

General Info

Singapore, SGP
 N 01° 21.6' E 103° 59.4' Mag Var: 0.0°W
 Elevation: 22'

Public, Control Tower, IFR, No Fee, Low Level Wind Shear Alert System,
 Rotating Beacon, No Customs
 Fuel: Jet A-1
 Repairs: Major Airframe, Major Engine

Time Zone Info: GMT+8:00 no DST

Runway Info

Runway 02C-20C 13123' x 197' bitu
 Runway 02L-20R 13123' x 197' bitu

Runway 02C (23.0°M) TDZE 14'
 Lights: Edge, ALS, Centerline, REIL
 Stopway Distance 197'

Runway 02L (23.0°M) TDZE 22'
 Lights: Edge, ALS, Centerline, REIL, TDZ
 Stopway Distance 197'

Runway 20C (203.0°M) TDZE 15'
 Lights: Edge, ALS, Centerline, REIL, TDZ
 Stopway Distance 197'

Runway 20R (203.0°M) TDZE 13'
 Lights: Edge, ALS, Centerline, REIL
 Displaced Threshold Distance 2428'
 Stopway Distance 197'

Communications Info

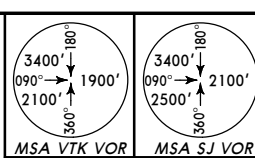
ATIS **128.6**
 Singapore Tower **118.25**
 Singapore Tower **118.6**
 Singapore Ground Control **124.3**
 Singapore Ground Control **121.725**
 Singapore Ground Control **121.85**
 Singapore Clearance Delivery **121.65**
 Singapore Pre-Taxi Clearance **121.65**
 Singapore Approach Control **124.6** Secondary
 Singapore Approach Control **120.3**
 Singapore Arrival Control **119.3**
 Singapore Radar **124.05** Arrival Service

Notebook Info

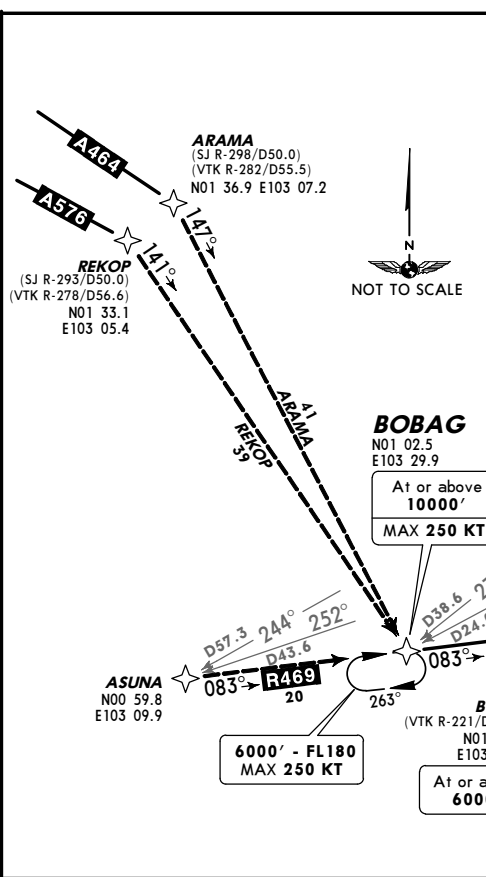
WSSS/SIN
 CHANGI
 26 JAN 07 (10-2)
 JEPPESSEN
 SINGAPORE, SINGAPORE
 RNAV STAR

D-ATIS
128.6
 Apt Elev
22'

Alt Set: hPa Trans level: FL130 Trans alt: 11000'
 1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy.
 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC.
 3. RADAR required.



1. Set transponder to Mode A/C code 7600.
2. When cleared via BOBAG 1A by Singapore ATC:
 - a. **MAINTAIN** last assigned flight level or altitude and proceed on BOBAG 1A to SAMKO.
 - b. From SAMKO commence descent and carry out appropriate landing procedure for Rwy 02 as close as possible to EAT or ETA.
 - c. If unable to effect a landing, refer to Singapore Special Procedures for missed approach procedure.
3. No clearance or instruction received from Singapore ATC:
 Refer to Singapore Special Procedures for radio communications failure procedure.



BOBAG ONE ALPHA (BOBAG1A) ARRIVAL (RWYS 02L/C)

EXPECT RADAR vectors for ILS approach Rwy 02

Changi EAST Rwy 02R/20L is solely for use by the Republic of Singapore Air Force (RSAF) Aircraft

At or above 4000' MAX 220 KT

Direct distance from SAMKO to: Changi Apt 17 NM

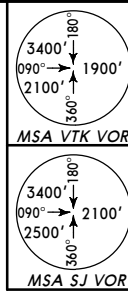
TRANSITIONS	
ARAMA (A-464)	From ARAMA track 147° to BOBAG.
REKOP (A-576)	From REKOP track 141° to BOBAG.

ROUTING	
At BOBAG track 083° to BOKIP then to SAMKO. From SAMKO, EXPECT RADAR vectors for ILS approach Rwy 02.	

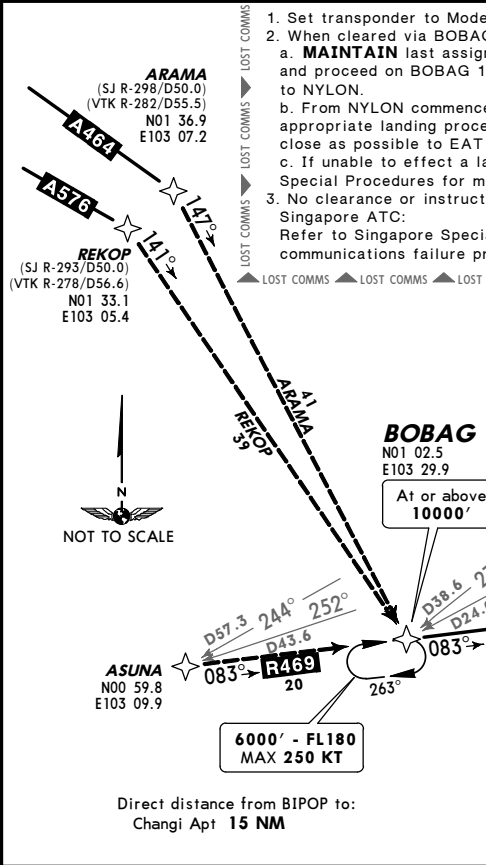
WSSS/SIN
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 26 JAN 07 (10-2A)
 JEPPESSEN
 SINGAPORE, SINGAPORE
 RNAV STAR

D-ATIS
128.6
 Apt Elev
22'

Alt Set: hPa Trans level: FL130 Trans alt: 11000'
 1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy.
 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC.
 3. RADAR required.



1. Set transponder to Mode A/C code 7600.
2. When cleared via BOBAG 1B by Singapore ATC:
 - a. **MAINTAIN** last assigned flight level or altitude and proceed on BOBAG 1B to BIPOP, then direct to NYLON.
 - b. From NYLON commence descent and carry out appropriate landing procedure for Rwy 20 as close as possible to EAT or ETA.
 - c. If unable to effect a landing, refer to Singapore Special Procedures for missed approach procedure.
3. No clearance or instruction received from Singapore ATC:
 Refer to Singapore Special Procedures for radio communications failure procedure.



BOBAG ONE BRAVO (BOBAG1B) ARRIVAL (RWYS 20C/R)

EXPECT RADAR vectors for ILS approach Rwy 20

Changi EAST Rwy 02R/20L is solely for use by the Republic of Singapore Air Force (RSAF) Aircraft

At or above 7000' MAX 250 KT or as directed by ATC

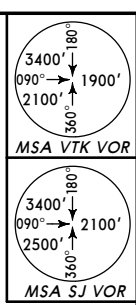
Direct distance from BIPOP to: Changi Apt 15 NM

TRANSITIONS	
ARAMA (A-464)	From ARAMA track 147° to BOBAG.
REKOP (A-576)	From REKOP track 141° to BOBAG.

ROUTING	
At BOBAG track 083° to BOKIP then to SAMKO. Turn LEFT, track 080° to BTM, then turn LEFT and track 023° to DOVAN. Then turn LEFT, track 348° to BIPOP. From BIPOP, EXPECT RADAR vectors for ILS approach Rwy 20.	

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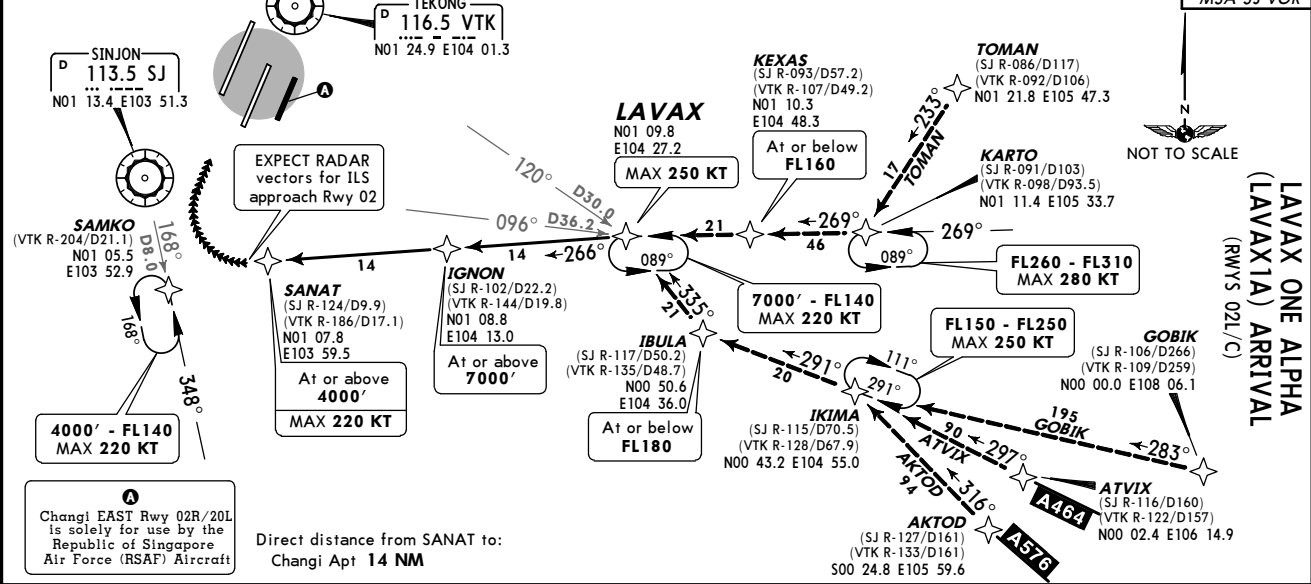
D-ATIS 128.6	Apt Elev 22'	Alt Set: hPa Trans level: FL130 Trans alt: 11000'
1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy.		
2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure		
3. RADAR required.		



1. Set transponder to Mode A/C code 7600.
2. When cleared via LAVAX 1A by Singapore ATC:
 - a. **MAINTAIN** last assigned flight level or altitude and proceed on LAVAX 1A to SANAT, then direct to SAMKO.
 - b. From SAMKO commence descent and carry out appropriate landing procedure for Rwy 02 as close as possible to EAT or ETA.
 - c. If unable to effect a landing, refer to Singapore Special Procedures for missed approach procedure.
3. No clearance or instruction received from Singapore ATC:
 Refer to Singapore Special Procedures for radio communications failure procedure.

TRANSITIONS	
AKTOD (A-576)	Track 316° from AKTOD to IKIMA, then track 291° to IBULA. Then track 335° to LAVAX.
ATVIX (A-464)	Track 297° from ATVIX to IKIMA, then track 291° to IBULA. Then track 335° to LAVAX.
GOBIK	Track 283° from GOBIK to IKIMA, then track 291° to IBULA. Then track 335° to LAVAX.
TOMAN	Track 233° from TOMAN to KARTO, turn RIGHT track 269° to KEXAS, then to LAVAX.

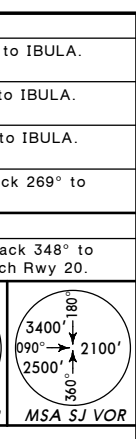
ROUTING
 At LAVAX track 266° to IGNON and then to SANAT. From SANAT, EXPECT RADAR vectors for ILS approach Rwy 02.



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RNAV STAR

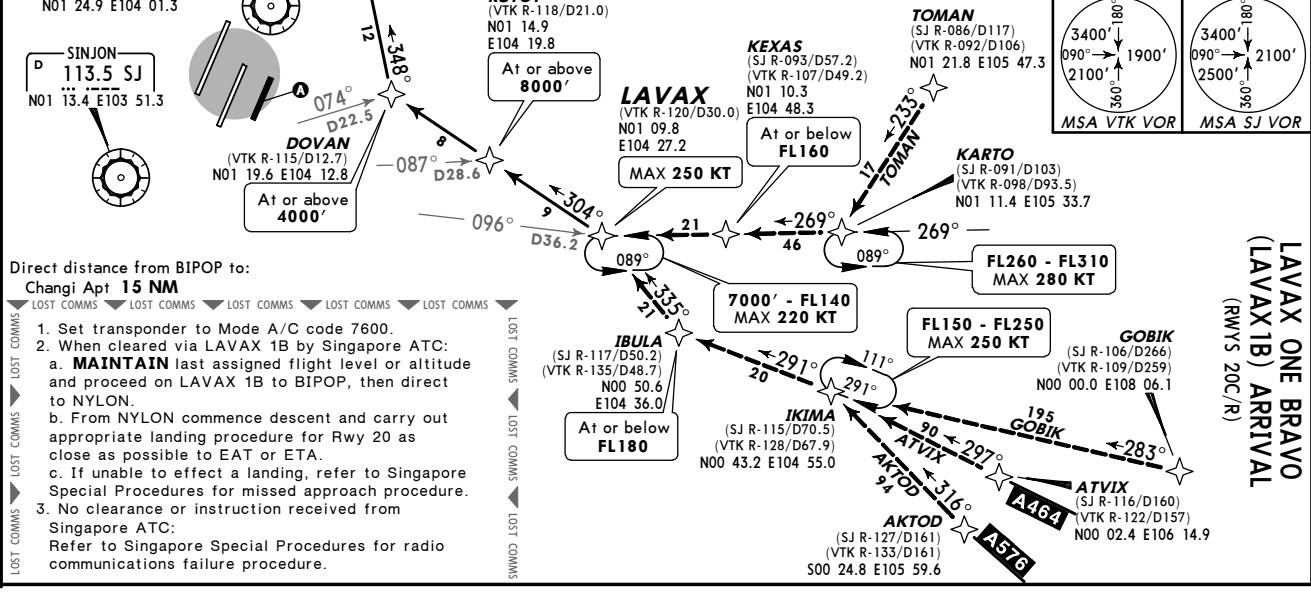
D-ATIS 128.6	Apt Elev 22'	Alt Set: hPa Trans level: FL130 Trans alt: 11000'
1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy.		
2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure		
3. RADAR required.		



