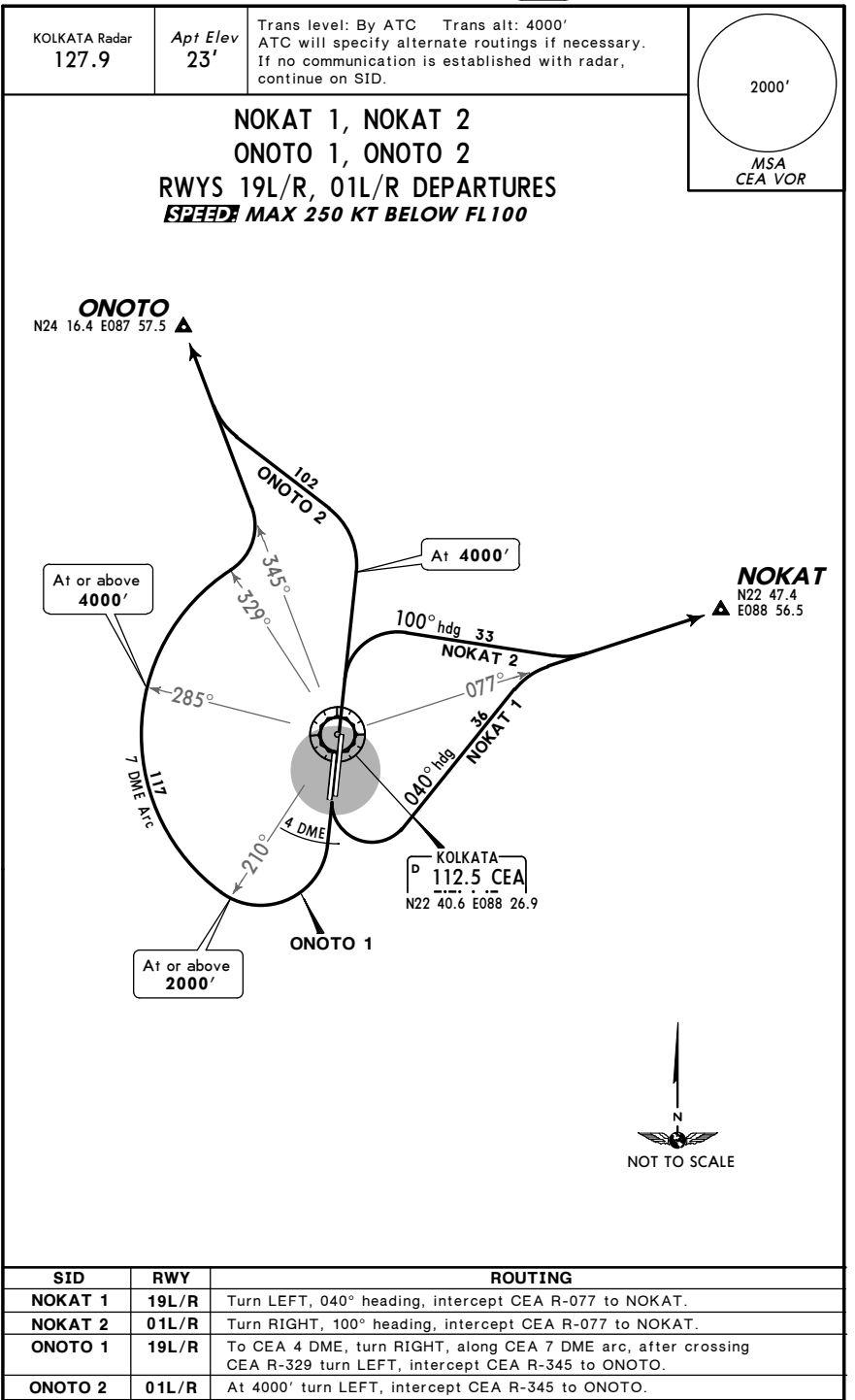
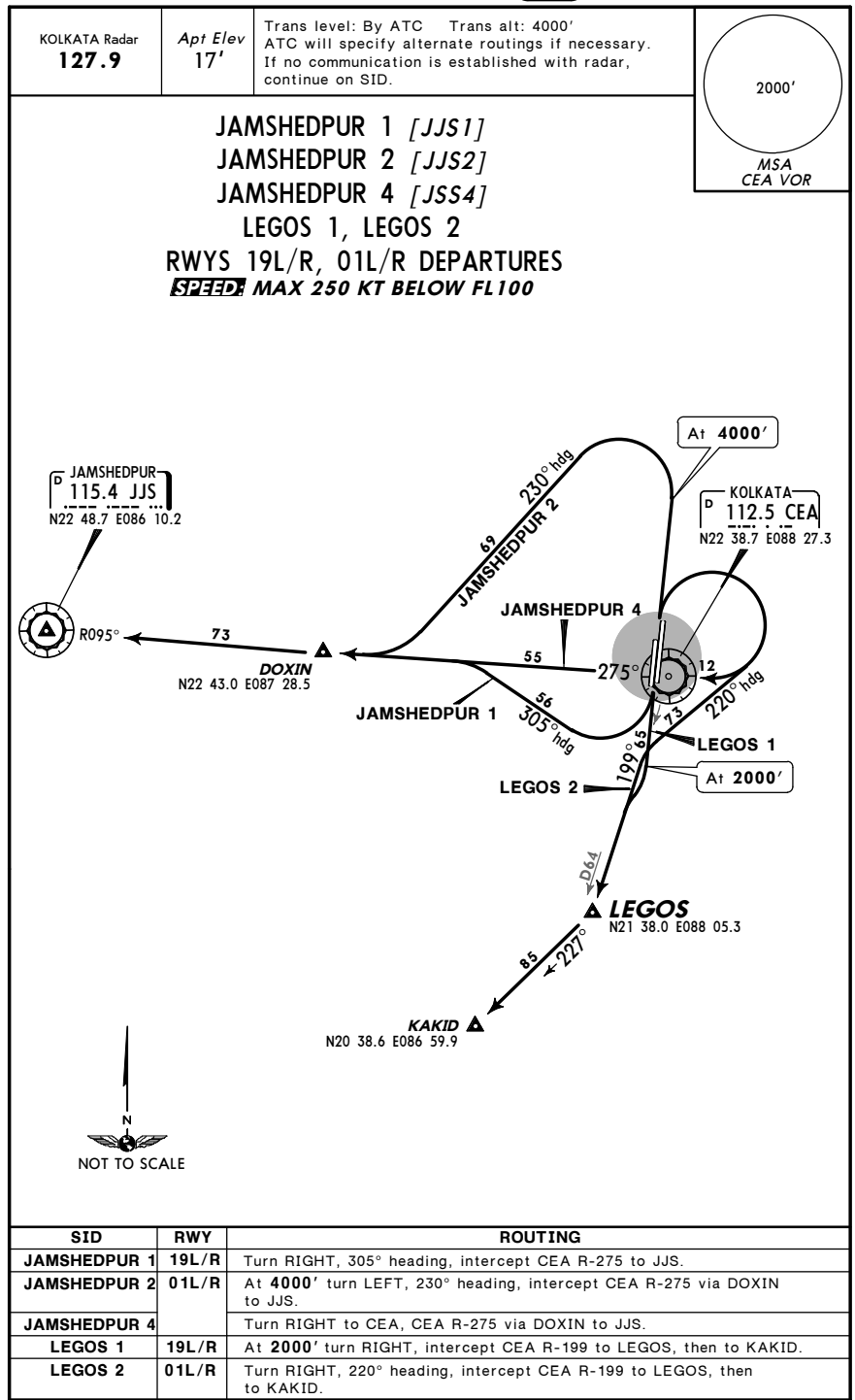
SID	RWY	ROUTING
BEMAK 1	19L/R	Turn LEFT, 020° heading, intercept CEA R-060 to BEMAK.
BEMAK 2	01L/R	Turn RIGHT, 090° heading, intercept CEA R-060 to BEMAK.
BUBKO 1	19L/R	At 2000' turn RIGHT, intercept CEA R-199 to LEGOS, 169° track to BUBKO.
BUBKO 2	01L/R	Turn RIGHT, 220° heading, intercept CEA R-199 to LEGOS, 169° track to BUBKO.

CHANGES: BEMAK SIDs revised.



SID	RWY	ROUTING
DOPID 1	19L/R	Turn LEFT, 140° heading, intercept CEA R-159 to DOPID.
DOPID 2	01L/R	Turn RIGHT, 200° heading, intercept CEA R-159 to DOPID.
DUMKA 1	19L/R	To CEA 4 DME, turn RIGHT, along CEA 7 DME arc, after crossing CEA R-312 turn LEFT, intercept CEA R-328 to DUMKA.
DUMKA 2	01L/R	At 4000' turn LEFT, intercept CEA R-328 to DUMKA.

CHANGES: SIDs transferred & established; new format.

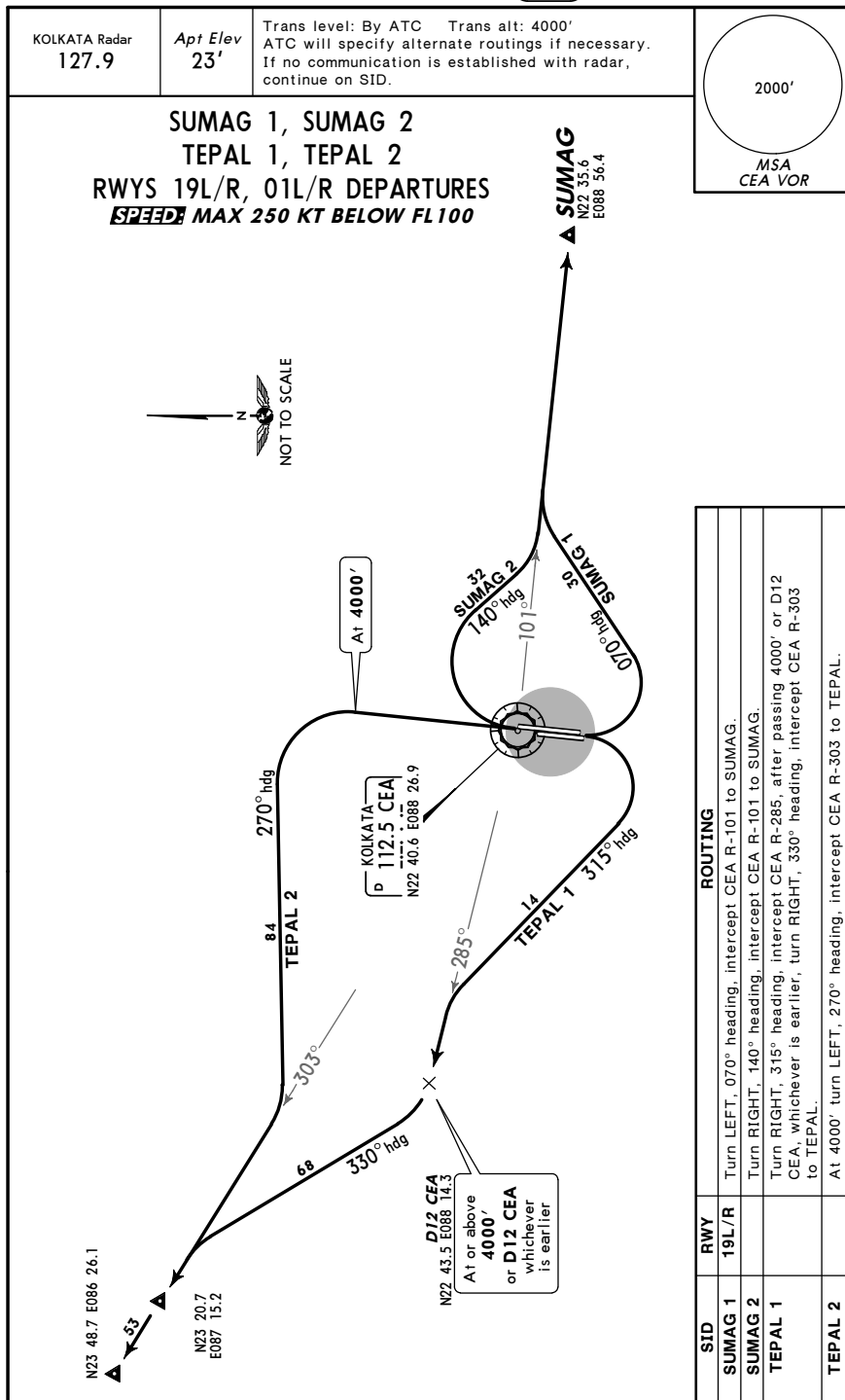


VECC/CCU

NETAJI SUBHASH CHANDRA BOSE INTL 17 DEC 10 10-3E

KOLKATA, INDIA

SID



CHANGES: SUMAG SIDs revised.

VECC/CCU

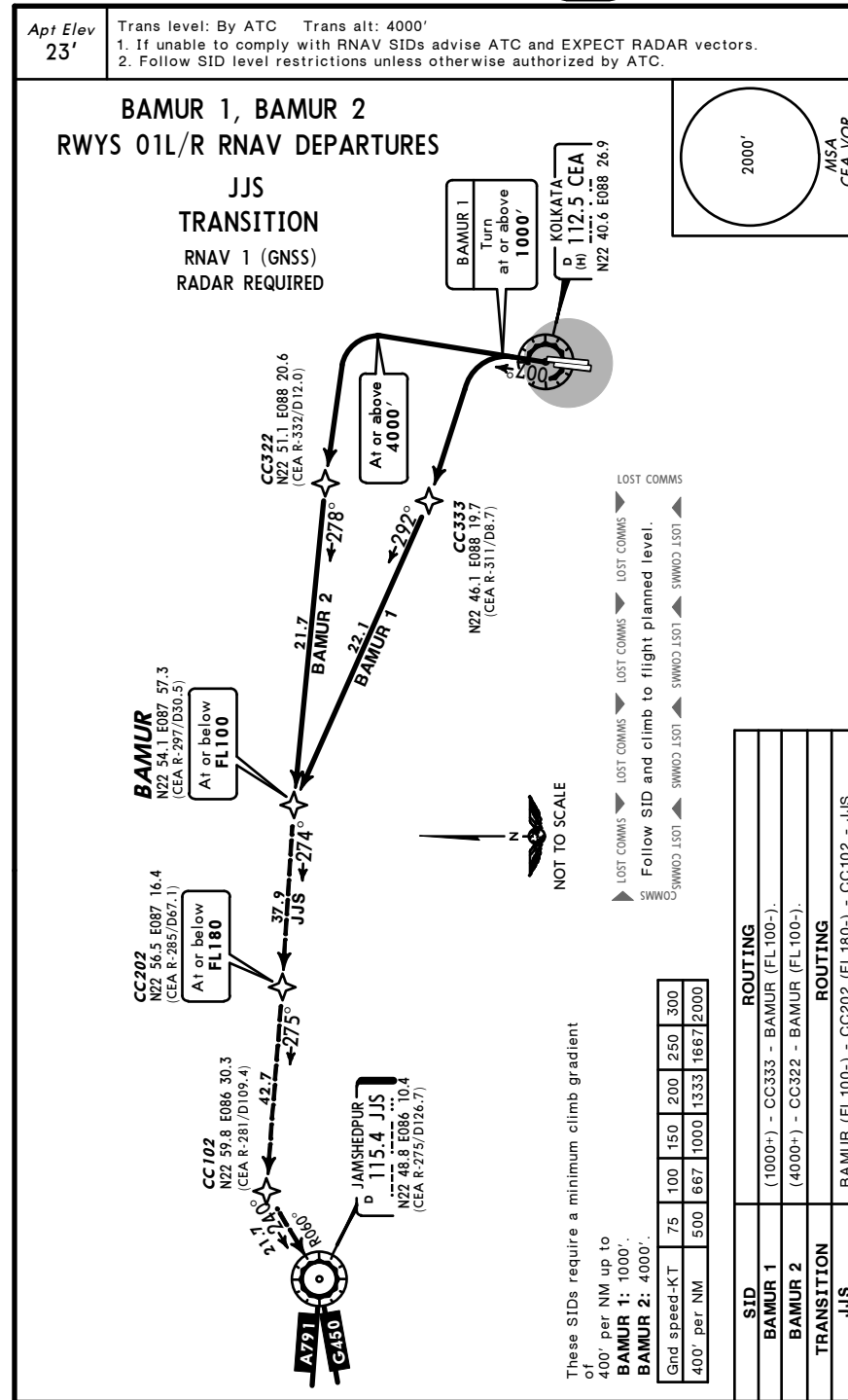
NETAJI SUBHASH CHANDRA BOSE INTL

9 SEP 11

10-3F

KOLKATA, INDIA

RNAV SID

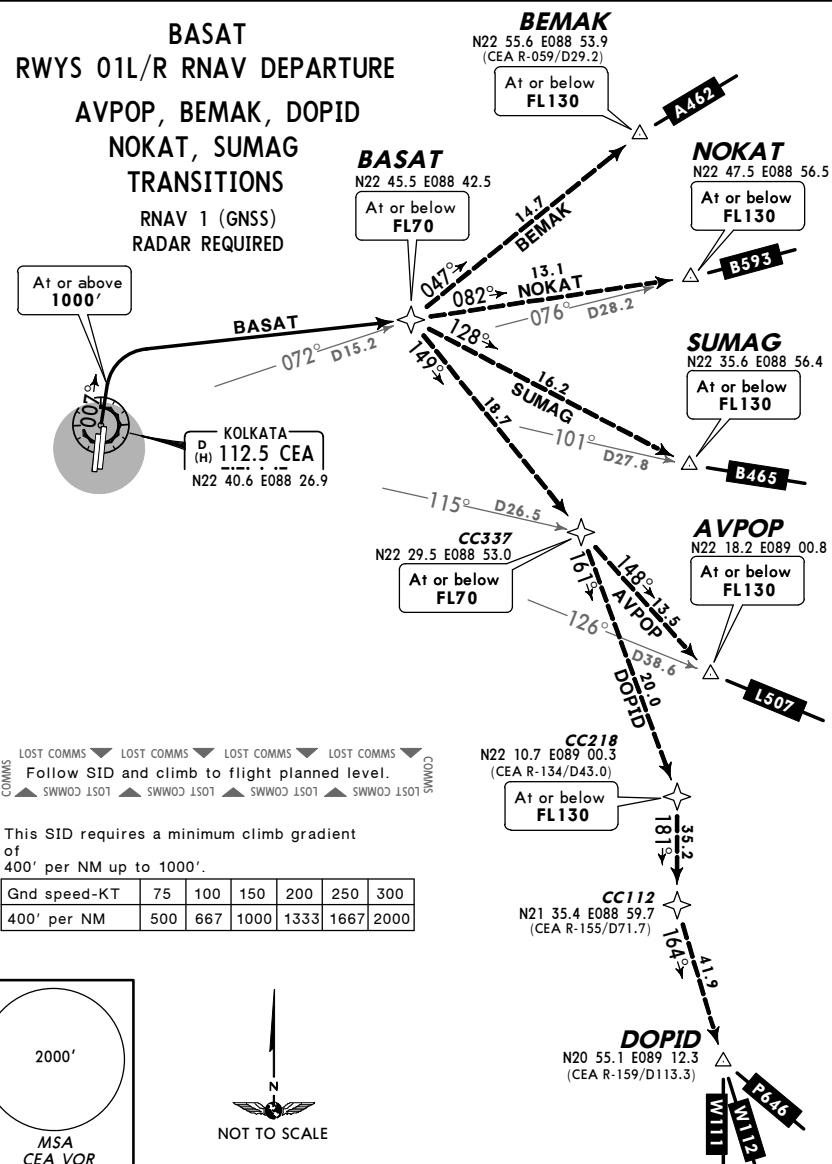


CHANGES: None.

Apt Elev
23'

Trans level: By ATC Trans alt: 4000'

1. If unable to comply with RNAV SID advise ATC and EXPECT RADAR vectors.
2. Follow SID level restrictions unless otherwise authorized by ATC.



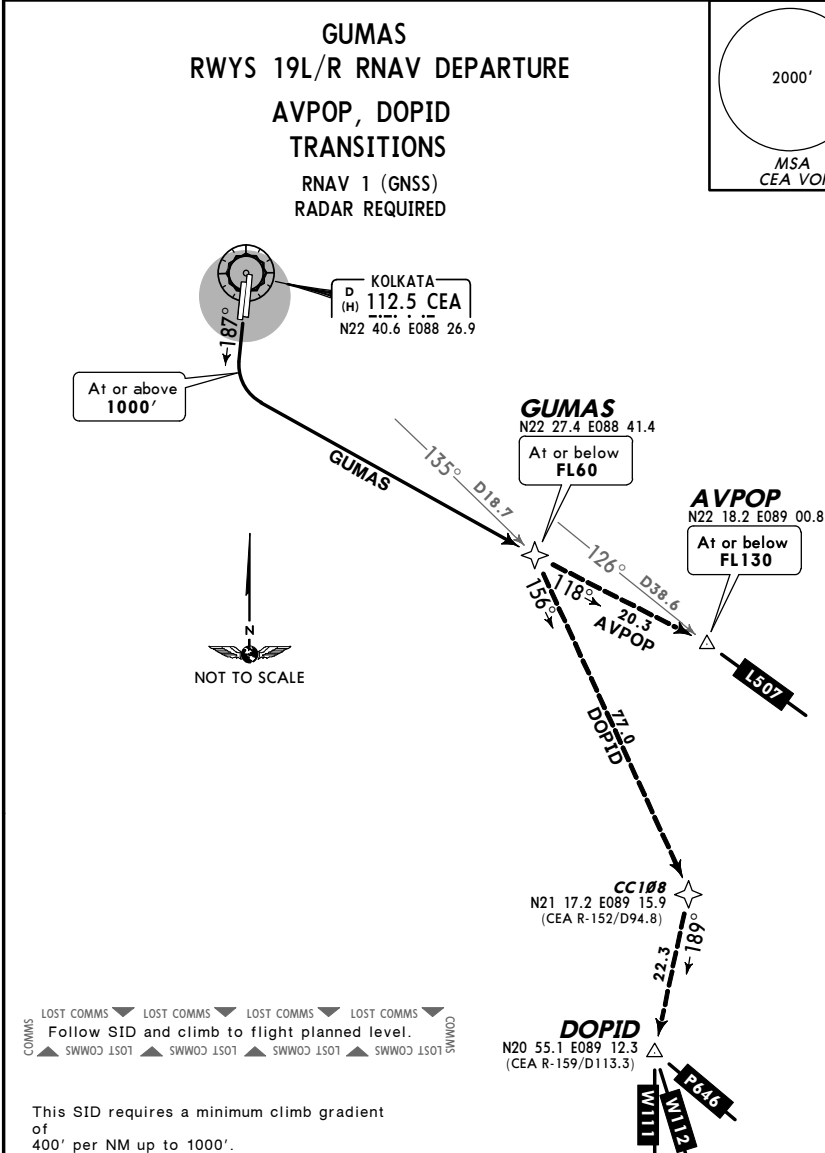
SID	ROUTING
BASAT	(1000+) - BASAT (FL70-).
TRANSITION	ROUTING
AVPOP	BASAT (FL70-) - CC337 (FL70-) - AVPOP (FL130-).
BEMAK	BASAT (FL70-) - BEMAK (FL130-).
DOPID	BASAT (FL70-) - CC337 (FL70-) - CC218 (FL130-) - CC112 - DOPID.
NOKAT	BASAT (FL70-) - NOKAT (FL130-).
SUMAG	BASAT (FL70-) - SUMAG (FL130-).