1. Set transponder to Mode A/C code 7600.
2. When cleared via LAVAX 1B by Singapore ATC:
 - a. **MAINTAIN** last assigned flight level or altitude and proceed on LAVAX 1B to BIPOP, then direct to NYLON.
 - b. From NYLON commence descent and carry out appropriate landing procedure for Rwy 20 as close as possible to EAT or ETA.
 - c. If unable to effect a landing, refer to Singapore Special Procedures for missed approach procedure.
3. No clearance or instruction received from Singapore ATC:
 Refer to Singapore Special Procedures for radio communications failure procedure.

TRANSITIONS	
AKTOD (A-576)	Track 316° from AKTOD to IKIMA, then track 291° to IBULA. Then track 335° to LAVAX.
ATVIX (A-464)	Track 297° from ATVIX to IKIMA, then track 291° to IBULA. Then track 335° to LAVAX.
GOBIK	Track 283° from GOBIK to IKIMA, then track 291° to IBULA. Then track 335° to LAVAX.
TOMAN	Track 233° from TOMAN to KARTO, turn RIGHT track 269° to KEXAS, then to LAVAX.

ROUTING
 At LAVAX track 304° to RUTOT and then to DOVAN. From BIPOP, EXPECT RADAR vectors for ILS approach Rwy 20.



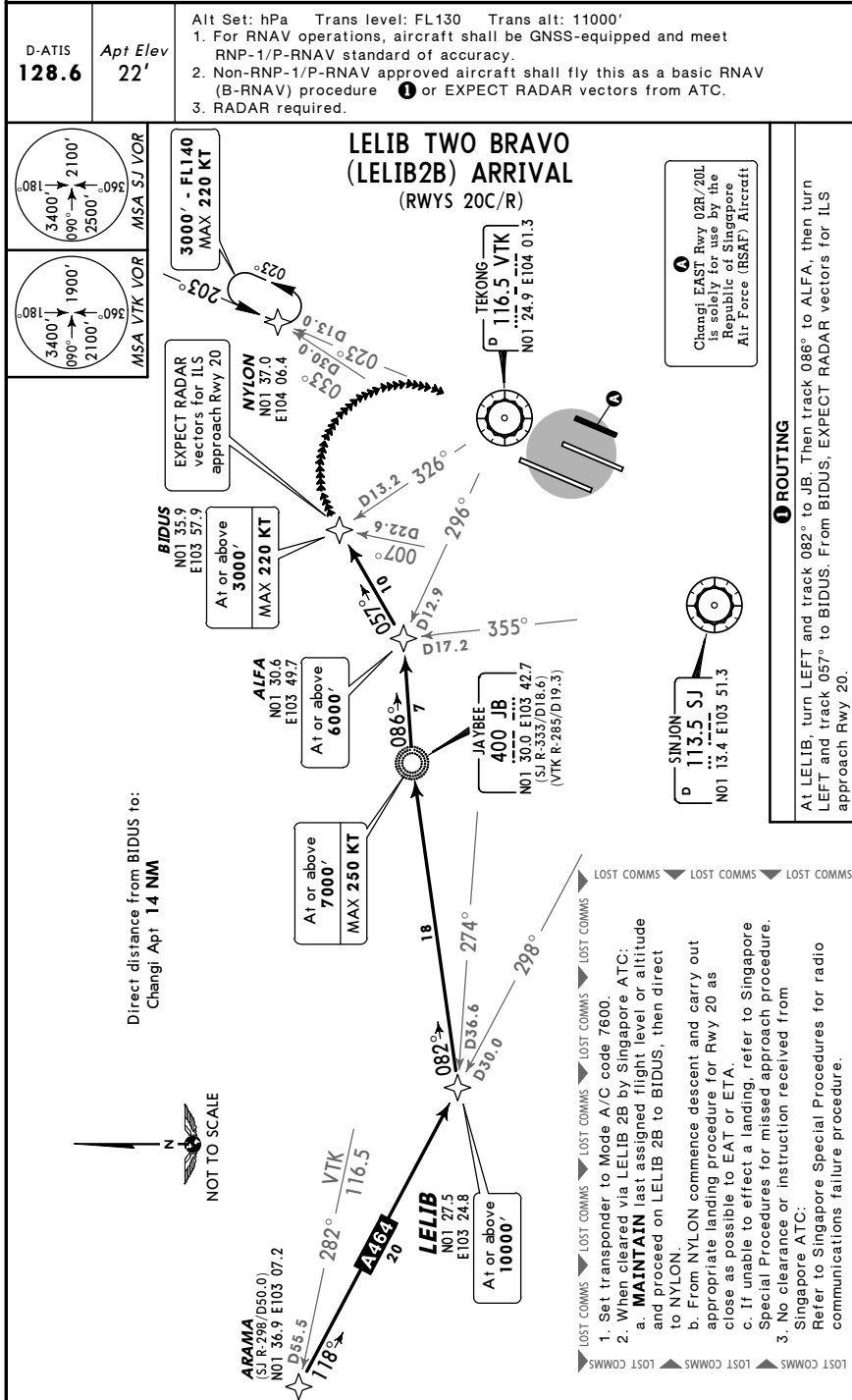
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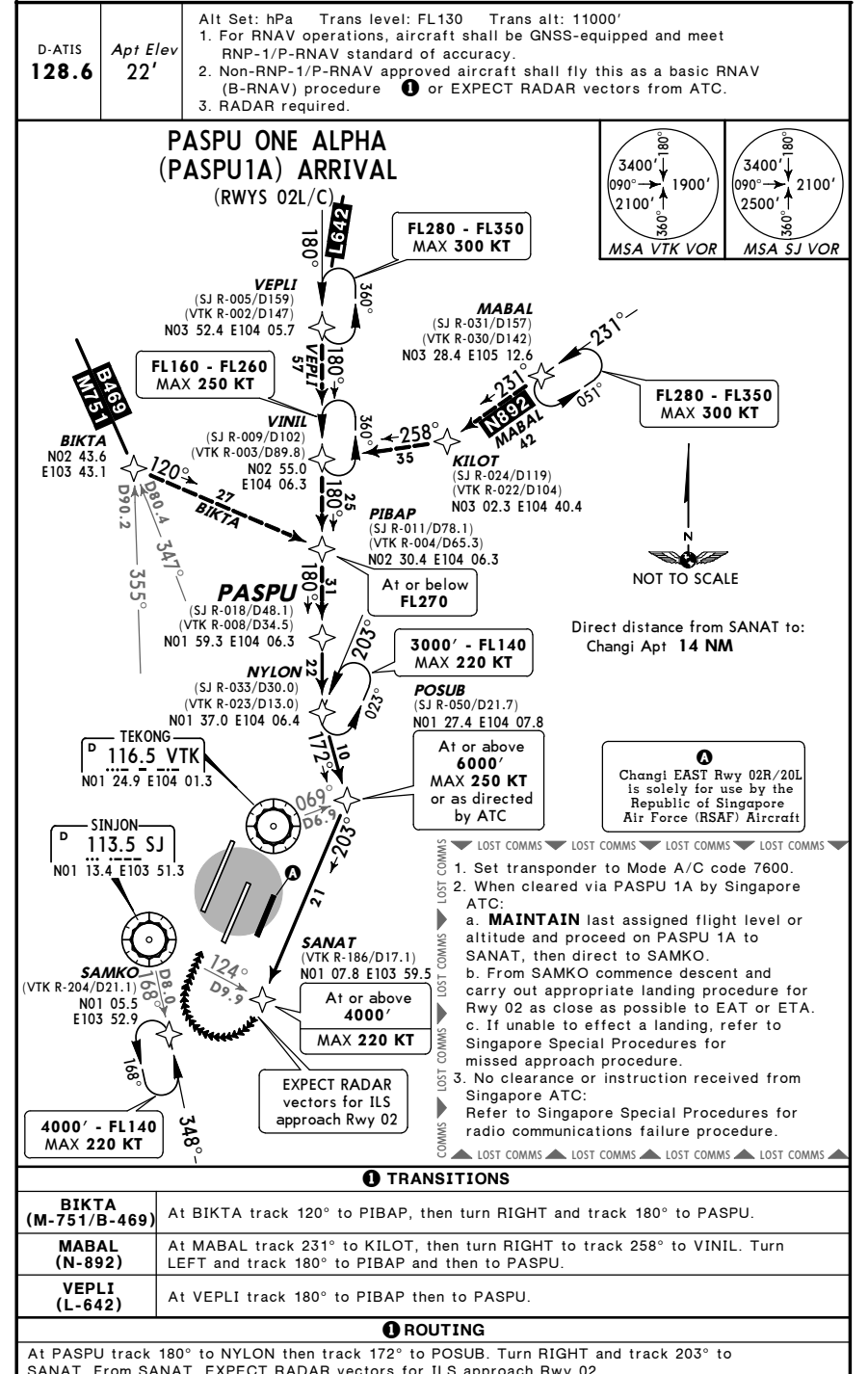
SINGAPORE, SINGAPORE
 RNAV STAR



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 10 AUG 07 (10-2E)

SINGAPORE, SINGAPORE
 RNAV STAR

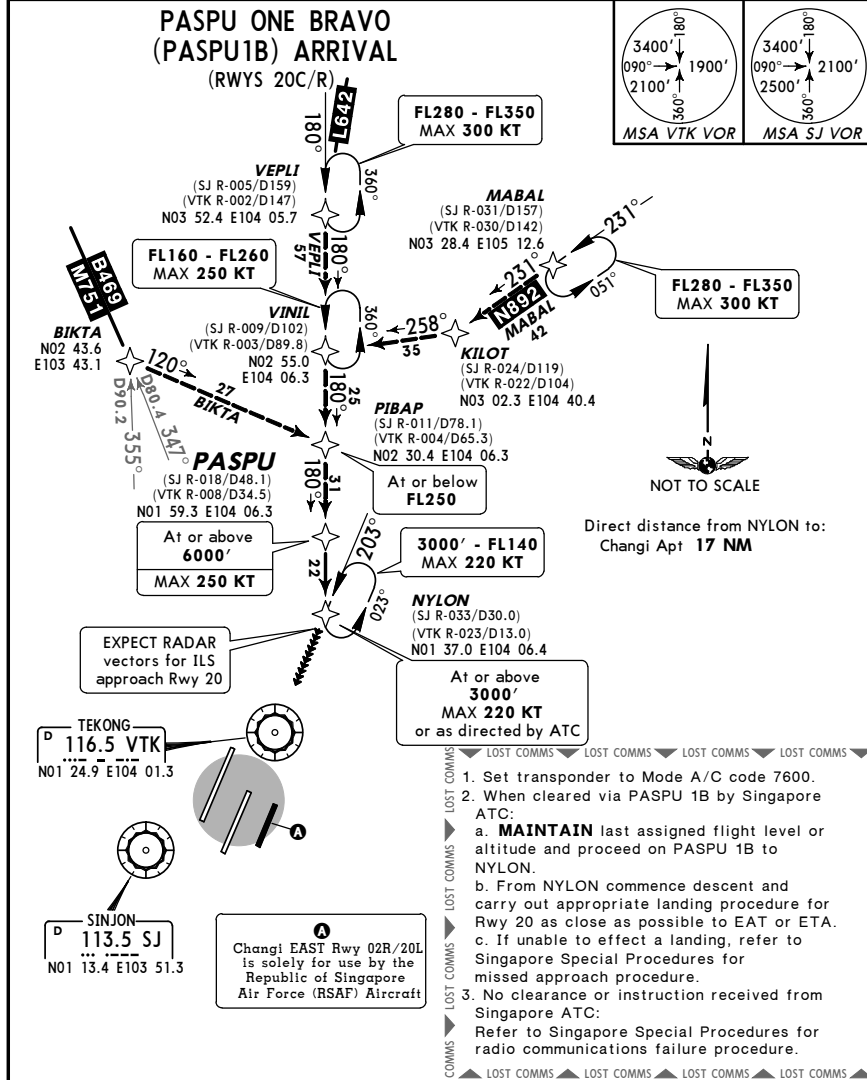


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SINGAPORE, SINGAPORE
 RNAV STAR