CHANGES: DOPID RNAV Transition revised.

Apt Elev
23'

Trans level: By ATC Trans alt: 4000'

1. If unable to comply with RNAV SID advise ATC and EXPECT RADAR vectors.
2. Follow SID level restrictions unless otherwise authorized by ATC.



SID	ROUTING
GUMAS	(1000+) - GUMAS (FL60-).
TRANSITION	ROUTING
AVPOP	GUMAS (FL60-) - AVPOP (FL130-).
DOPID	GUMAS (FL60-) - CC108 - DOPID.

CHANGES: DOPID RNAV Transition revised.

VECC/CCU

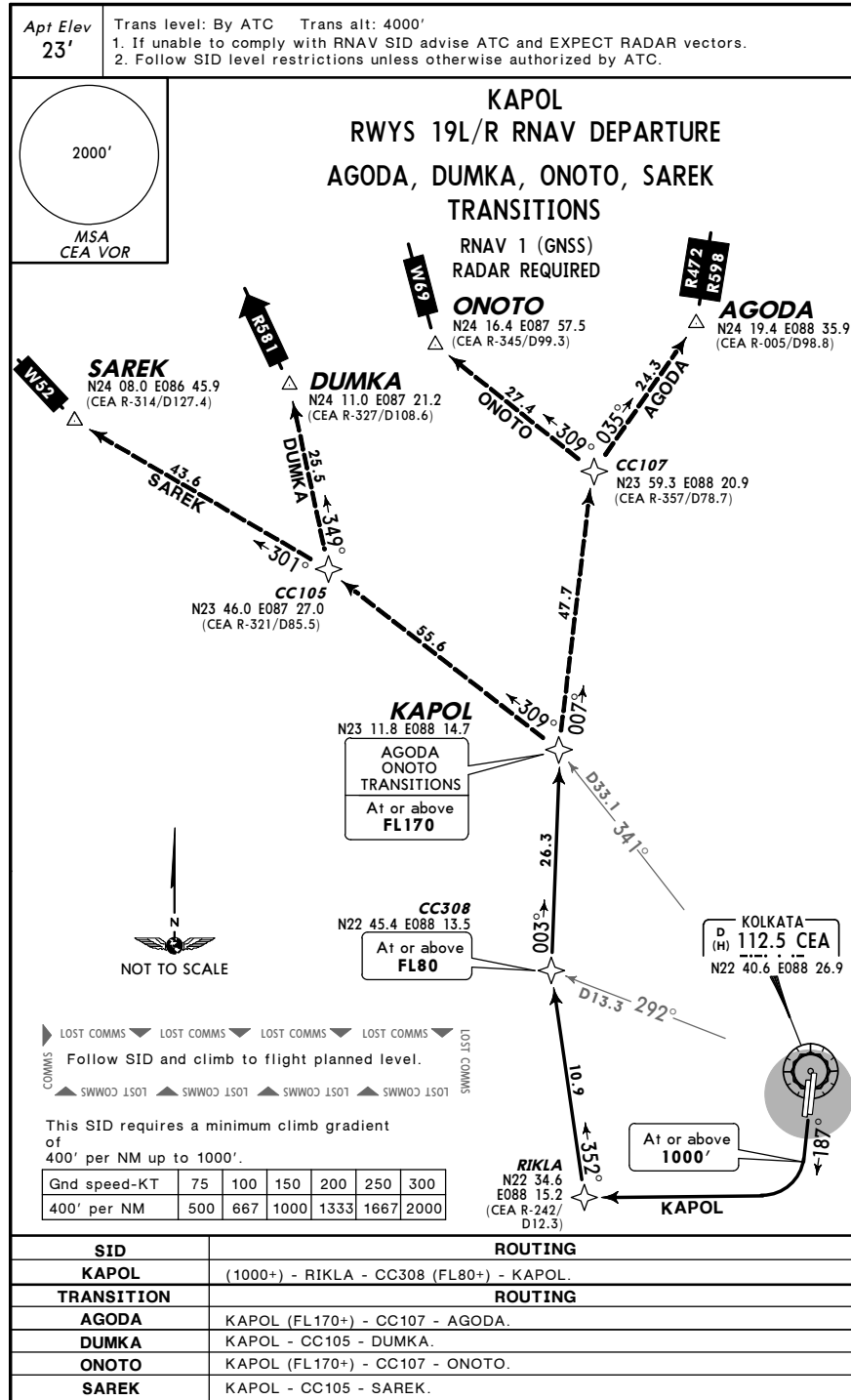
NETAJI SUBHASH CHANDRA BOSE INTL

9 SEP 11

10-3J

KOLKATA, INDIA

RNAV SID



CHANGES: None.

VECC/CCU

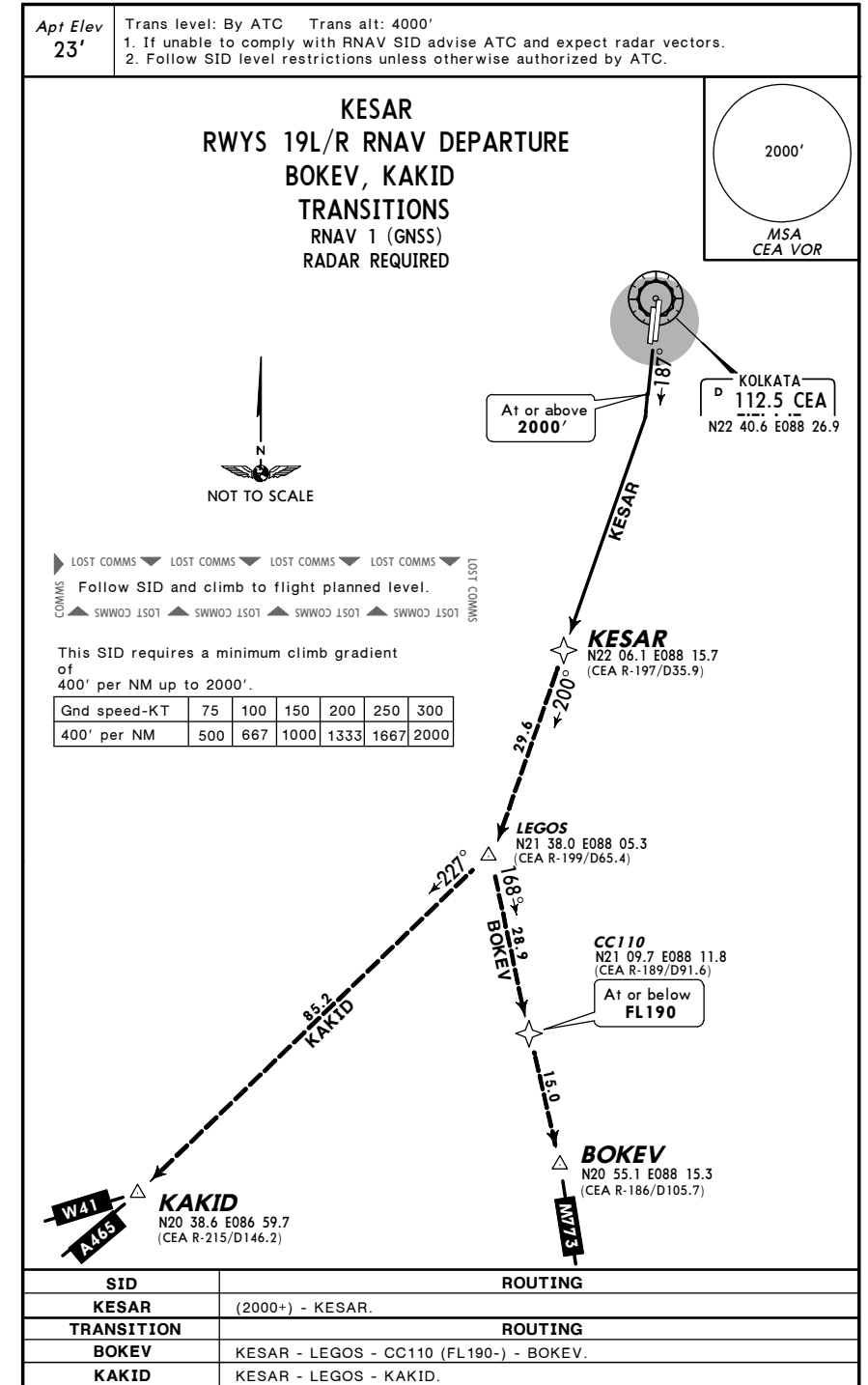
NETAJI SUBHASH CHANDRA BOSE INTL

11 MAR 11

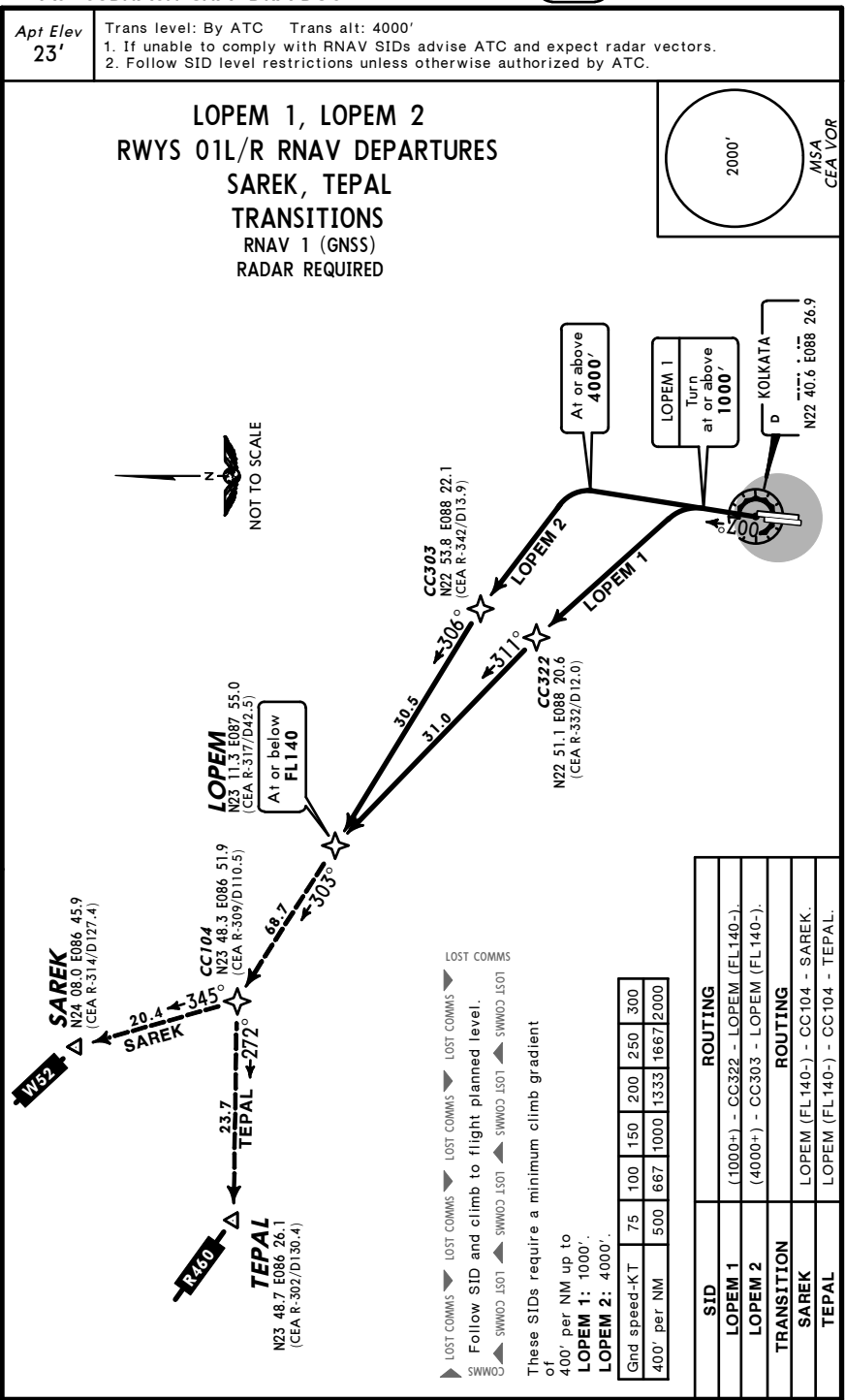
10-3K

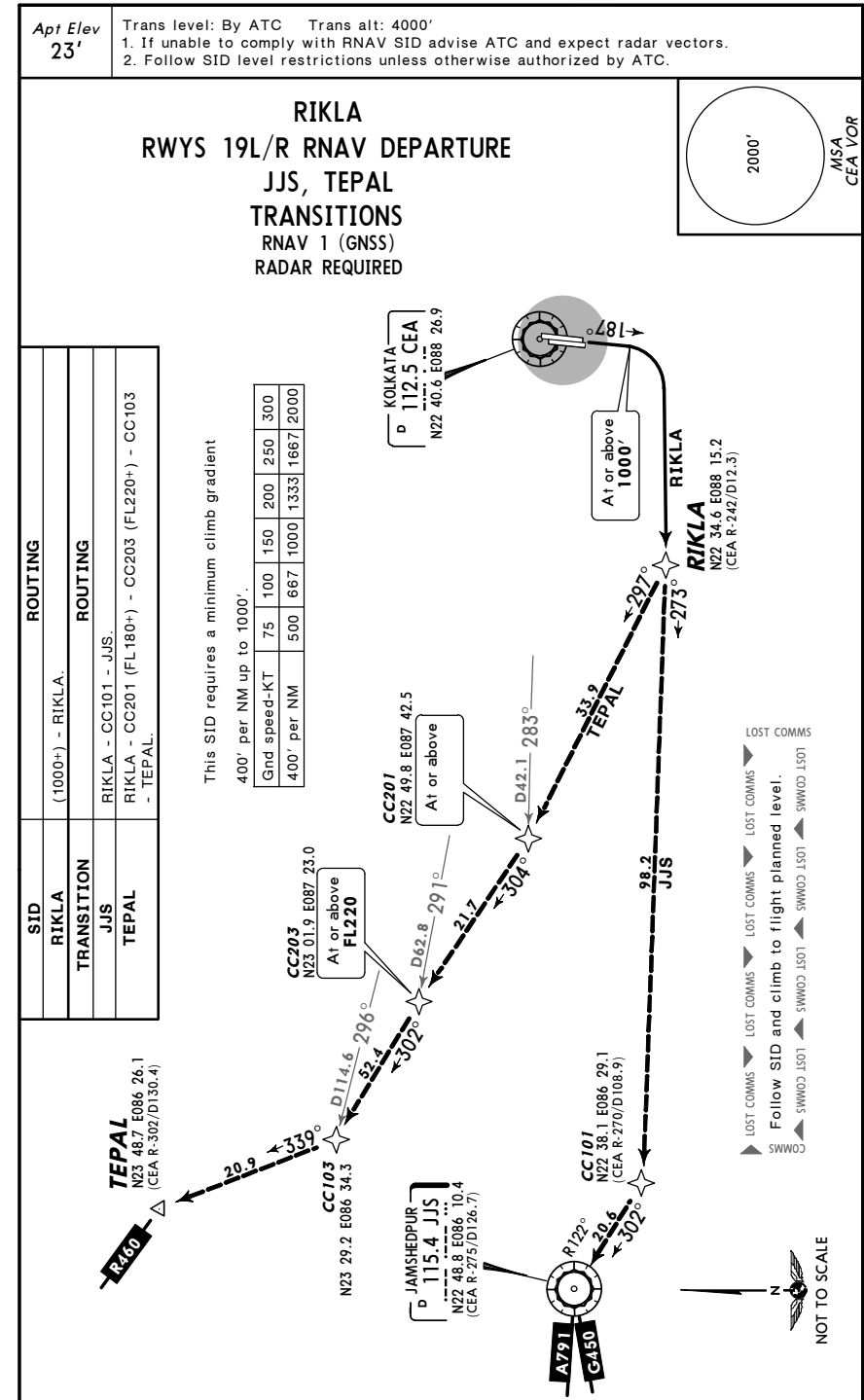
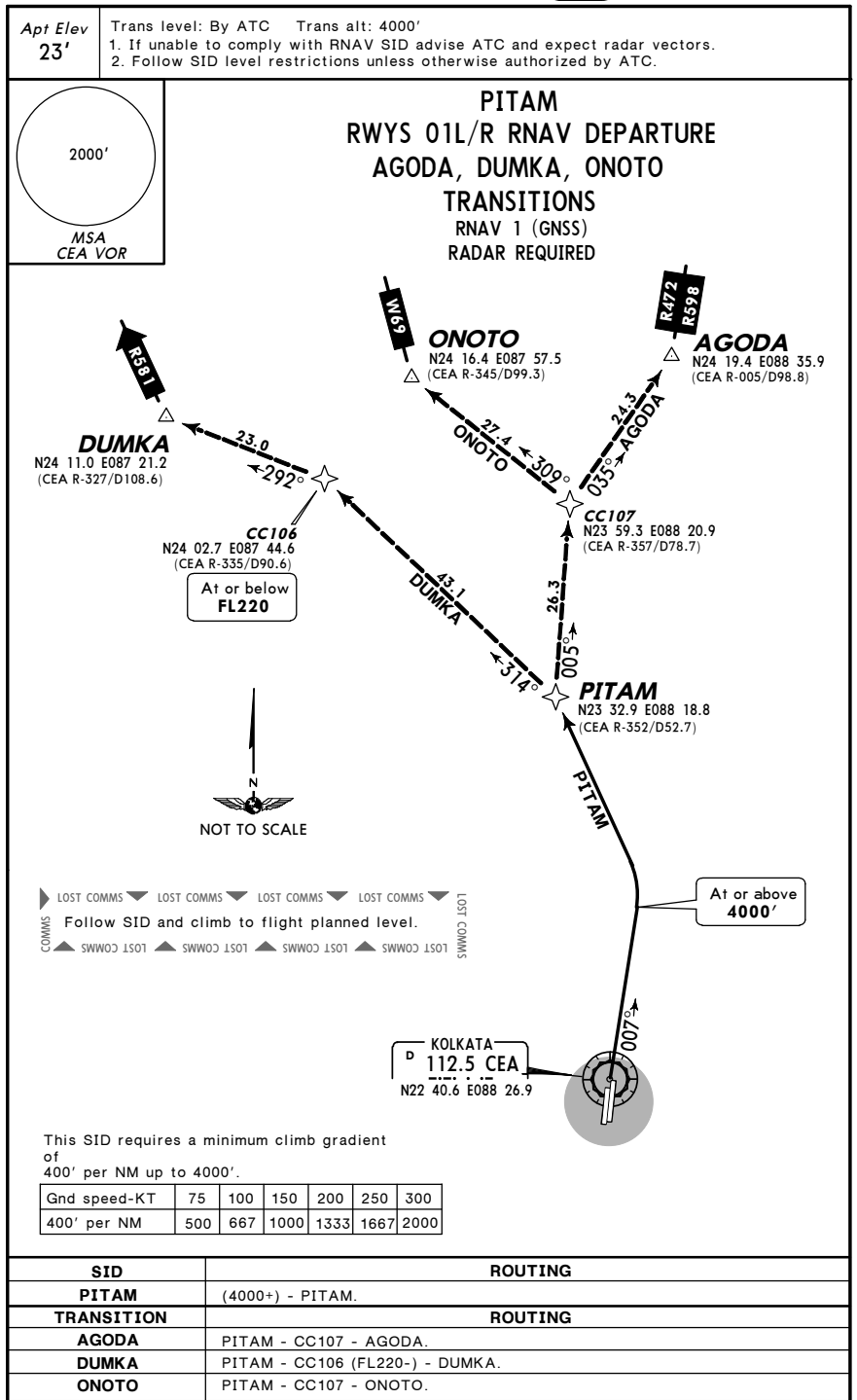
KOLKATA, INDIA

RNAV SID



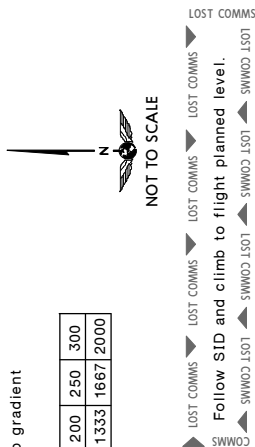
CHANGES: New chart.





1. If unable to comply with RNAV SID advise ATC and expect radar vectors.
2. Follow SID level restrictions unless otherwise authorized by ATC.

2000'

MSA
CEA VOR

This SID requires a minimum climb gradient

Grnd speed-KT	75	100	150	200	250	300
400' per NM	500	667	1000	1333	1667	2000

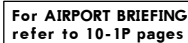
DOT TO SCALE

KOLKATA
D 112.5 CEA
N22 40.6 E088 26.9

At or above

CHANGES: New chart.

Tower
118.1



FOR PARKING POSITIONS
SEE CHART 10-9B

CHANGES: None.