D-ATIS 128.6	Apt Elev 22'	Alt Set: hPa Trans level: FL130 Trans alt: 11000' 1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy. 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC. 3. RADAR required.
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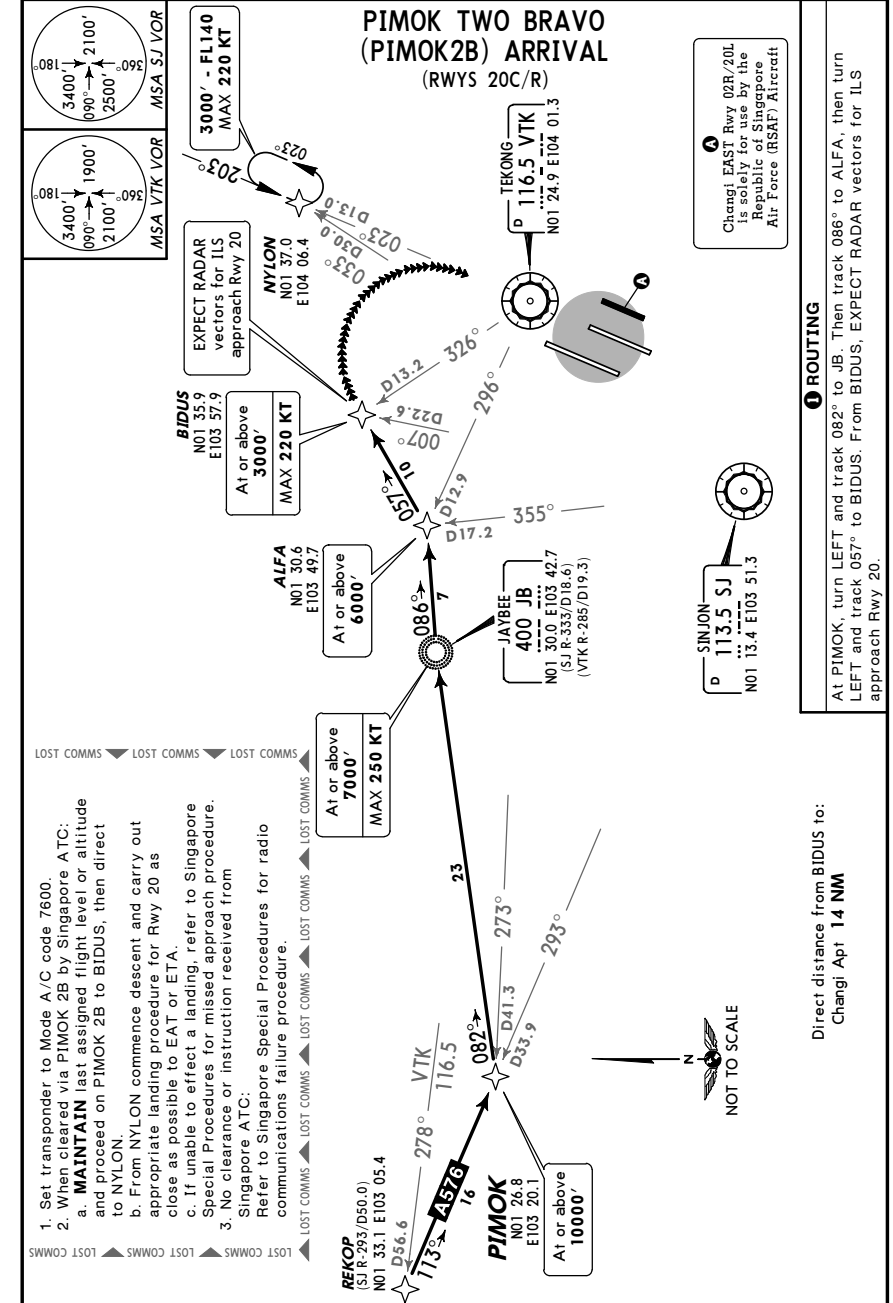
- ① TRANSITIONS
- | | |
|----------------------------|--|
| BIKTA (M-751/B-469) | At BIKTA track 120° to PIBAP, then turn RIGHT and track 180° to PASPU. |
| MABAL (N-892) | At MABAL track 231° to KILOT, then turn RIGHT to track 258° to VINIL. Turn LEFT and track 180° to PIBAP and then to PASPU. |
| VEPLI (L-642) | At VEPLI track 180° to PIBAP then to PASPU. |
- ① ROUTING
- At PASPU track 180° to NYLON. From NYLON, EXPECT RADAR vectors for ILS approach Rwy 20.

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 RNAV STAR

D-ATIS 128.6	Apt Elev 22'	Alt Set: hPa Trans level: FL130 Trans alt: 11000' 1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy. 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC. 3. RADAR required.
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- ① ROUTING
- At PIMOK, turn LEFT and track 082° to JB. Then track 086° to ALFA, then turn LEFT and track 057° to BIDUS. From BIDUS, EXPECT RADAR vectors for ILS approach Rwy 20.

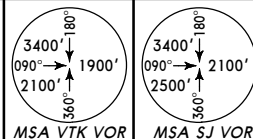
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 CHANGI

JEPPesen 10 AUG 07 (10-2H)

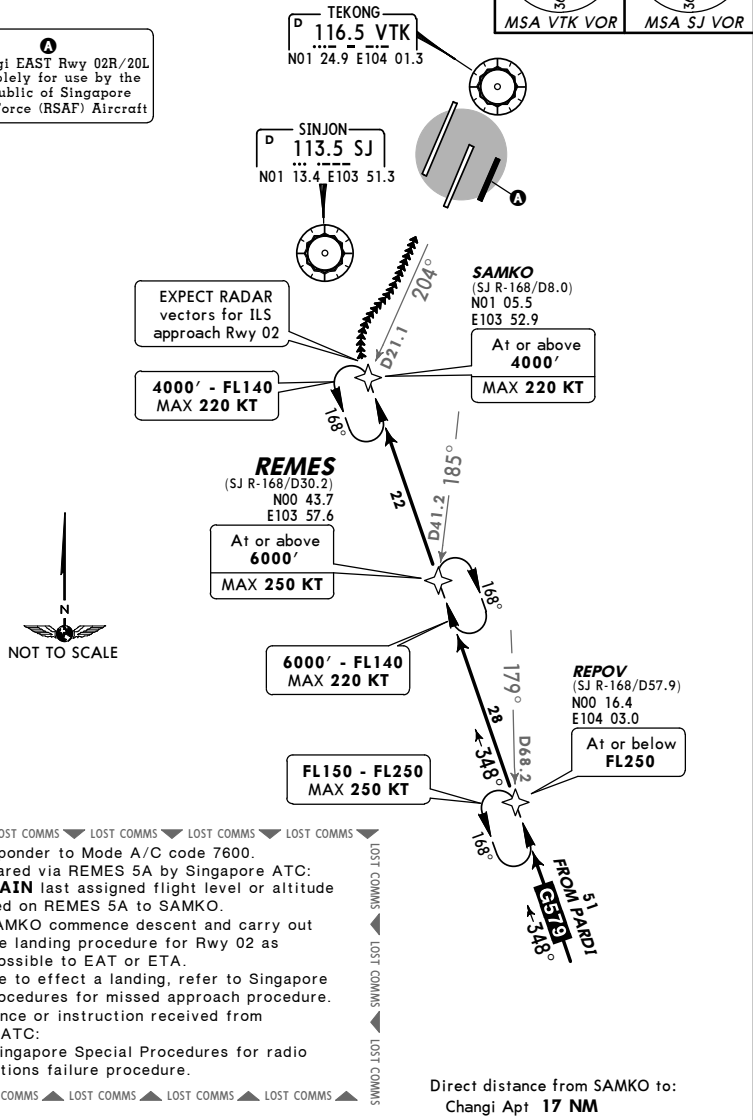
SINGAPORE, SINGAPORE
 RNAV STAR

D-ATIS 128.6	Apt Elev 22'	Alt Set: hPa Trans level: FL130 Trans alt: 11000' 1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy. 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC. 3. RADAR required.
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REMES FIVE ALPHA (REMES5A) ARRIVAL
 (RWYS 02L/C)



Changi EAST Rwy 02R/20L is solely for use by the Republic of Singapore Air Force (RSAF) Aircraft



- LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼
- Set transponder to Mode A/C code 7600.
 - When cleared via REMES 5A by Singapore ATC:
 - MAINTAIN** last assigned flight level or altitude and proceed on REMES 5A to SAMKO.
 - From SAMKO commence descent and carry out appropriate landing procedure for Rwy 02 as close as possible to EAT or ETA.
 - If unable to effect a landing, refer to Singapore Special Procedures for missed approach procedure.
 - No clearance or instruction received from Singapore ATC:
 Refer to Singapore Special Procedures for radio communications failure procedure.
- COMMS ▲ LOST COMMS ▲ LOST COMMS ▲ LOST COMMS ▲ LOST COMMS ▲

① ROUTING

At PARDI track 348° to REPOV, then to REMES, then to SAMKO. From SAMKO, EXPECT RADAR vectors for ILS approach Rwy 02.

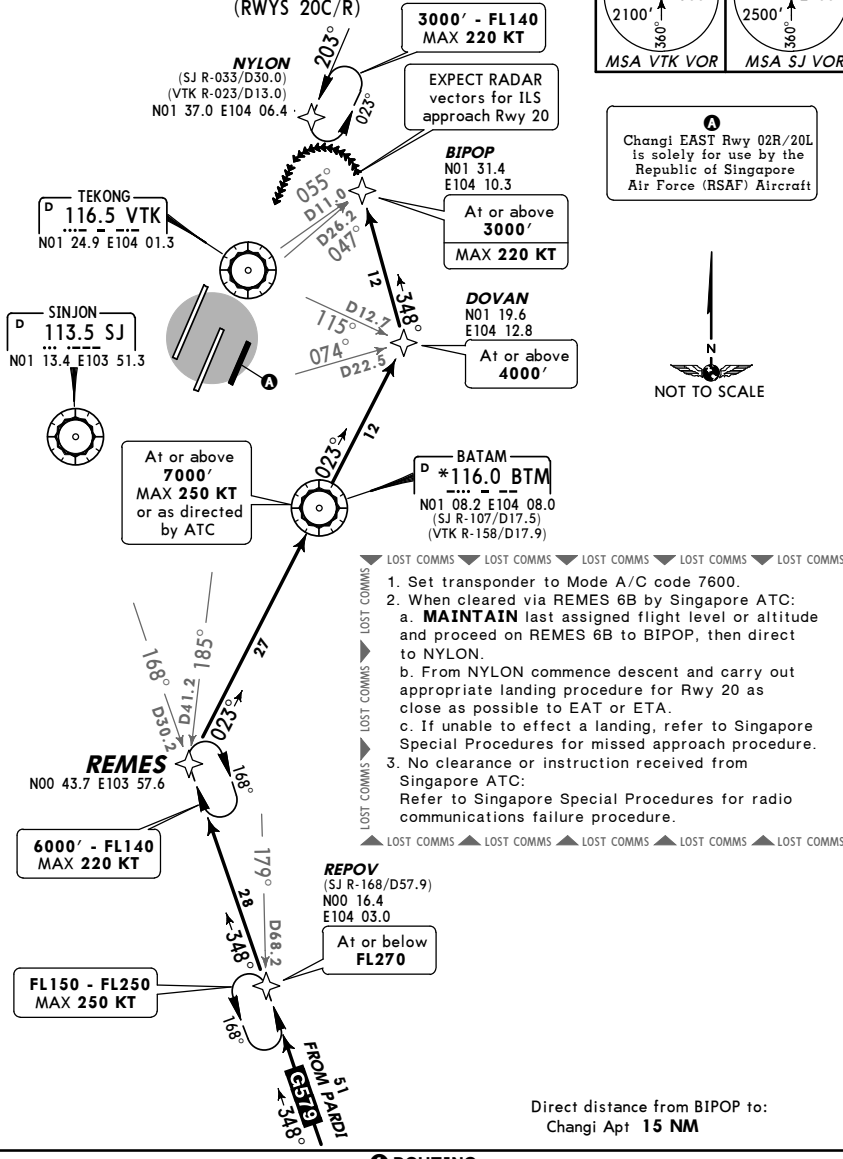
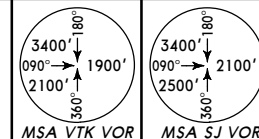
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 CHANGI

JEPPesen 10 AUG 07 (10-2J)

SINGAPORE, SINGAPORE
 RNAV STAR

D-ATIS 128.6	Apt Elev 22'	Alt Set: hPa Trans level: FL130 Trans alt: 11000' 1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy. 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC. 3. RADAR required.
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REMES SIX BRAVO (REMES6B) ARRIVAL
 (RWYS 20C/R)



Changi EAST Rwy 02R/20L is solely for use by the Republic of Singapore Air Force (RSAF) Aircraft

- LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼
- Set transponder to Mode A/C code 7600.
 - When cleared via REMES 6B by Singapore ATC:
 - MAINTAIN** last assigned flight level or altitude and proceed on REMES 6B to BIPOP, then direct to NYLON.
 - From NYLON commence descent and carry out appropriate landing procedure for Rwy 20 as close as possible to EAT or ETA.
 - If unable to effect a landing, refer to Singapore Special Procedures for missed approach procedure.
 - No clearance or instruction received from Singapore ATC:
 Refer to Singapore Special Procedures for radio communications failure procedure.
- LOST COMMS ▲ LOST COMMS ▲ LOST COMMS ▲ LOST COMMS ▲ LOST COMMS ▲

① ROUTING

At PARDI track 348° to REPOV, then to REMES. Then turn RIGHT and track 023° to BTM, then to DOVAN. Turn LEFT and track 348° to BIPOP. From BIPOP, EXPECT RADAR vectors for ILS approach Rwy 20.

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26 JAN 07

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10-3

SINGAPORE, SINGAPORE

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MINIMUM CLIMB GRADIENT CRITERIA

The Instrument Departure Procedures are only applicable for aircraft with all engines operating. It remains the responsibility of the operator to develop contingency procedures for the individual type of aircraft and to conduct the necessary examination of obstacles throughout the areas concerned in relation to the certificated performance of the individual aircraft type. It is also the responsibility of the operator to ensure that contingency procedures comply fully with the airplane performance requirements of Annex 6.