VECC/CCU

KOLKATA, INDIA

2 MAR 12

10-9A

NETAJI SUBHASH CHANDRA BOSE INTL

ADDITIONAL RUNWAY INFORMATION					
RWY			USABLE LENGTHS		WIDTH
			Threshold	Glide Slope	
01L					
19R	HIRL (60m)	HALS	PAPI-L (3.0°)		148' 45m

01R	HIRL (60m) CL (30m) HIALS PAPI-L (3.0°) RVR	10,950' 3338m	148'
19L	HIRL (60m) CL (30m) HIALS-II TDZ PAPI-L (3.0°) RVR	10,499' 3200m 9418' 2871m	45m

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INS COORDINATES	
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STAND No.	COORDINATES	STAND No.	COORDINATES
13, 14	N22 39.1 E088 26.6	46	N22 38.8 E088 26.5
15 thru 17	N22 39.0 E088 26.6	48 thru 50	N22 38.7 E088 26.4
18, 19	N22 38.9 E088 26.6	51 thru 53	N22 38.6 E088 26.4
20, 21	N22 38.8 E088 26.6	C1	N22 39.2 E088 26.5
22, 23	N22 38.7 E088 26.6	C2	N22 39.2 E088 26.6
24, 25	N22 38.7 E088 26.5	C3 thru C5	N22 39.4 E088 26.6
26 thru 28	N22 38.6 E088 26.5		
29 thru 32	N22 38.5 E088 26.5		
41 thru 43	N22 39.0 E088 26.5		
44, 45	N22 38.9 E088 26.5		

TAKE-OFF				
Authorized Operators Low Visibility Take-off Operations (mult. RVR req)		DAY: RL or RCLM NIGHT: RL or CL & Rwy End Lights DAY: RL or RCLM NIGHT: RL or CL & Rwy End Lights I Adequate Vis Ref (DAY only)		
A	RL & CL	DAY: RL or RCLM NIGHT: RL or CL & Rwy End Lights	DAY: RL or RCLM NIGHT: RL or CL & Rwy End Lights	Adequate Vis Ref (DAY only)
B	150m	300m	400m	500m
C				
D	200m			

1 Pilot is able to continuously identify the take-off surface and maintain directional control.

CHANGES: CL spacing. Coordinates. Minimums.

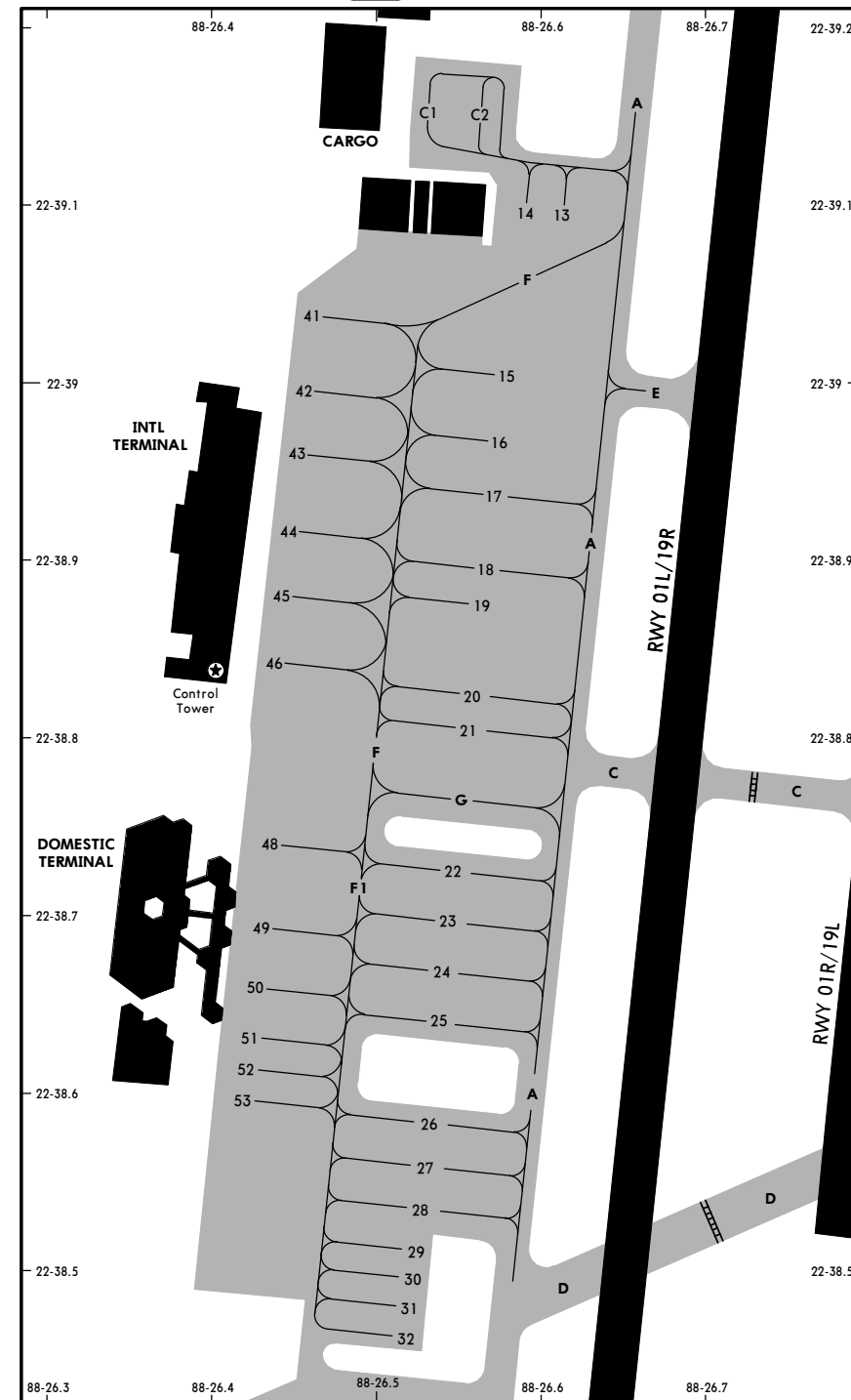
VECC/CCU

KOLKATA, INDIA

2 JUL 10

(10-9B)

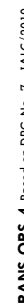
NETAJI SUBHASH CHANDRA BOSE INTL



CHANGES: Stands.

KOLKATA, INDIA
ILS Rwy 01R

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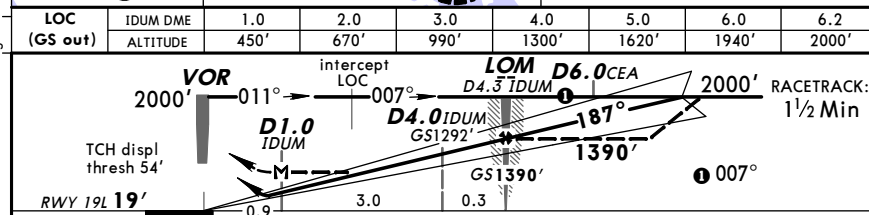
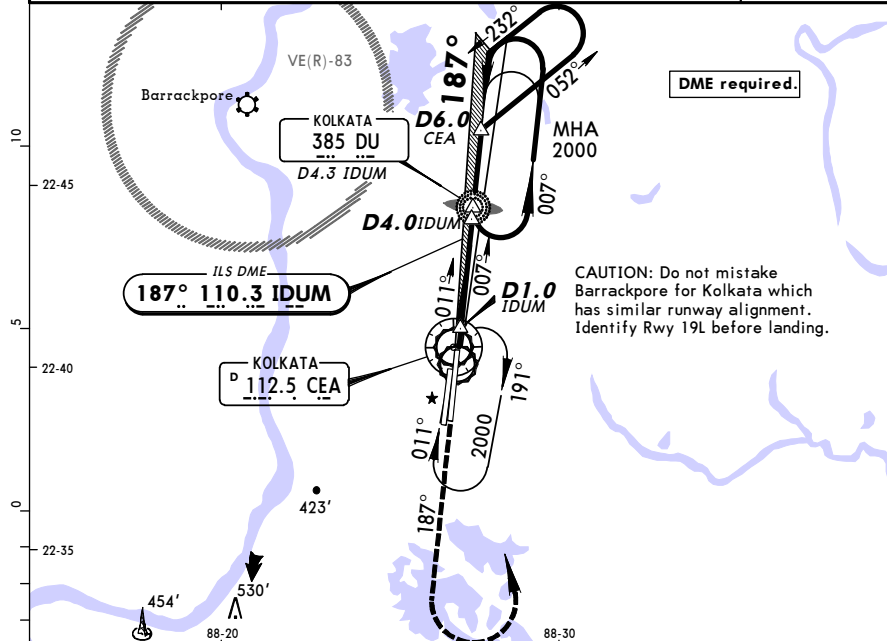
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BASIC OPERATIONS

CHANGES: Procedure, Minimums.

VECC/CCU
NETAJI SUBHASH CHANDRA BOSE INTL 12 NOV 10 (11-2) Eff 18 Nov ILS Rwy 19L

ATIS	KOLKATA Approach (R)		KOLKATA Tower		Ground
126.4	127.9		118.1		121.9
LOC IDUM 110.3	Final Apch Crs 187°	GS LOM 1390' (1371')	ILS DA(H) 247' (228')	Apt Elev 23' RWY 19'	2000'
MISSED APCH: Climb STRAIGHT AHEAD to 2000', then turn LEFT to join VOR holding, or as directed.					
Alt Set: hPa	Rwy Elev: 1 hPa	Trans level: By ATC	Trans alt: 4000'	MSA CEA VOR	



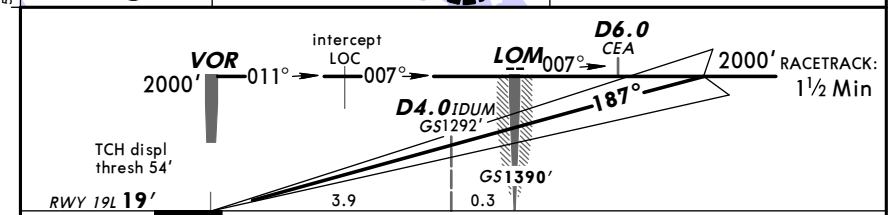
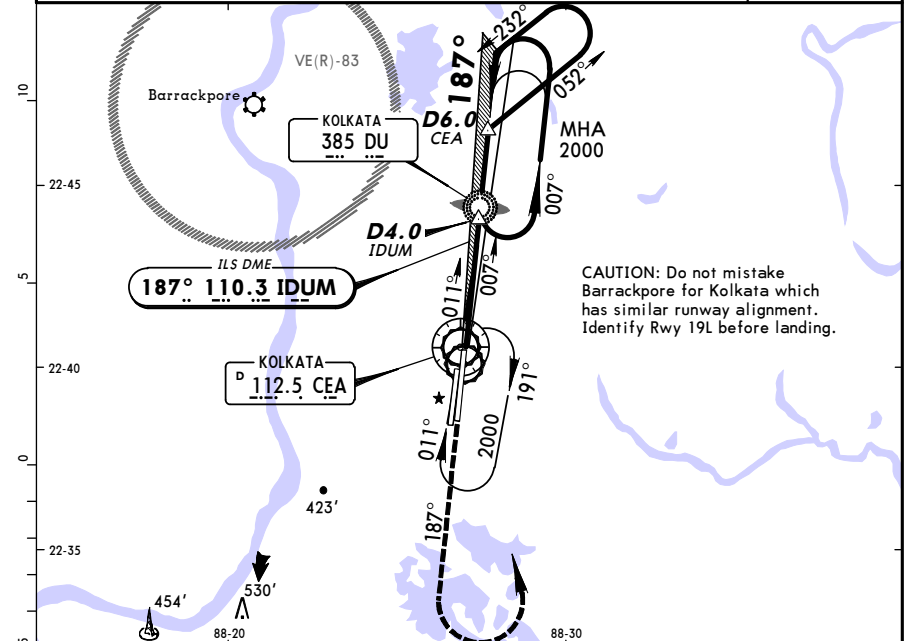
Gnd speed-Kts	70	90	100	120	140	160	
ILS GS or LOC Desc Angle 3.00°	377	484	538	646	753	861	2000'
MAP at D1.0 IDUM							

STRAIGHT-IN LANDING RWY 19L				CIRCLE-TO-LAND	
ILS		LOC (GS out)			
DA(H) 247' (228')		MDA(H) 420' (401')			
FULL	TDZ or CL out	ALS out	ALS out	Max Kts	MDA(H)
A				100	
B				135	720' (697')
C	RVR 550m VIS 800m	RVR 720m VIS 800m	1200m	180	820' (797')
D				205	820' (797')

CHANGES: Procedure.

VECC/CCU
NETAJI SUBHASH CHANDRA BOSE INTL 12 NOV 10 (11-2A) Eff 18 Nov CAT II ILS Rwy 19L

ATIS	KOLKATA Approach (R)		KOLKATA Tower		Ground
126.4	127.9		118.1		121.9
LOC IDUM 110.3	Final Apch Crs 187°	GS LOM 1390' (1371')	CAT II ILS RA 100' DA(H) 119' (100')	Apt Elev 23' RWY 19'	2000'
MISSED APCH: Climb STRAIGHT AHEAD to 2000', then turn LEFT to join VOR holding, or as directed.					
Alt Set: hPa	Rwy Elev: 1 hPa	Trans level: By ATC	Trans alt: 4000'	MSA CEA VOR	

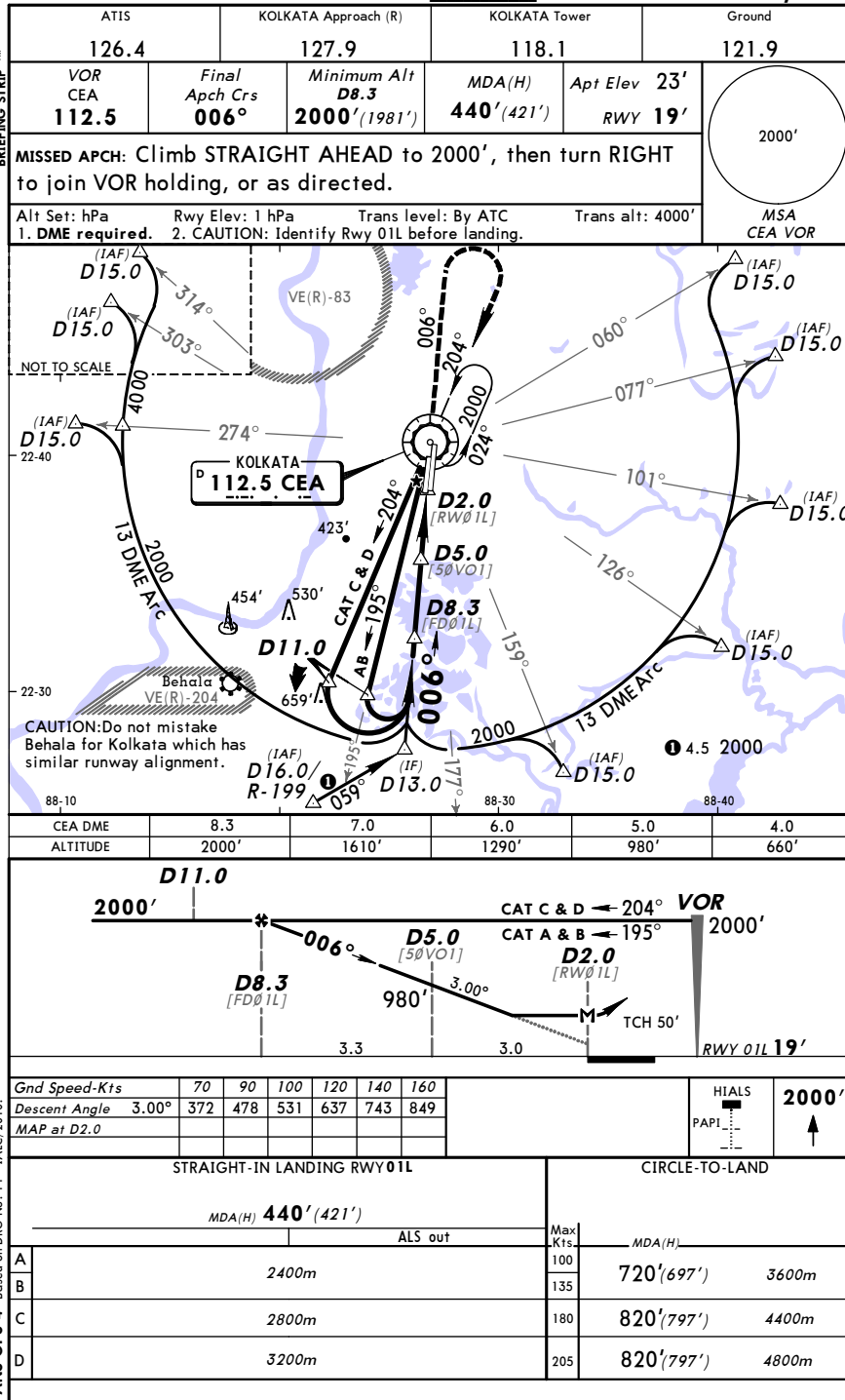


Gnd speed-Kts	70	90	100	120	140	160	
GS	3.00°	377	484	538	646	753	861

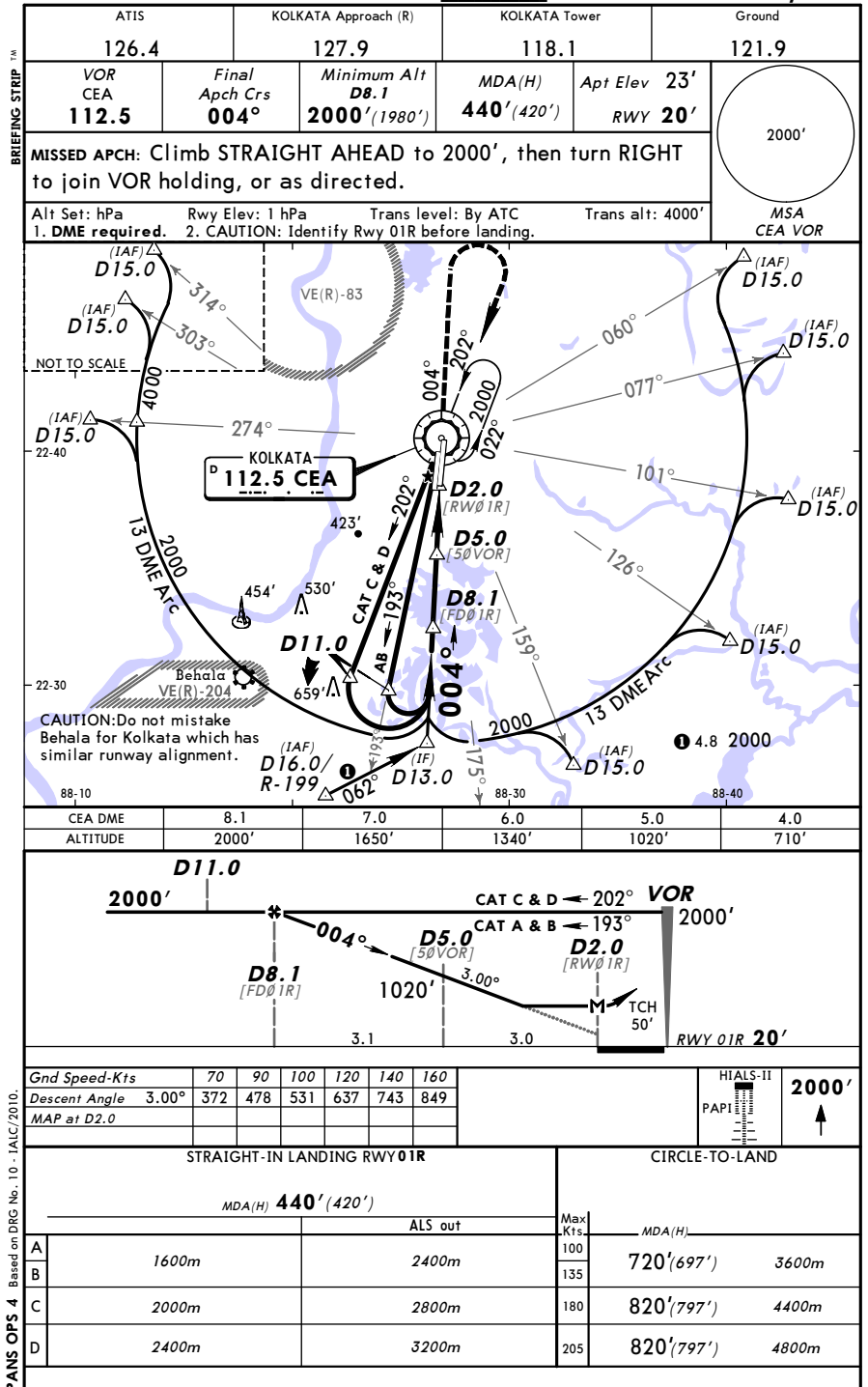
STRAIGHT-IN LANDING RWY 19L			
CAT II ILS			
ABCD			
RA 100'			
DA(H) 119' (100')			
RVR 350m			

CHANGES: Procedure.