The specific routes to be followed are depicted in SID Charts pages. Altitude restrictions at fixes and/or DME specify ATC/airspace requirements. Minimum net climb gradient specifies obstacle clearance requirements.

In the event that the minimum net climb gradient cannot be achieved, pilots shall inform ATC and ATC shall hold departures if pilots indicate that they are unable to meet the required net climb gradient.

RUNWAY 02L

When there are no reports of vessel movement along the northern shipping channel, or where the reported vessel height is less than 35m (115 ft) AMSL, the aircraft minimum net climb gradient shall be at 3.3%.

Where the reported vessel height is 35m (115 ft) AMSL or higher, ATC shall advise departing pilots of the vessel height. Pilots, on receipt of this information, shall apply the minimum net climb gradient in accordance with the table below.

Ht of Vessel (meters AMSL)	Gradient (%)	Minimum Crossing Altitude Over Vessel	
		meters	feet
35	3.4	44	142
40	3.9	49	158
50	4.8	59	191
60	5.8	69	224
70	6.8	79	257
80	7.8	89	290
90	8.8	99	322
100	9.7	109	355
110	10.7	119	388
120	11.7	129	421
130	12.7	139	454
140	13.7	149	486

After the aircraft has reached or passed the minimum crossing altitude over vessel, the minimum net climb gradient shall be 3.3%.

RUNWAY 02C

When there are no reports of vessel movement along the northern shipping channel, or where the reported vessel height is less than 70m (230 ft) AMSL, the aircraft minimum net climb gradient shall be at 3.3%.

Where the reported vessel height is 70m (230 ft) AMSL or higher, ATC shall advise pilots of the vessel height. Pilots, on receipt of this information, shall apply the minimum net climb gradient in accordance with the following table.

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SINGAPORE, SINGAPORE

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MINIMUM CLIMB GRADIENT CRITERIA

Ht of Vessel (meters AMSL)	Gradient (%)	Minimum Crossing Altitude Over Vessel	
		meters	feet
70	3.4	89	292
80	3.8	99	325
90	4.3	109	358
100	4.7	119	390
110	5.1	129	423
120	5.5	139	456
130	6.0	149	489
140	6.4	159	522

After the aircraft has reached or passed the minimum crossing altitude over vessel, the minimum net climb gradient shall be 3.3%.

RUNWAYS 20C/20R

All departures on Runway 20C/20R shall be on a minimum net climb gradient of 5% until reaching or passing 400 ft. Thereafter, the minimum net climb gradient shall be 3.3%.

Refer to Standard Instrument Departures for Runways 20C and 20R.

DETERMINATION OF CLIMB GRADIENT BY OPERATORS

The minimum net climb gradients specified above need not apply to operators who wish to calculate their own climb gradients based on actual lift-off point, provided the calculation ensures the following:

- the most penalizing obstacle is taken into account under both all-engines operating procedures as well as one-engine-out procedures; and
- the required minimum obstacle clearance (MOC) is met under all engines operating procedures.

For the above calculations, operators shall use the following information:

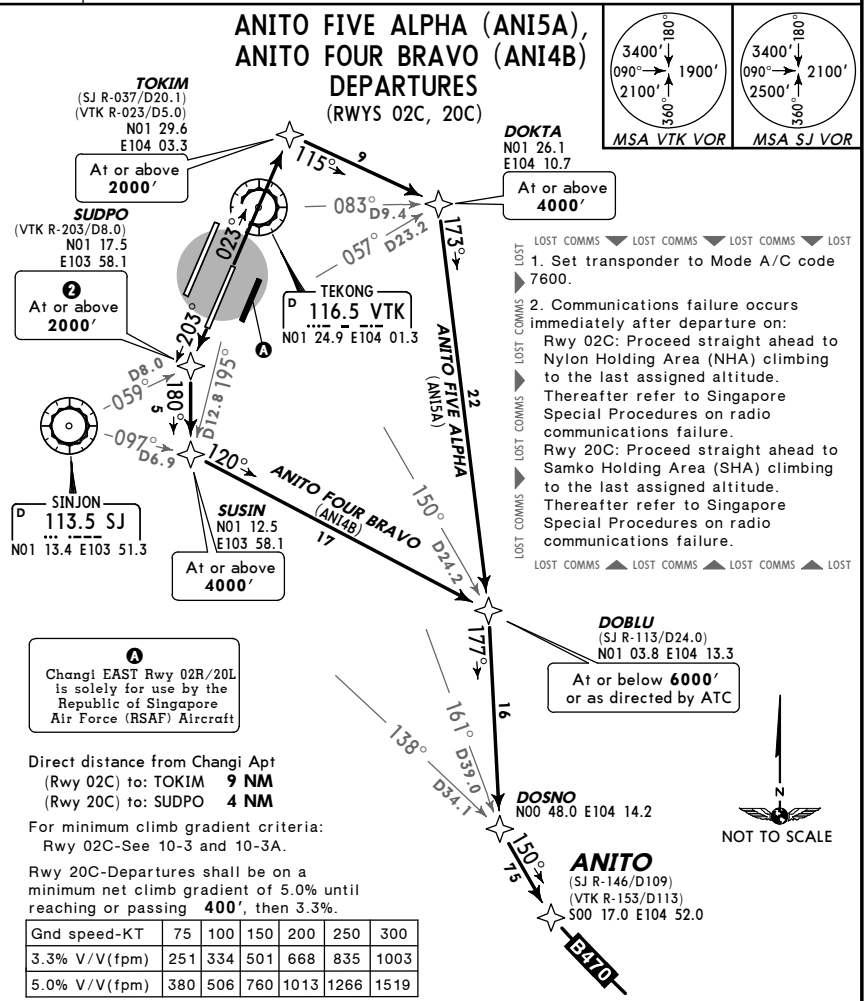
- a. The most penalizing obstacle is a tall vessel which is on the extended center line of the runway. (ATC shall advise pilots of the height of the tall vessel.)
- b. The required MOC is 0.8% of the distance (d) from the departure end of runway (DER) to the obstacle, in accordance with Volume II of ICAO Doc 8168 - *Procedures for Air Navigation Services Operations (PANS-OPS)* where, in the case of Singapore Changi Airport, the DER is defined as the end of the clearway.
- c. The distance (d) for departure Runways 02L/02C is measured from the DER to the shipping channel north of Changi. The distance (d) for departure Runways 20C/20R is measured from the DER to the boundary of the restricted waters south of Changi wherein tall vessels of height above 49m (161 ft) AMSL are not permitted. The distance (d) for the various departure runways is as follows:

Departure Runway	Distance (d)
02L	1020m
02C	2360m
20C	5945m
20R	8370m

WSSS/SIN SINGAPORE, SINGAPORE
 CHANGI 18 MAY 07 (10-3B) RNAV SID

Trans level: FL130 Trans alt: 11000'

1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy. 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC. 3. ② The restriction to cross SUDPO at or above 2000' is applicable between 2301-1100 UTC. All departure aircraft on Runway 20C issued with heading instructions by ATC shall also cross VTK 8 DME at or above 2000' between 2301-1100 UTC. If the altitude restriction cannot be complied with, the pilot-in-command of an aircraft departing on Runway 20C shall inform ATC during the time when the aircraft commences taxiing to the holding point for departure. 4. All SIDs include noise preferential routes. 5. Initial departure climb altitude is 3000' or as directed by ATC. 6. On initial contact when requesting ATC, inform ATC of the flight level aircraft can cross ANITO. 7. Cruising levels will be issued after take-off by Singapore RADAR. 8. RADAR required.



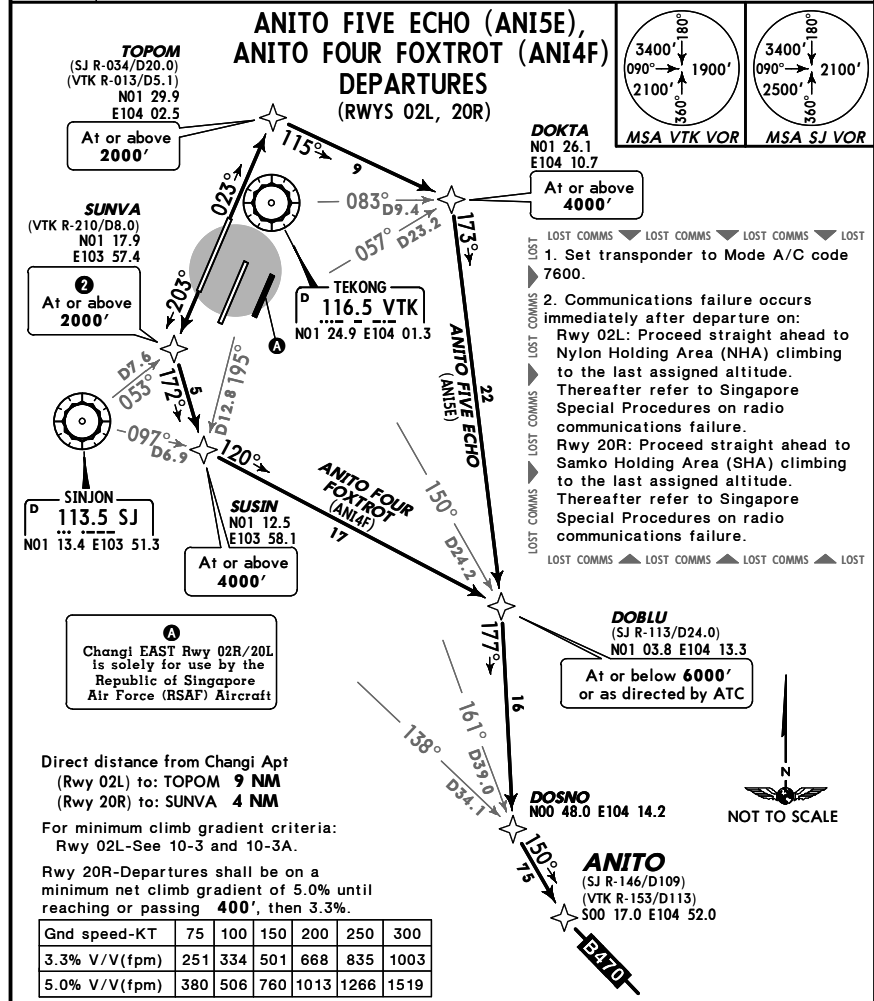
SID	① INITIAL CLIMB
ANI 5A (RWY 02C)	Climb straight ahead to TOKIM, turn RIGHT and track 115° to DOKTA. Turn RIGHT and track 173° to DOBLU. Then track 177° to DOSNO.
ANI 4B (RWY 20C)	Climb straight ahead to SUDPO, turn LEFT and track 180° to SUSIN. Turn LEFT and track 120° to DOBLU. Turn RIGHT and track 177° to DOSNO.

① ROUTING
 From DOSNO turn LEFT and track 150° to ANITO and join ATS route B-470.

WSSS/SIN SINGAPORE, SINGAPORE
 CHANGI 18 MAY 07 (10-3C) RNAV SID

Trans level: FL130 Trans alt: 11000'

1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy. 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC. 3. ② The restriction to cross SUNVA at or above 2000' is applicable between 2301-1100 UTC. All departure aircraft on Runway 20R issued with heading instructions by ATC shall also cross VTK 8 DME at or above 2000' between 2301-1100 UTC. If the altitude restriction cannot be complied with, the pilot-in-command of an aircraft departing on Runway 20R shall inform ATC during the time when the aircraft commences taxiing to the holding point for departure. 4. All SIDs include noise preferential routes. 5. Initial departure climb altitude is 3000' or as directed by ATC. 6. On initial contact when requesting ATC, inform ATC of the flight level aircraft can cross ANITO. 7. Cruising levels will be issued after take-off by Singapore RADAR. 8. RADAR required.



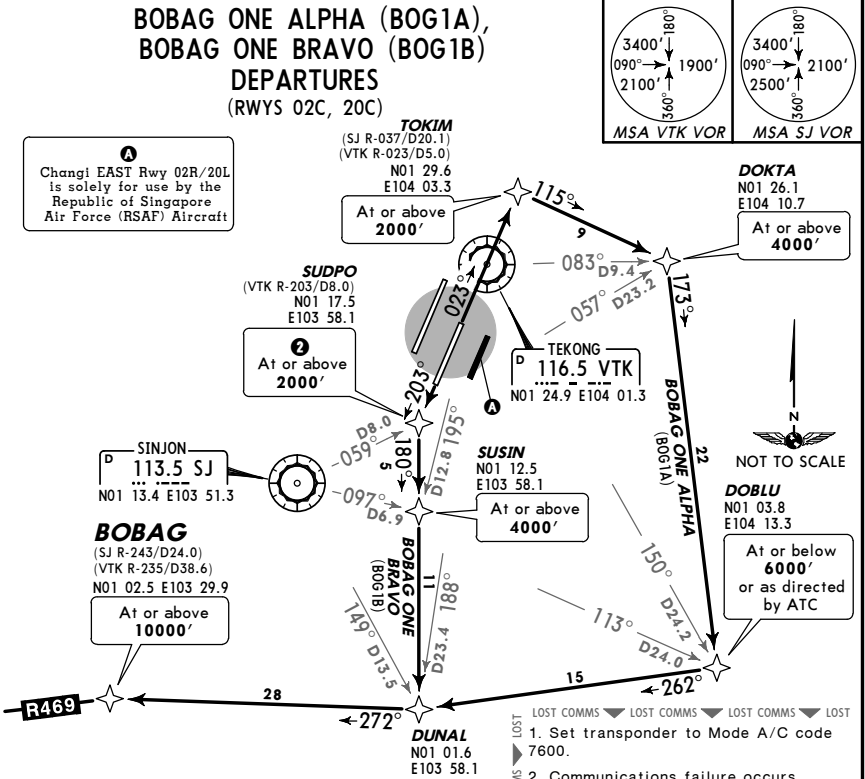
SID	① INITIAL CLIMB
ANI 5E (RWY 02L)	Climb straight ahead to TOPOM, turn RIGHT and track 115° to DOKTA. Turn RIGHT and track 173° to DOBLU. Then track 177° to DOSNO.
ANI 4F (RWY 20R)	Climb straight ahead to SUNVA, turn LEFT and track 172° to SUSIN. Turn LEFT and track 120° to DOBLU. Turn RIGHT and track 177° to DOSNO.