VECC/CCU
NETAJI SUBHASH CHANDRA BOSE INTL 12 NOV 10
Eff 18 Nov (13-1) KOLKATA, INDIA
VOR Rwy 01L



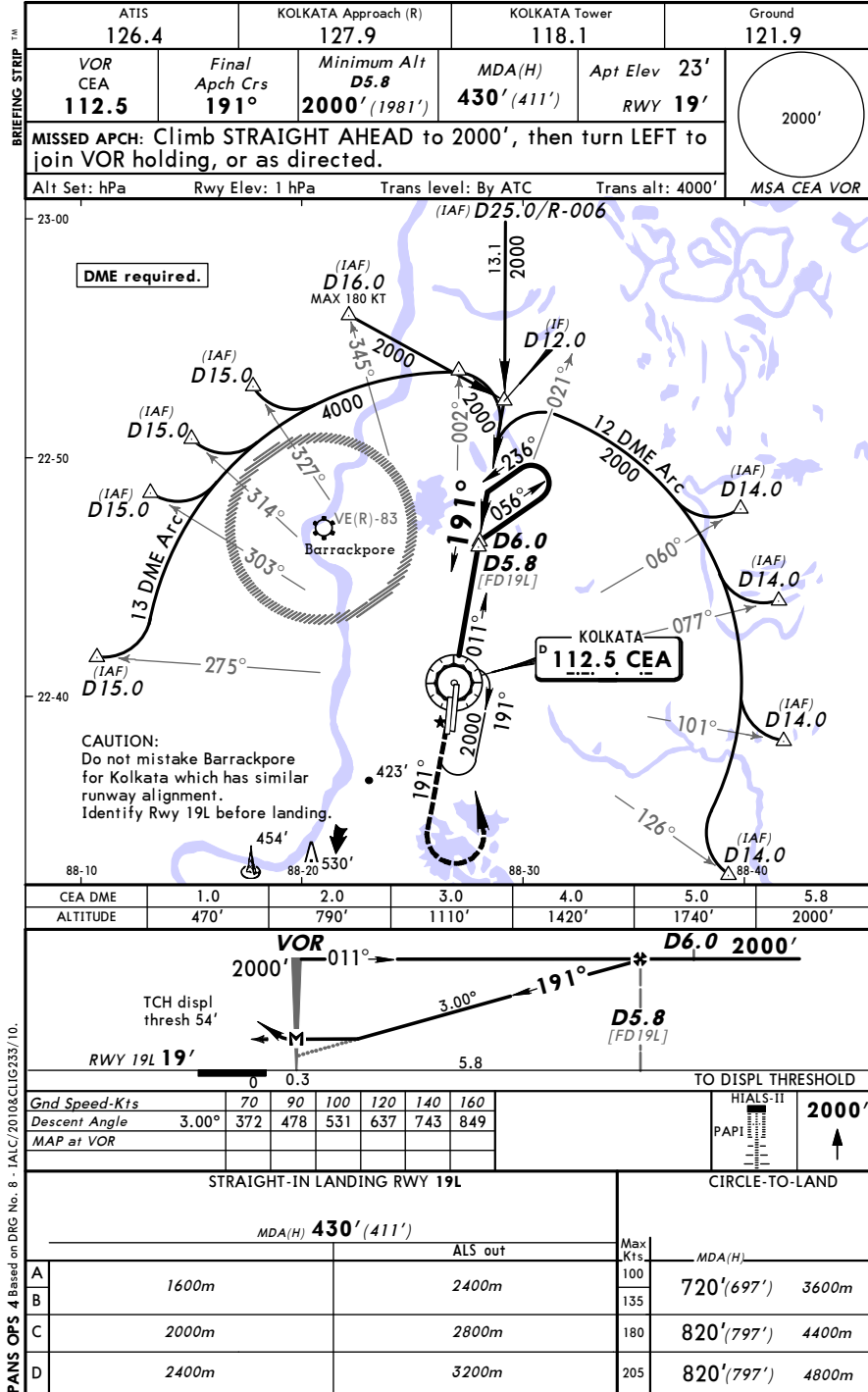
VECC/CCU
NETAJI SUBHASH CHANDRA BOSE INTL 12 NOV 10
Eff 18 Nov (13-2) KOLKATA, INDIA
VOR Rwy 01R



VECC/CCU
NETAJI SUBHASH
CHANDRA BOSE INTL

17 DEC 10 (13-3)

KOLKATA, INDIA
VOR Rwy 19L

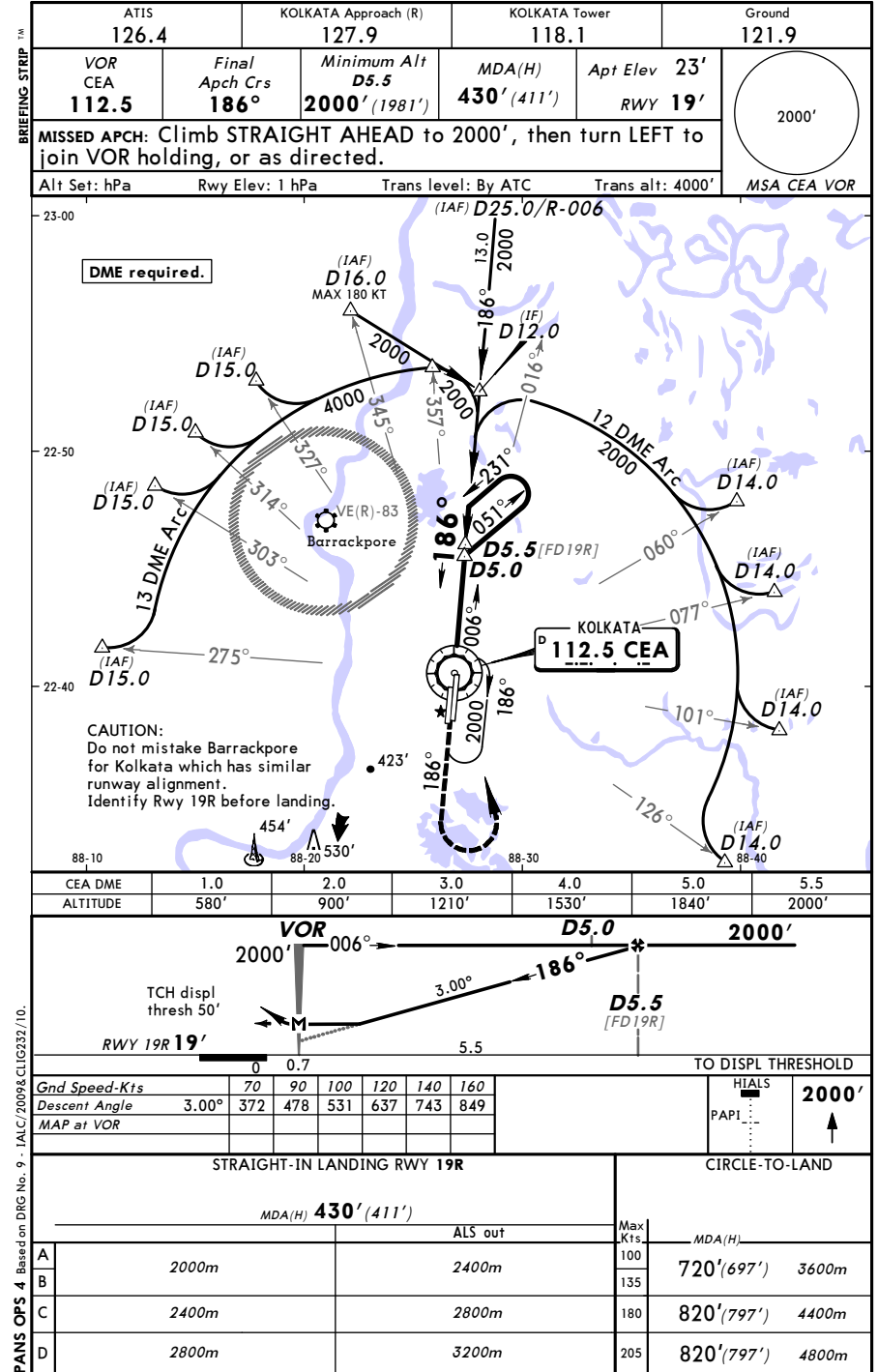


PANS OPS 4 Based on DRG No. 8 - IALC/2010&CLIG233/10.

VECC/CCU
NETAJI SUBHASH
CHANDRA BOSE INTL

17 DEC 10 (13-4)

KOLKATA, INDIA
VOR Rwy 19R



PANS OPS 4 Based on DRG No. 9 - IALC/2009&CLIG232/10.

CHANGES: Transitions, Descent angle.

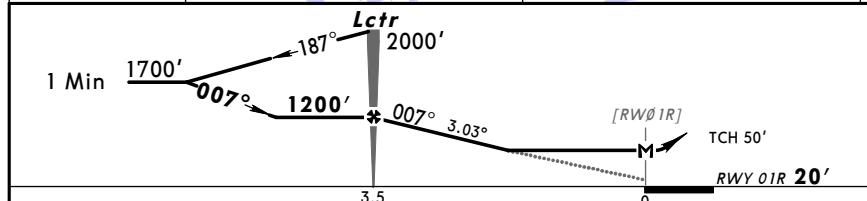
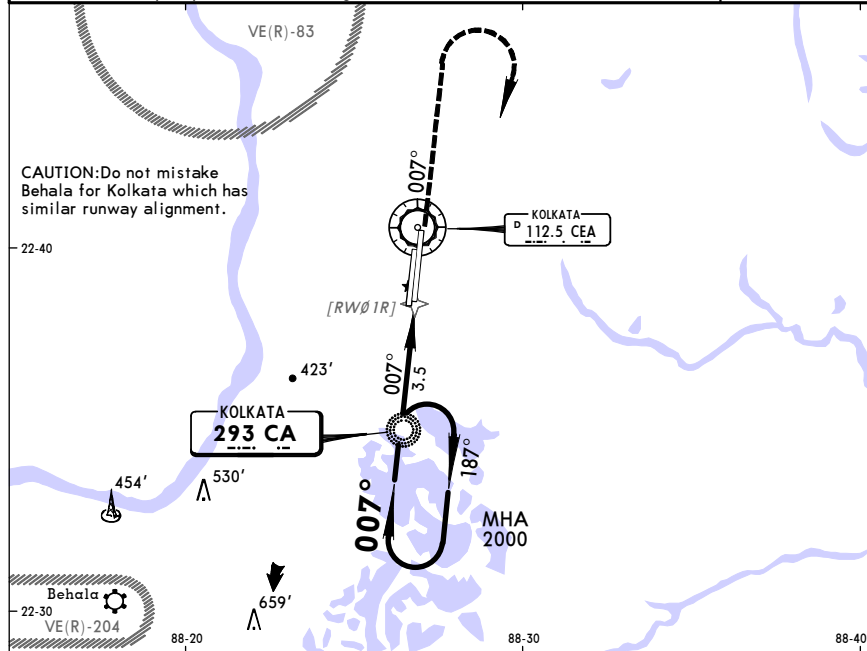
VECC/CCU
NETAJI SUBHASH CHANDRA BOSE INTL

12 NOV 10
Eff 18 Nov (16-1)

KOLKATA, INDIA
Lctr Rwy 01R

BRIEFING STRIP

ATIS	KOLKATA Approach (R)		KOLKATA Tower		Ground
126.4	127.9		118.1		121.9
Lctr CA 293	Final Apch Crs 007°	Minimum Alt Lctr 1200' (1180')	MDA(H) 420' (400')	Apt Elev 23' RWY 20'	2000'
MISSED APCH: Climb STRAIGHT AHEAD to 2000', then turn RIGHT to join Lctr holding, or as directed.					
Alt Set: hPa Rwy Elev: 1 hPa Trans level: By ATC Trans alt: 4000'					MSA CA Lctr
CAUTION: Identify Rwy 01R before landing.					



Gnd speed-Kts		70	90	100	120	140	160			HIALS	2000'
Descent Angle		3.03°	375	482	536	643	750	858			
Lctr to MAP		3.5	3:00	2:20	2:06	1:45	1:30	1:19			

STRAIGHT-IN LANDING RWY 01R			CIRCLE-TO-LAND		
MDA(H) 420' (400')			MDA(H)		
ALS out			ALS out		
A			A		
B			B		
C			C		
D			D		

CHANGES: VOR position.