① ROUTING
 From DOSNO turn LEFT and track 150° to ANITO and join ATS route B-470.

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JEPPESEN SINGAPORE, SINGAPORE
 18 MAY 07 (10-3D) RNAV SID

Trans level: FL130 Trans alt: 11000'
 1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy. 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC. 3. ② The restriction to cross SUDPO at or above 2000' is applicable between 2301-1100 UTC. All departure aircraft on Runway 20C issued with heading instructions by ATC shall also cross VTK 8 DME at or above 2000' between 2301-1100 UTC. If the altitude restriction cannot be complied with, the pilot-in-command of an aircraft departing on Runway 20C shall inform ATC during the time when the aircraft commences taxiing to the holding point for departure. 4. All SIDs include noise preferential routes. 5. Initial departure climb altitude is 3000' or as directed by ATC. 6. Cruising levels will be issued after take-off by Singapore RADAR. 7. RADAR required.



Direct distance from Changi Apt
 (Rwy 02C) to: TOKIM 9 NM
 (Rwy 20C) to: SUDPO 4 NM

For minimum climb gradient criteria:
 Rwy 02C- See 10-3 and 10-3A.
 Rwy 20C- Departures shall be on a minimum net climb gradient of 5.0% until reaching or passing 400', then 3.3%.

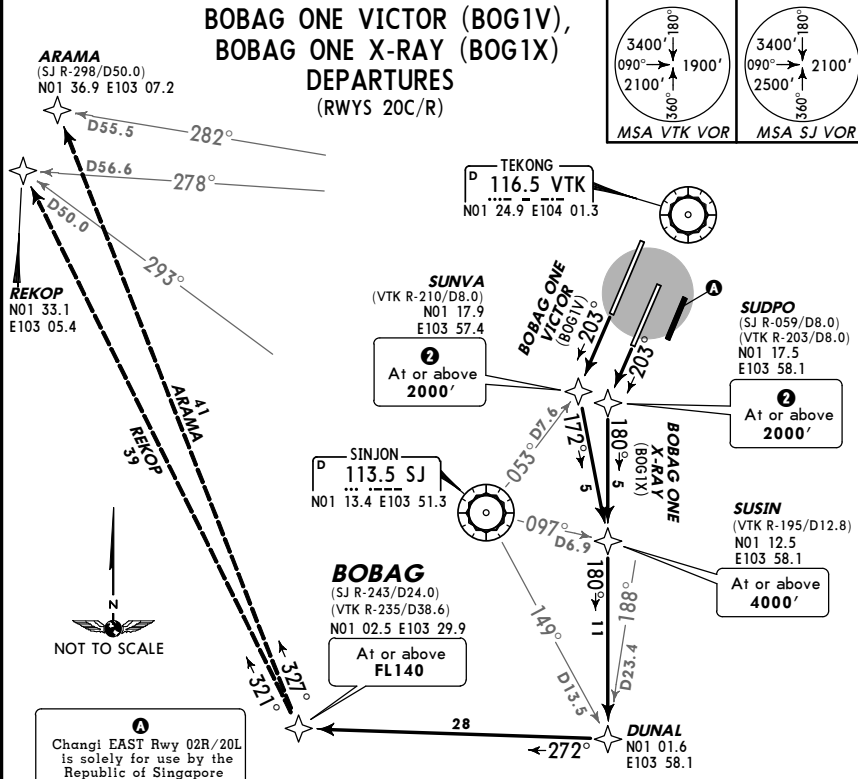
Gnd speed-KT	75	100	150	200	250	300
3.3% V/V(fpm)	251	334	501	668	835	1003
5.0% V/V(fpm)	380	506	760	1013	1266	1519

SID	① INITIAL CLIMB
BOG 1A (RWY 02C)	Climb straight ahead to TOKIM, turn RIGHT and track 115° to DOKTA. Turn RIGHT and track 173° to DOBLU. Turn RIGHT and track 262° to DUNAL, then track 272° to BOBAG and join ATS route R-469.
BOG 1B (RWY 20C)	Climb straight ahead to SUDPO, turn LEFT and track 180° to SUSIN. Then track 180° to DUNAL, turn RIGHT and track 272° to BOBAG and join ATS route R-469.

WSSS/SIN
 CHANGI

JEPPESEN SINGAPORE, SINGAPORE
 18 APR 08 (10-3D1) Eff 1 May RNAV SID

Trans level: FL130 Trans alt: 11000'
 1. These SIDs will be assigned during air defense exercises. 2. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy. 3. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC. 4. ② The restriction to cross SUDPO or SUNVA at or above 2000' is applicable between 2301-1100 UTC. All departure aircraft on Runways 20C/R issued with heading instructions by ATC shall also cross VTK 8 DME at or above 2000' between 2301-1100 UTC. If the altitude restriction cannot be complied with, the pilot-in-command of an aircraft departing on Runways 20C/R shall inform ATC during the time when the aircraft commences taxiing to the holding point for departure. 5. All SIDs include noise preferential routes. 6. Initial departure climb altitude is 3000' or as directed by ATC. 7. Cruising levels will be issued after take-off by Singapore RADAR. 8. RADAR required.



Direct distance from Changi Apt
 (Rwy 20C) to: SUDPO 4 NM
 (Rwy 20R) to: SUNVA 4 NM

Rwys 20C/R- Departures shall be on a minimum net climb gradient of 5.0% until reaching or passing 400', then 3.3%.

Gnd speed-KT	75	100	150	200	250	300
3.3% V/V(fpm)	251	334	501	668	835	1003
5.0% V/V(fpm)	380	506	760	1013	1266	1519

SID	① INITIAL CLIMB
BOG 1V (RWY 20C)	Climb straight ahead to SUNVA, turn LEFT and track 172° to SUSIN.
BOG 1X (RWY 20C)	Climb straight ahead to SUDPO, turn LEFT and track 180° to SUSIN.

① ROUTING

At SUSIN track 180° to DUNAL, then turn RIGHT and track 272° to BOBAG. From BOBAG follow the appropriate transition route to join the ATS route.

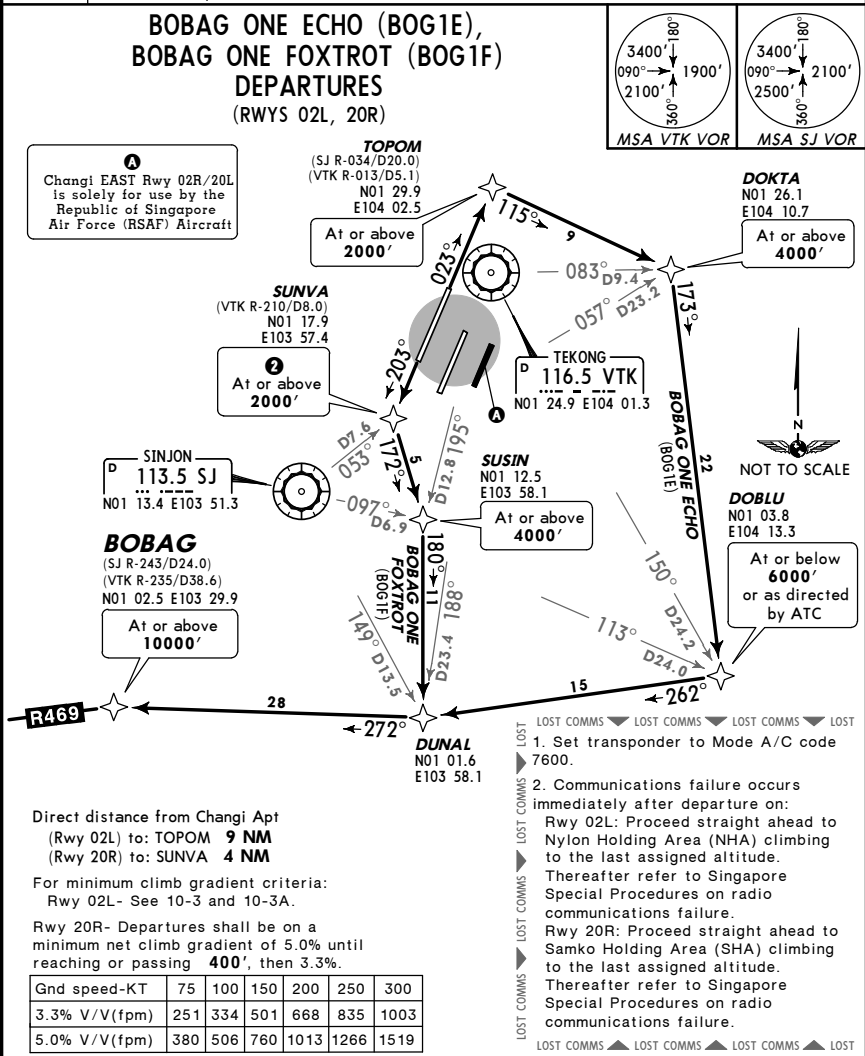
WSSS/SIN
 CHANGI

JEPPESEN
 18 MAY 07 (10-3E)

SINGAPORE, SINGAPORE
 RNAV SID

Trans level: FL130 Trans alt: 11000'

1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy. 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC. 3. ② The restriction to cross SUNVA at or above 2000' is applicable between 2301-1100 UTC. All departure aircraft on Runway 20R issued with heading instructions by ATC shall also cross VTK 8 DME at or above 2000' between 2301-1100 UTC. If the altitude restriction cannot be complied with, the pilot-in-command of an aircraft departing on Runway 20R shall inform ATC during the time when the aircraft commences taxiing to the holding point for departure. 4. All SIDs include noise preferential routes. 5. Initial departure climb altitude is 3000' or as directed by ATC. 6. Cruising levels will be issued after take-off by Singapore RADAR. 7. RADAR required.



SID	① INITIAL CLIMB
BOG 1E (RWY 02L)	Climb straight ahead to TOPOM, turn RIGHT and track 115° to DOKTA. Turn RIGHT and track 173° to DOBLU. Turn RIGHT and track 262° to DUNAL, then track 272° to BOBAG and join ATS route R-469.
BOG 1F (RWY 20R)	Climb straight ahead to SUNVA, turn LEFT and track 172° to SUSIN. Then track 180° to DUNAL, then turn RIGHT and track 272° to BOBAG and join ATS route R-469.

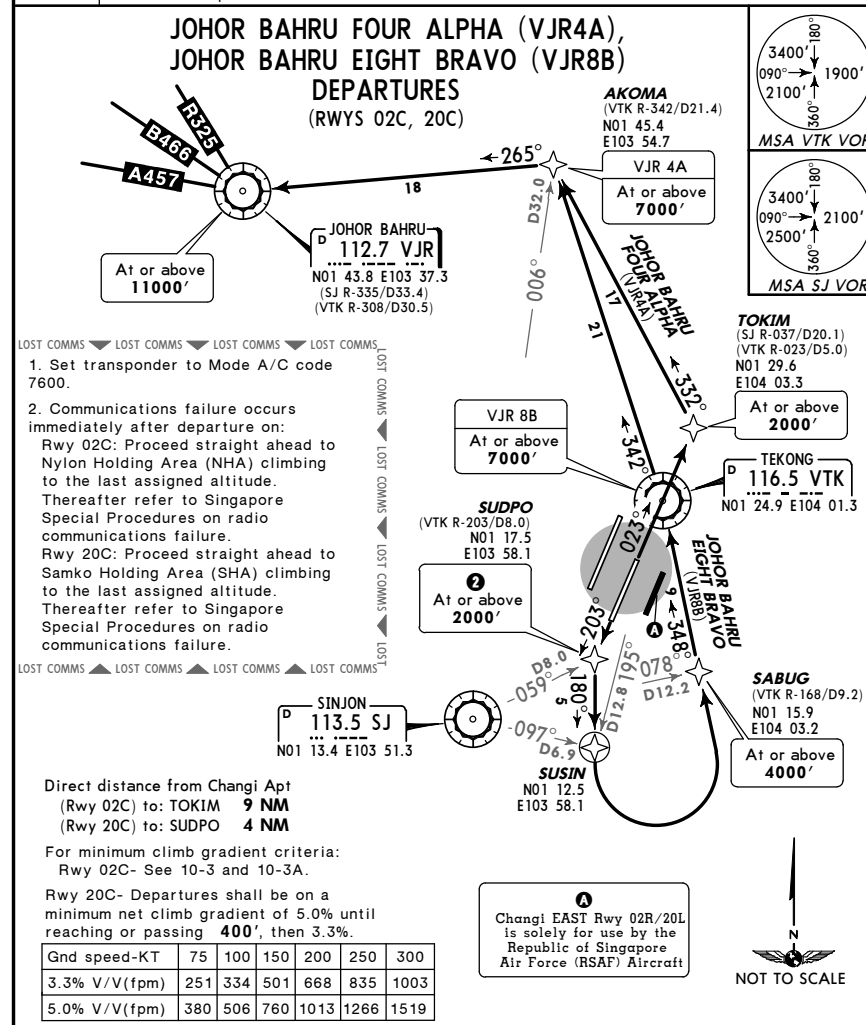
WSSS/SIN
 CHANGI

JEPPESEN
 18 MAY 07 (10-3F)

SINGAPORE, SINGAPORE
 RNAV SID

Trans level: FL130 Trans alt: 11000'

1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy. 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC. 3. ② The restriction to cross SUDPO at or above 2000' is applicable between 2301-1100 UTC. All departure aircraft on Runway 20C issued with heading instructions by ATC shall also cross VTK 8 DME at or above 2000' between 2301-1100 UTC. If the altitude restriction cannot be complied with, the pilot-in-command of an aircraft departing on Runway 20C shall inform ATC during the time when the aircraft commences taxiing to the holding point for departure. 4. All SIDs include noise preferential routes. 5. Initial departure climb altitude is 3000' or as directed by ATC. 6. Cruising levels will be issued after take-off by Singapore RADAR. 7. RADAR required.



SID	① INITIAL CLIMB
VJR 4A (RWY 02C)	Climb straight ahead to TOKIM, turn LEFT and track 332° to AKOMA.
VJR 8B (RWY 20C)	Climb straight ahead to SUDPO, turn LEFT and track 180° to SUSIN. Turn LEFT to SABUG, then track 348° to VTK. Then track 342° to AKOMA.

① ROUTING

At AKOMA, turn LEFT and track 265° to VJR.

WSSS/SIN
 CHANGI

JEPPESEN
 18 MAY 07 (10-3G)

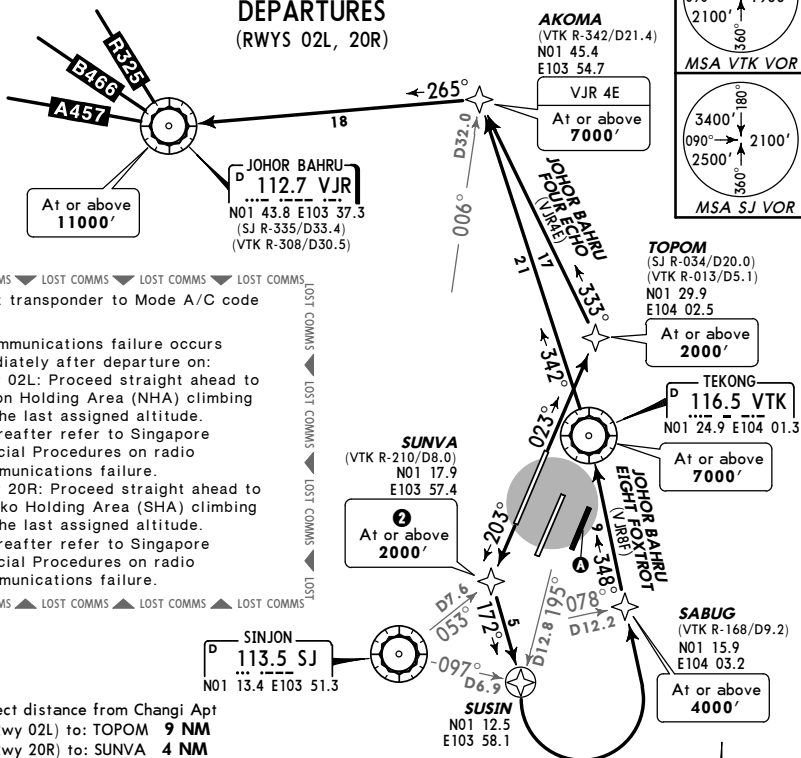
SINGAPORE, SINGAPORE

RNAV SID

Apt Elev
 22'

Trans level: FL130 Trans alt: 11000'
 1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy. 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC. 3. The restriction to cross SUNVA at or above 2000' is applicable between 2301-1100 UTC. All departure aircraft on Runway 20R issued with heading instructions by ATC shall also cross VTK 8 DME at or above 2000' between 2301-1100 UTC. If the altitude restriction cannot be complied with, the pilot-in-command of an aircraft departing on Runway 20R shall inform ATC during the time when the aircraft commences taxiing to the holding point for departure. 4. All SIDs include noise preferential routes. 5. Initial departure climb altitude is 3000' or as directed by ATC. 6. Cruising levels will be issued after take-off by Singapore RADAR. 7. RADAR required.

JOHOR BAHRU FOUR ECHO (VJR4E),
 JOHOR BAHRU EIGHT FOXTROT (VJR8F)
 DEPARTURES
 (RWYS 02L, 20R)



LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS
 1. Set transponder to Mode A/C code 7600.
 2. Communications failure occurs immediately after departure on:
 Rwy 02L: Proceed straight ahead to Nylon Holding Area (NHA) climbing to the last assigned altitude. Thereafter refer to Singapore Special Procedures on radio communications failure.
 Rwy 20R: Proceed straight ahead to Samko Holding Area (SHA) climbing to the last assigned altitude. Thereafter refer to Singapore Special Procedures on radio communications failure.

Direct distance from Changi Apt
 (Rwy 02L) to: TOPOM 9 NM
 (Rwy 20R) to: SUNVA 4 NM

For minimum climb gradient criteria:
 Rwy 02L- See 10-3 and 10-3A.

Rwy 20R- Departures shall be on a minimum net climb gradient of 5.0% until reaching or passing 400', then 3.3%.

Gnd speed-KT	75	100	150	200	250	300
3.3% V/V(fpm)	251	334	501	668	835	1003
5.0% V/V(fpm)	380	506	760	1013	1266	1519

SID	① INITIAL CLIMB
VJR 4E (RWY 02L)	Climb straight ahead to TOPOM, turn LEFT and track 333° to AKOMA.
VJR 8F (RWY 20R)	Climb straight ahead to SUNVA, turn LEFT and track 172° to SUSIN. Turn LEFT to SABUG, then track 348° to VTK. Then track 342° to AKOMA.
② ROUTING	
At AKOMA, turn LEFT and track 265° to VJR.	

WSSS/SIN
 CHANGI

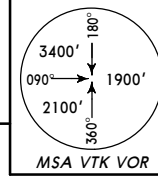
JEPPESEN
 18 APR 08 (10-3H)

SINGAPORE, SINGAPORE

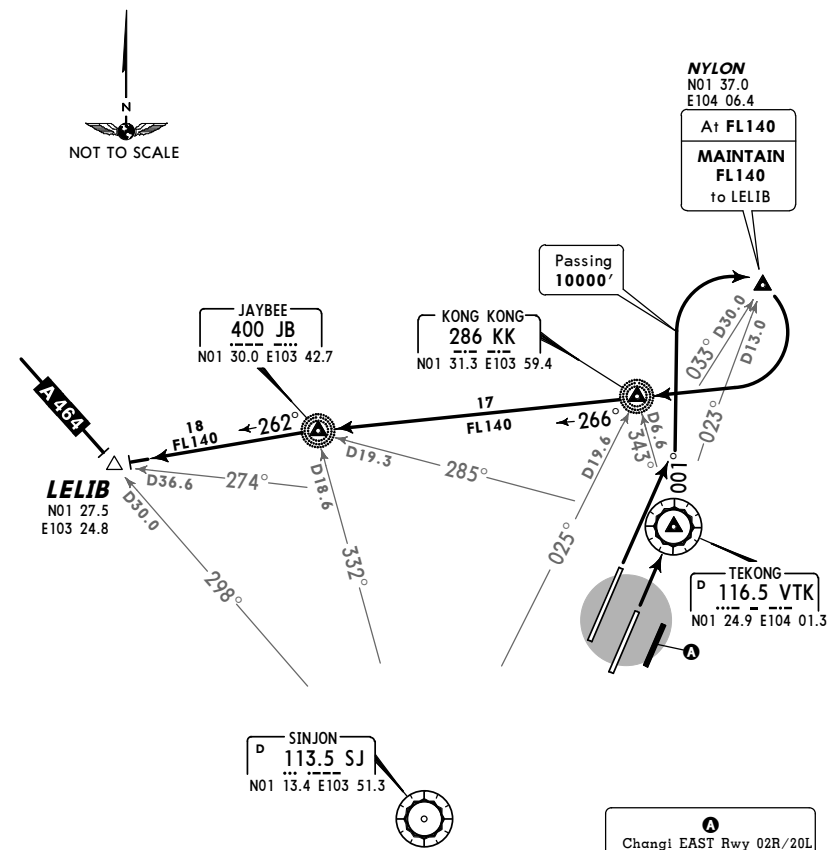
SID

Apt Elev
 22'

Trans level: FL130 Trans alt: 11000'
 1. This SID will be assigned during air defense exercises.
 2. All SIDs include noise preferential routes.
 3. Initial departure climb altitude is 3000' or as directed by ATC.
 4. Cruising levels will be issued after take-off by Singapore RADAR.



LELIB ONE CHARLIE (LLB1C) DEPARTURE
 (RWYS 02L/C)



Direct distance from Changi Apt to:
 (Rwy 02L/C) to: VTK 4 NM

For minimum climb gradient criteria:
 Rws 02L/C- See 10-3 and 10-3A.

RWY	INITIAL CLIMB
02L	Climb straight ahead.
02C	Climb straight ahead to VTK.
ROUTING	
Intercept and proceed on VTK R-001. After passing 10000', turn RIGHT to NYLON. At NYLON, turn RIGHT and proceed direct to KK. Track 266° bearing from KK to JB. Track 262° bearing from JB to LELIB and join airway A-464. MAINTAIN FL140 from NYLON to LELIB.	

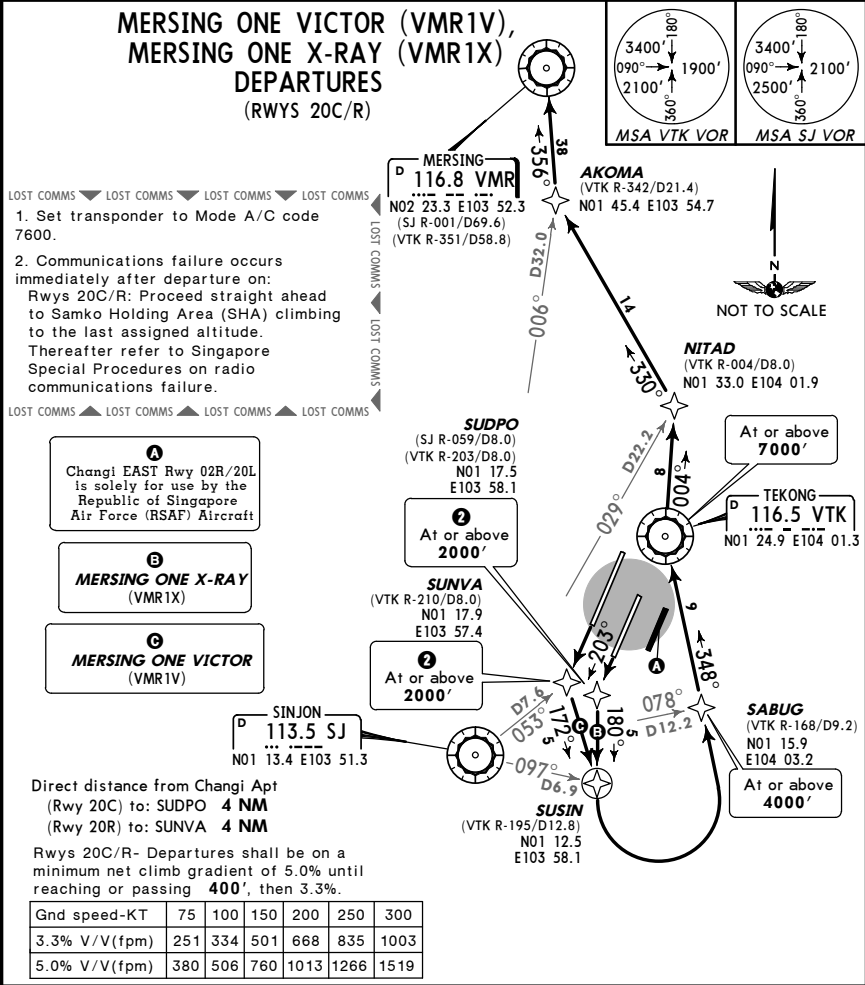
WSSS/SIN
 CHANGI

JEPPESEN SINGAPORE, SINGAPORE
 18 APR 08 (10-3J) Eff 1 May RNAV SID

Apt Elev 22'

Trans level: FL130 Trans alt: 11000'

1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy. 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC. 3. restriction to cross SUDPO or SUNVA at or above 2000' is applicable between 2301-1100 UTC. All departure aircraft on Runways 20C/R issued with heading instructions by ATC shall also cross VTK 8 DME at or above 2000' between 2301-1100 UTC. If the altitude restriction cannot be complied with, the pilot-in-command of an aircraft departing on Runway 20C/R shall inform ATC during the time when the aircraft commences taxiing to the holding point for departure. 4. All SIDs include noise preferential routes. 5. Initial departure climb altitude is 3000' or as directed by ATC. 6. Cruising levels will be issued after take-off by Singapore RADAR. 7. RADAR required. 8. These SIDs will be assigned during air defense exercises.



SID	① INITIAL CLIMB
VMR 1V (RWY 20R)	Climb straight ahead to SUNVA, turn LEFT and track 172° to SUSIN.
VMR 1X (RWY 20C)	Climb straight ahead to SUDPO, turn LEFT and track 180° to SUSIN.
① ROUTING	
At SUSIN turn LEFT to SABUG, then track 348° to VTK. From VTK track 004° to NITAD, then turn LEFT and track 330° to AKOMA. Turn RIGHT and track 356° to VMR.	