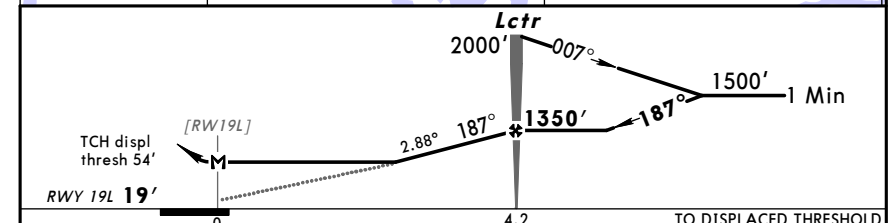
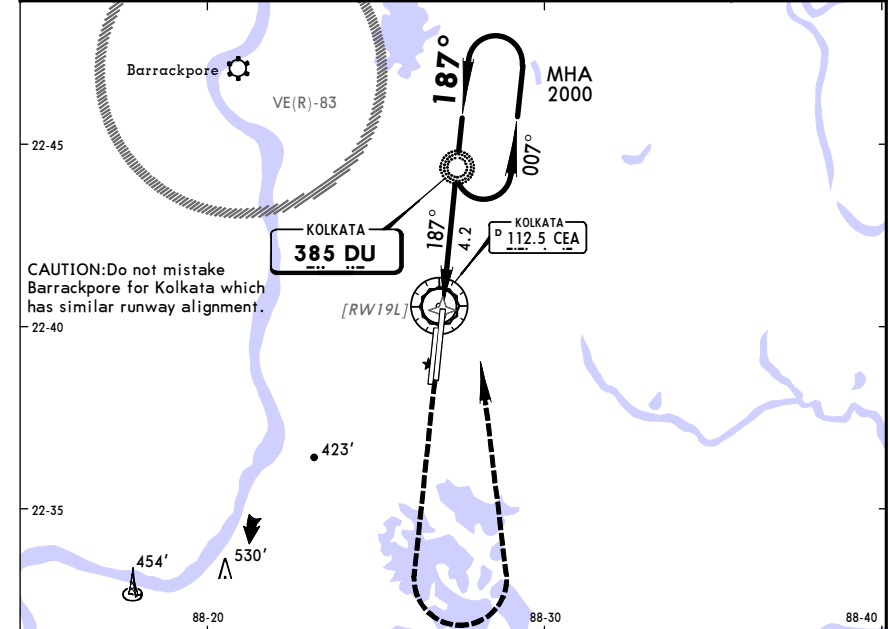
VECC/CCU
NETAJI SUBHASH CHANDRA BOSE INTL

12 NOV 10
Eff 18 Nov (16-2)

KOLKATA, INDIA
Lctr Rwy 19L

BRIEFING STRIP

ATIS	KOLKATA Approach (R)		KOLKATA Tower		Ground
126.4	127.9		118.1		121.9
Lctr DU 385	Final Apch Crs 187°	Minimum Alt Lctr 1350' (1331')	MDA(H) 420' (401')	Apt Elev 23' RWY 19'	2000'
MISSED APCH: Climb STRAIGHT AHEAD to 2000', then turn LEFT to join Lctr holding, or as directed.					
Alt Set: hPa Rwy Elev: 1 hPa Trans level: By ATC Trans alt: 4000'					MSA DU Lctr
CAUTION: Identify Rwy 19L before landing.					



<i>Gnd speed-Kts</i>	70	90	100	120	140	160	
<i>Descent Angle</i>	2.88°	357	459	509	611	713	815
<i>Lctr to MAP</i>	4.2	3:36	2:48	2:31	2:06	1:48	1:35

↑

2000'

↑

STRAIGHT-IN LANDING RWY 19L			CIRCLE-TO-LAND		
MDA(H) 420' (401')			MDA(H)		
ALS out			ALS out		
A			A		
B			B		
C			C		
D			D		

CHANGES: VOR position. Descent angle.

VECC/CCU

NETAJI SUBHASH CHANDRA BOSE INTL

12 NOV 10

Eff 18 Nov

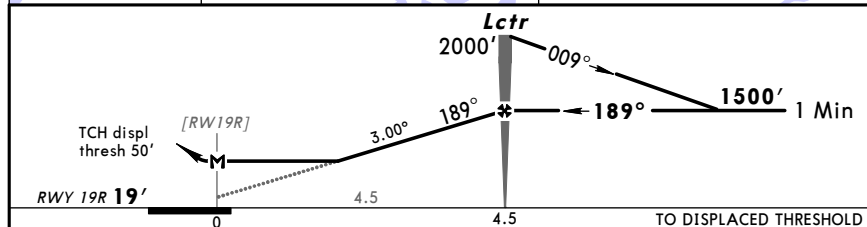
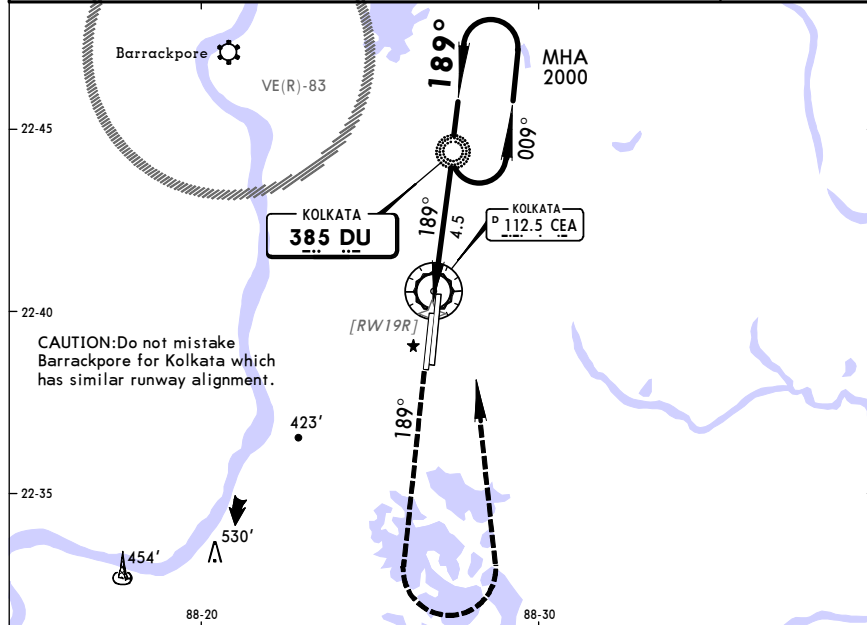
(16-3)

KOLKATA, INDIA

Lctr Rwy 19R

BRIEFING STRIP

ATIS		KOLKATA Approach (R)		KOLKATA Tower		Ground	
126.4		127.9		118.1		121.9	
Lctr DU 385	Final Apch Crs 189°	Minimum Alt Lctr 1500' (1481')	MDA(H) 420' (401')	Apt Elev 23' RWY 19'	2000'		
MISSED APCH: Climb STRAIGHT AHEAD to 2000', then turn LEFT to join Lctr holding, or as directed.							
Alt Set: hPa		Rwy Elev: 1 hPa		Trans level: By ATC			
CAUTION: Identify Rwy 19R before landing.					MSA DU Lctr		



Gnd speed-Kts	70	90	100	120	140	160	HIALS		2000'
Descent Angle 3.00°	372	478	531	637	743	849	PAPI		↑
Lctr to MAP	4.5	3:51	3:00	2:42	2:15	1:56			

STRAIGHT-IN LANDING RWY 19R				CIRCLE-TO-LAND			
MDA(H) 420' (401')							
ALS out				Max Kts	MDA(H)		
				100	720' (697')	3600m	
				135			
				180	820' (797')	4400m	
				205	820' (797')	4800m	

CHANGES: VOR position.

VECC/CCU

NETAJI SUBHASH CHANDRA BOSE INTL

12 NOV 10

Eff 18 Nov

(18-1)

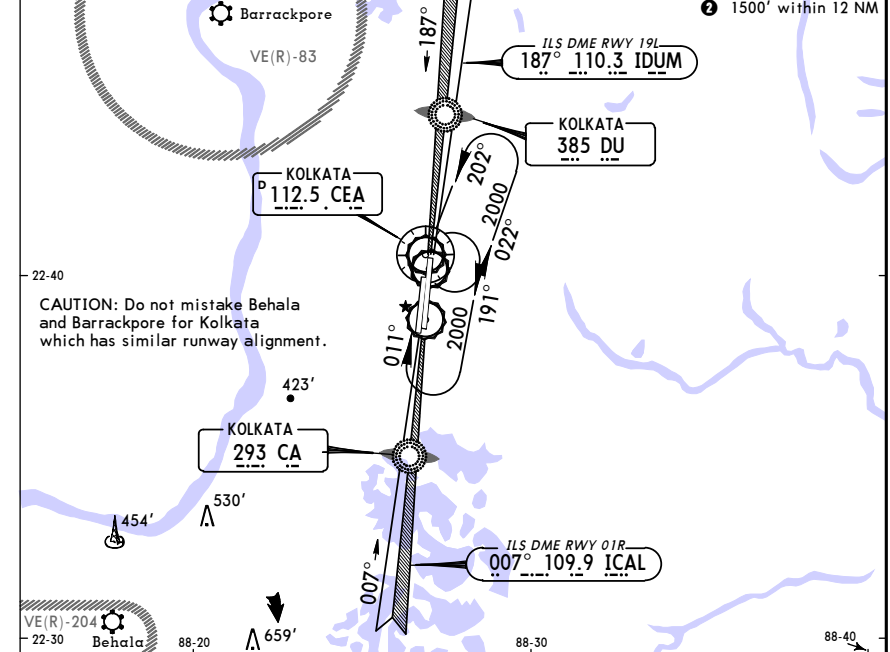
KOLKATA, INDIA

SRA Rwy 01R, 19L

BRIEFING STRIP

BRIEFING STRIP™

ATIS 126.4		KOLKATA Approach (R) 127.9		KOLKATA Radar (SRA) 127.9		KOLKATA Tower 118.1		Ground 121.9	
RADAR		Final Apch Crs By ATC		Minimum Alt 6.2 NM 2000' (1977')		MDA(H) Refer to Minimums		Apt Elev 23'	
Missed Approach - See below								2000' ① 090° ← → 270° 2000' ②	
Alt Set: hPa		Apt Elev: 1 hPa		Trans level: By ATC		Trans alt: 4000'			
								MSA CEA VOR	
								① 1700' within 12 NM	



Minimum Alt/NM	6.2 FAF	6.0	5.0	4.0	3.0	2.0
SRA 01R	2000'	1940'	1620'	1300'	980'	670'
SRA 19L	2000'	1940'	1620'	1300'	980'	660'

MISSED APCH:
Rwy 01R: Climb STRAIGHT AHEAD to 2000', then turn RIGHT to join VOR holding (202° inbound), or as directed.
Rwy 19L: Climb STRAIGHT AHEAD to 2000', then turn LEFT to join VOR holding (011° inbound), or as directed.

Gnd speed-Kts	70	90	100	120	140	160	Lighting - Refer to Airport Chart		2000'
Descent Angle 3.00°	372	478	531	637	743	849			↑
MAP 2 NM from touchdown									

STRAIGHT-IN LANDING				CIRCLE-TO-LAND			
SRA 01R MDA(H) 670' (647')				SRA 19L MDA(H) 660' (637')			
ALS out				Max Kts	MDA(H)		
				100	720' (697')	3600m	
				135			
				180	820' (797')	4400m	
				205	820' (797')	4800m	

CHANGES: VOR position. Holdings.