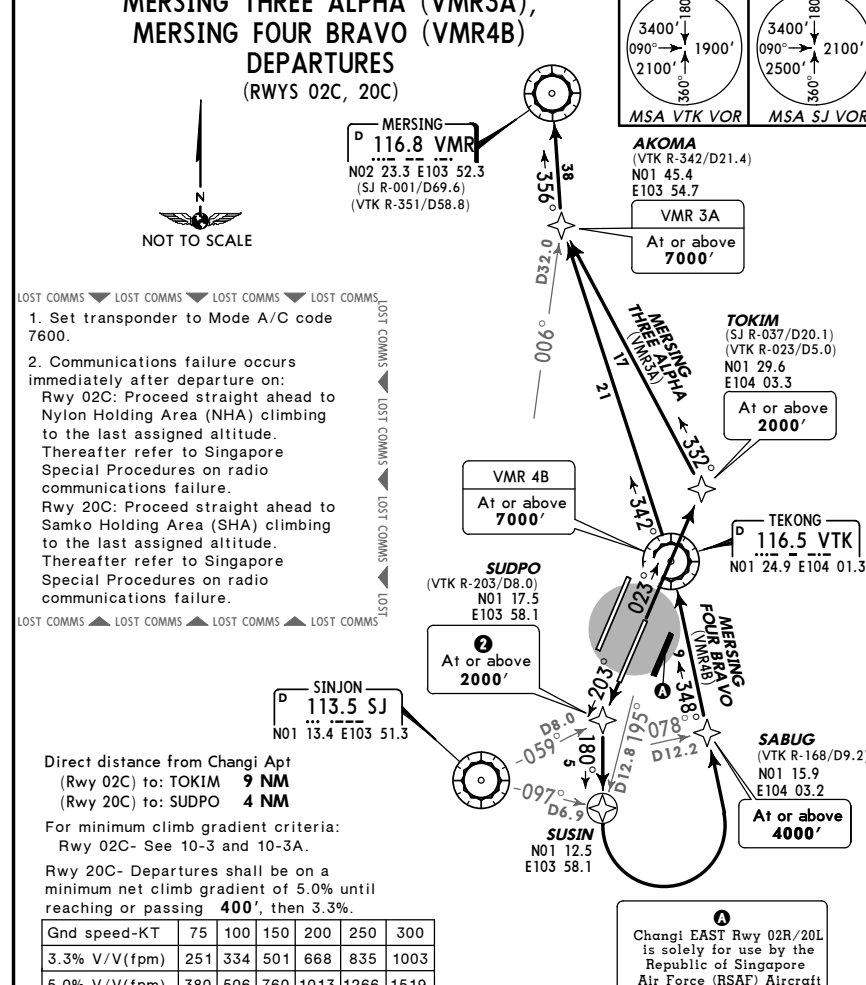
WSSS/SIN
 CHANGI

JEPPESEN SINGAPORE, SINGAPORE
 18 MAY 07 (10-3K) RNAV SID

Apt Elev 22'

Trans level: FL130 Trans alt: 11000'

1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy. 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC. 3. restriction to cross SUDPO at or above 2000' is applicable between 2301-1100 UTC. All departure aircraft on Runway 20C issued with heading instructions by ATC shall also cross VTK 8 DME at or above 2000' between 2301-1100 UTC. If the altitude restriction cannot be complied with, the pilot-in-command of an aircraft departing on Runway 20C shall inform ATC during the time when the aircraft commences taxiing to the holding point for departure. 4. All SIDs include noise preferential routes. 5. Initial departure climb altitude is 3000' or as directed by ATC. 6. RADAR required. 7. Cruising levels will be issued after take-off by Singapore RADAR. 8. Mersing Three Alpha will also be assigned during air defense exercises.



SID	① INITIAL CLIMB
VMR 3A (RWY 02C)	Climb straight ahead to TOKIM, turn LEFT and track 332° to AKOMA.
VMR 4B (RWY 20C)	Climb straight ahead to SUDPO, turn LEFT and track 180° to SUSIN. Turn LEFT to SABUG, then track 348° to VTK. Then track 342° to AKOMA.
① ROUTING	
At AKOMA turn RIGHT and track 356° to VMR.	

WSSS/SIN
 CHANGI

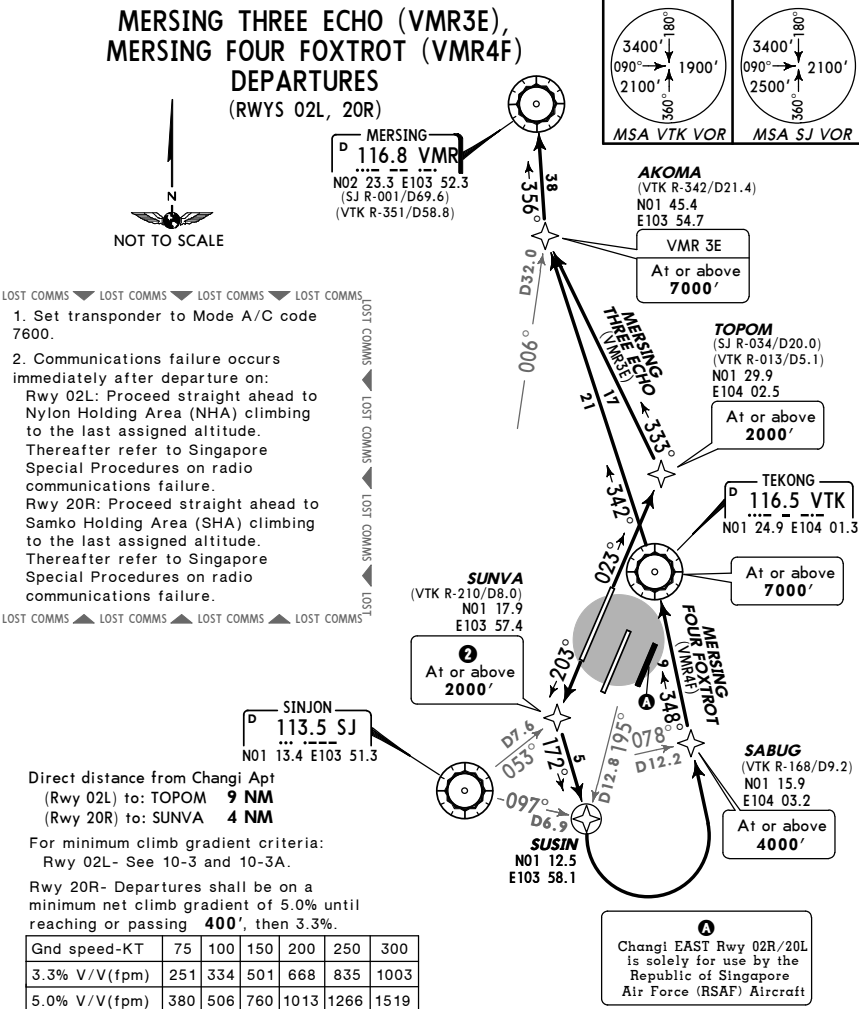
JEPPESEN
 18 MAY 07 (10-3L)

SINGAPORE, SINGAPORE

RNAV SID

Trans level: FL130 Trans alt: 11000'

1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy. 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC. ② The restriction to cross SUNVA at or above 2000' is applicable between 2301-1100 UTC. All departure aircraft on Runway 20R issued with heading instructions by ATC shall also cross VTK 8 DME at or above 2000' between 2301-1100 UTC. If the altitude restriction cannot be complied with, the pilot-in-command of an aircraft departing on Runway 20R shall inform ATC during the time when the aircraft commences taxiing to the holding point for departure. 4. All SIDs include noise preferential routes. 5. Initial departure climb altitude is 3000' or as directed by ATC. 6. RADAR required. 7. Cruising levels will be issued after take-off by Singapore RADAR. 8. Mersing Three Echo will also be assigned during air defense exercises.



SID	① INITIAL CLIMB
VMR 3E (RWY 02L)	Climb straight ahead to TOPOM, turn LEFT and track 333° to AKOMA.
VMR 4F (RWY 20R)	Climb straight ahead to SUNVA, turn LEFT and track 172° to SUSIN. Turn LEFT to SABUG, then track 348° to VTK. Then track 342° to AKOMA.

① ROUTING

At AKOMA turn RIGHT and track 356° to VMR.

WSSS/SIN
 CHANGI

JEPPESEN
 18 APR 08 (10-3M) Eff 1 May

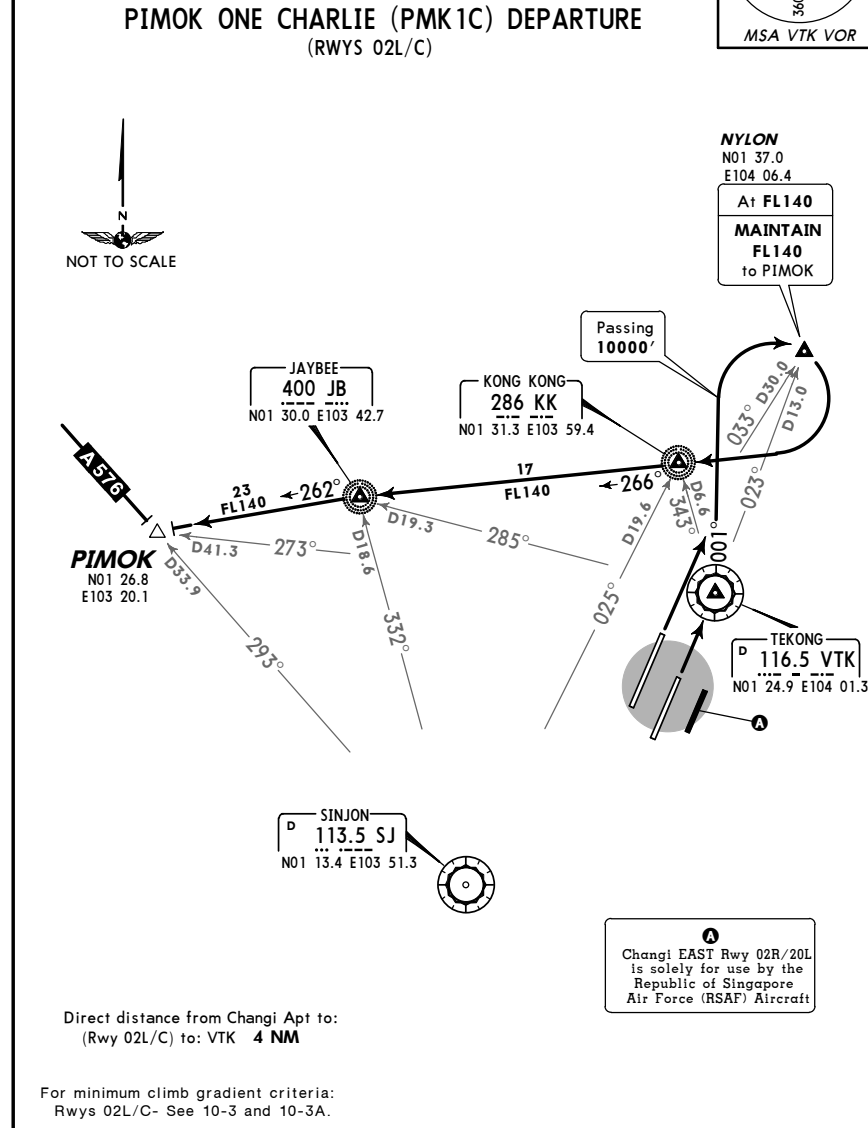
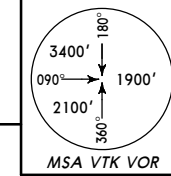
SINGAPORE, SINGAPORE

SID

Trans level: FL130 Trans alt: 11000'

Apt Elev 22'

1. This SID will be assigned during air defense exercises. 2. All SIDs include noise preferential routes. 3. Initial departure climb altitude is 3000' or as directed by ATC. 4. Cruising levels will be issued after take-off by Singapore RADAR.



RWY	INITIAL CLIMB
02L	Climb straight ahead.
02C	Climb straight ahead to VTK.

ROUTING

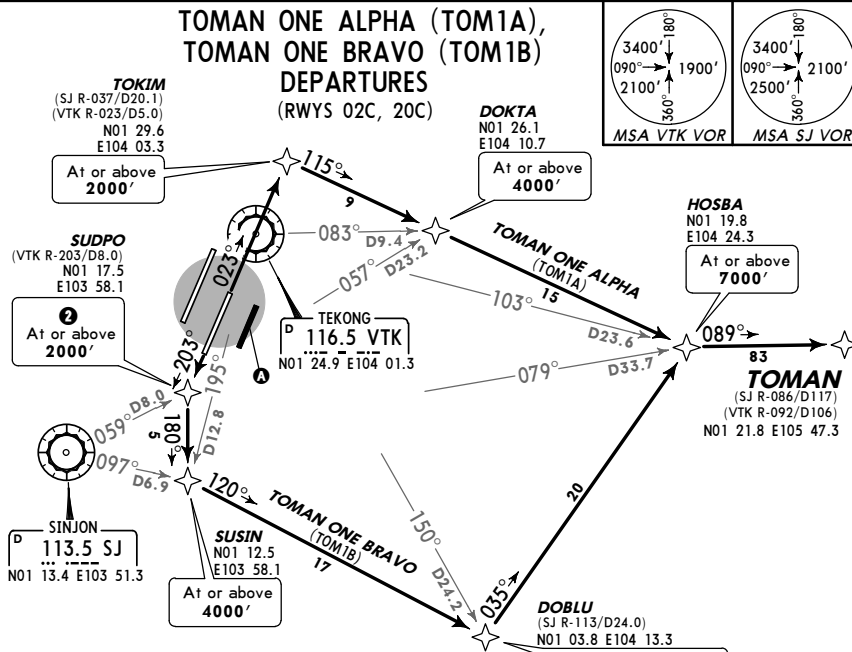
Intercept and proceed on VTK R-001. After passing 10000', turn RIGHT to NYLON. At NYLON, turn RIGHT and proceed direct to KK. Track 266° bearing from KK to JB. Track 262° bearing from JB to PIMOK and join airway A-576. **MAINTAIN FL140** from NYLON to PIMOK.

WSSS/SIN
CHANGI

JEPPESEN SINGAPORE, SINGAPORE
18 APR 08 (10-3N) Eff 1 May RNAV SID

Trans level: FL130 Trans alt: 11000'

1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy. 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC. 3. restriction to cross SUDPO at or above 2000' is applicable between 2301-1100 UTC. All departure aircraft on Runway 20C issued with heading instructions by ATC shall also cross VTK 8 DME at or above 2000' between 2301-1100 UTC. If the altitude restriction cannot be complied with, the pilot-in-command of an aircraft departing on Runway 20C shall inform ATC during the time when the aircraft commences taxiing to the holding point for departure. 4. All SIDs include noise preferential routes. 5. Initial departure climb altitude is 3000' or as directed by ATC. 6. Cruising levels will be issued after take-off by Singapore RADAR. 7. RADAR required.



Changi EAST Rwy 02R/20L is solely for use by the Republic of Singapore Air Force (RSAF) Aircraft

NOT TO SCALE

LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST

1. Set transponder to Mode A/C code 7600.

2. Communications failure occurs immediately after departure on:

Rwy 02C: Proceed straight ahead to Nylon Holding Area (NHA) climbing to the last assigned altitude. Thereafter refer to Singapore Special Procedures on radio communications failure.

Rwy 20C: Proceed straight ahead to Samko Holding Area (SHA) climbing to the last assigned altitude. Thereafter refer to Singapore Special Procedures on radio communications failure.

Direct distance from Changi Apt (Rwy 02C) to: TOKIM 9 NM (Rwy 20C) to: SUDPO 4 NM

For minimum climb gradient criteria:
Rwy 02C- See 10-3 and 10-3A.
Rwy 20C- Departures shall be on a minimum net climb gradient of 5.0% until reaching or passing 400', then 3.3%.

Gnd speed-KT	75	100	150	200	250	300
3.3% V/V(fpm)	251	334	501	668	835	1003
5.0% V/V(fpm)	380	506	760	1013	1266	1519

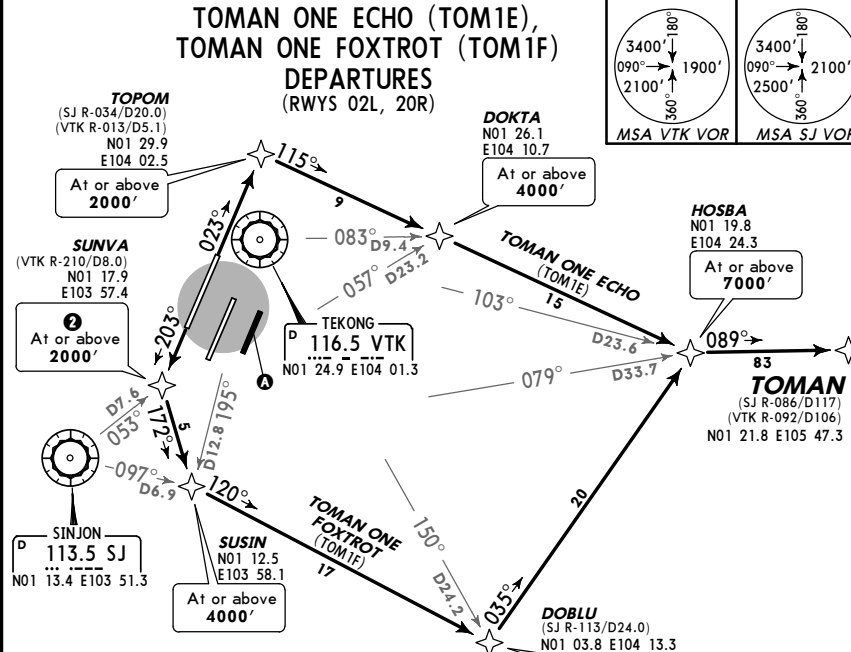
SID	① INITIAL CLIMB
TOM 1A (RWY 02C)	Climb straight ahead to TOKIM, turn RIGHT and track 115° to DOKTA, then track 115° to HOSBA. Turn LEFT and track 089° to TOMAN.
TOM 1B (RWY 20C)	Climb straight ahead to SUDPO, turn LEFT and track 180° to SUSIN. Turn LEFT and track 120° to DOBLU. Turn LEFT and track 035° to HOSBA, then turn RIGHT and track 089° to TOMAN.

WSSS/SIN
CHANGI

JEPPESEN SINGAPORE, SINGAPORE
18 MAY 07 (10-3P) RNAV SID

Trans level: FL130 Trans alt: 11000'

1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy. 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC. 3. restriction to cross SUNVA at or above 2000' is applicable between 2301-1100 UTC. All departure aircraft on Runway 20R issued with heading instructions by ATC shall also cross VTK 8 DME at or above 2000' between 2301-1100 UTC. If the altitude restriction cannot be complied with, the pilot-in-command of an aircraft departing on Runway 20R shall inform ATC during the time when the aircraft commences taxiing to the holding point for departure. 4. All SIDs include noise preferential routes. 5. Initial departure climb altitude is 3000' or as directed by ATC. 6. Cruising levels will be issued after take-off by Singapore RADAR. 7. RADAR required.



Changi EAST Rwy 02R/20L is solely for use by the Republic of Singapore Air Force (RSAF) Aircraft

NOT TO SCALE

LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST

1. Set transponder to Mode A/C code 7600.

2. Communications failure occurs immediately after departure on:

Rwy 02L: Proceed straight ahead to Nylon Holding Area (NHA) climbing to the last assigned altitude. Thereafter refer to Singapore Special Procedures on radio communications failure.

Rwy 20R: Proceed straight ahead to Samko Holding Area (SHA) climbing to the last assigned altitude. Thereafter refer to Singapore Special Procedures on radio communications failure.

Direct distance from Changi Apt (Rwy 02L) to: TOPOM 9 NM (Rwy 20R) to: SUNVA 4 NM

For minimum climb gradient criteria:
Rwy 02L- See 10-3 and 10-3A.
Rwy 20R- Departures shall be on a minimum net climb gradient of 5.0% until reaching or passing 400', then 3.3%.

Gnd speed-KT	75	100	150	200	250	300
3.3% V/V(fpm)	251	334	501	668	835	1003
5.0% V/V(fpm)	380	506	760	1013	1266	1519

SID	① INITIAL CLIMB
TOM 1E (RWY 02L)	Climb straight ahead to TOPOM, turn RIGHT and track 115° to DOKTA, then track 115° to HOSBA. Turn LEFT and track 089° to TOMAN.
TOM 1F (RWY 20R)	Climb straight ahead to SUNVA, turn LEFT and track 172° to SUSIN. Turn LEFT and track 120° to DOBLU. Turn LEFT and track 035° to HOSBA, then turn RIGHT and track 089° to TOMAN.

WSSS/SIN
 CHANGI

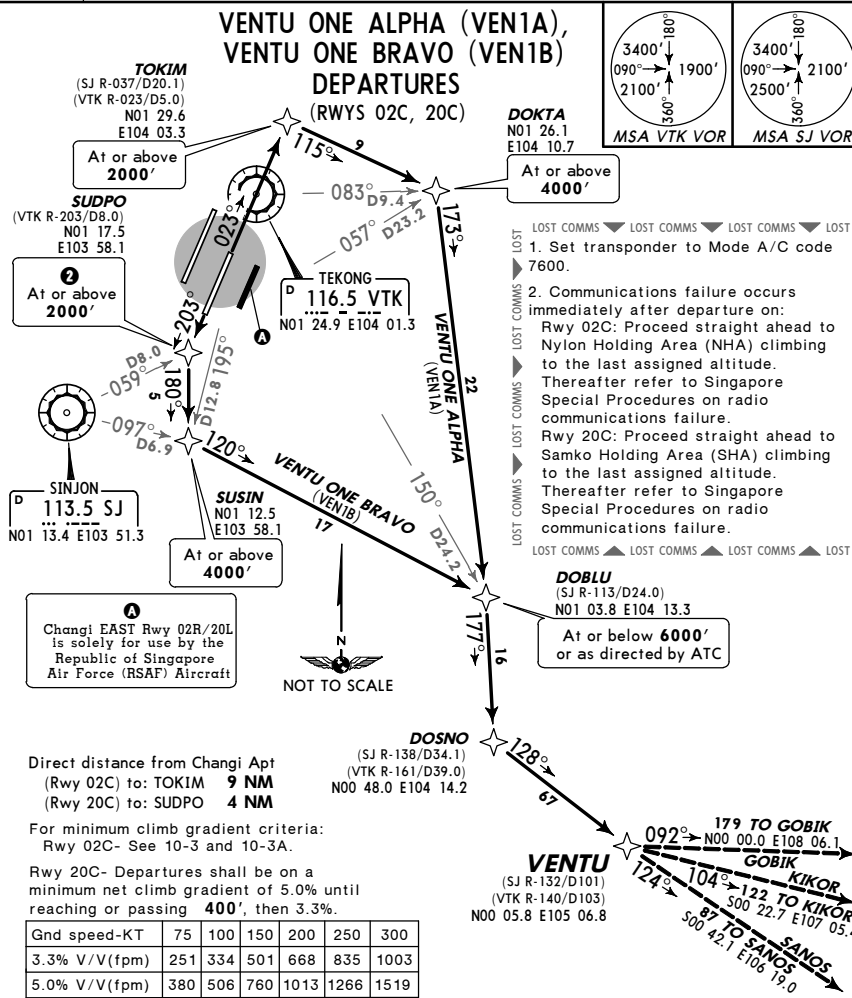
JEPPESEN
 18 MAY 07 (10-3Q)

SINGAPORE, SINGAPORE

RNAV SID

Trans level: FL130 Trans alt: 11000'

1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy. 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC. 3. restriction to cross SUDPO at or above 2000' is applicable between 2301-1100 UTC. All departure aircraft on Runway 20C issued with heading instructions by ATC shall also cross VTK 8 DME at or above 2000' between 2301-1100 UTC. If the altitude restriction cannot be complied with, the pilot-in-command of an aircraft departing on Runway 20C shall inform ATC during the time when the aircraft commences taxiing to the holding point for departure. 4. All SIDs include noise preferential routes. 5. Initial departure climb altitude is 3000' or as directed by ATC. 6. Cruising levels will be issued after take-off by Singapore RADAR. 7. RADAR required.



SID	① INITIAL CLIMB
VEN 1A (RWY 02C)	Climb straight ahead to TOKIM, turn RIGHT and track 115° to DOKTA. Turn RIGHT and track 173° to DOBLU, then track 177° to DOSNO.
VEN 1B (RWY 20C)	Climb straight ahead to SUDPO, turn LEFT and track 180° to SUSIN. Turn LEFT and track 120° to DOBLU, then turn RIGHT and track 177° to DOSNO.
② ROUTING	
From DOSNO turn LEFT and track 128° to VENTU and follow the appropriate transition route to join the ATS route.	

WSSS/SIN
 CHANGI

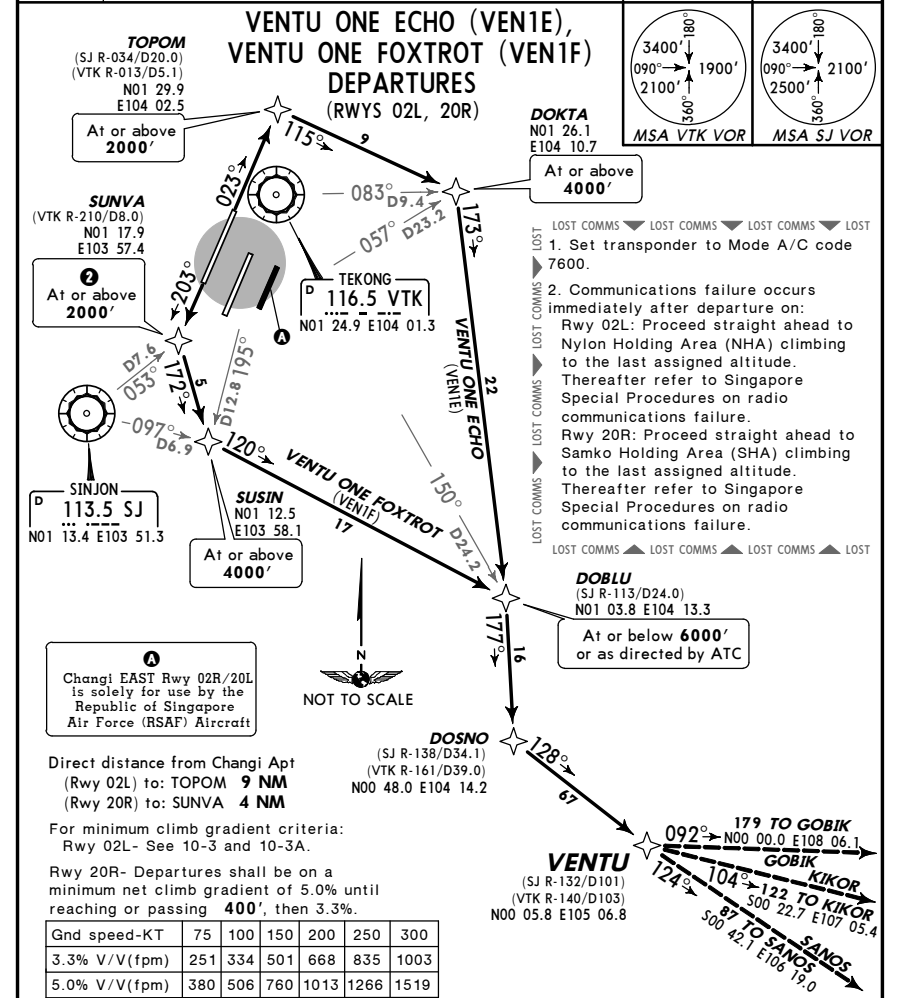
JEPPESEN
 18 MAY 07 (10-3S)

SINGAPORE, SINGAPORE

RNAV SID

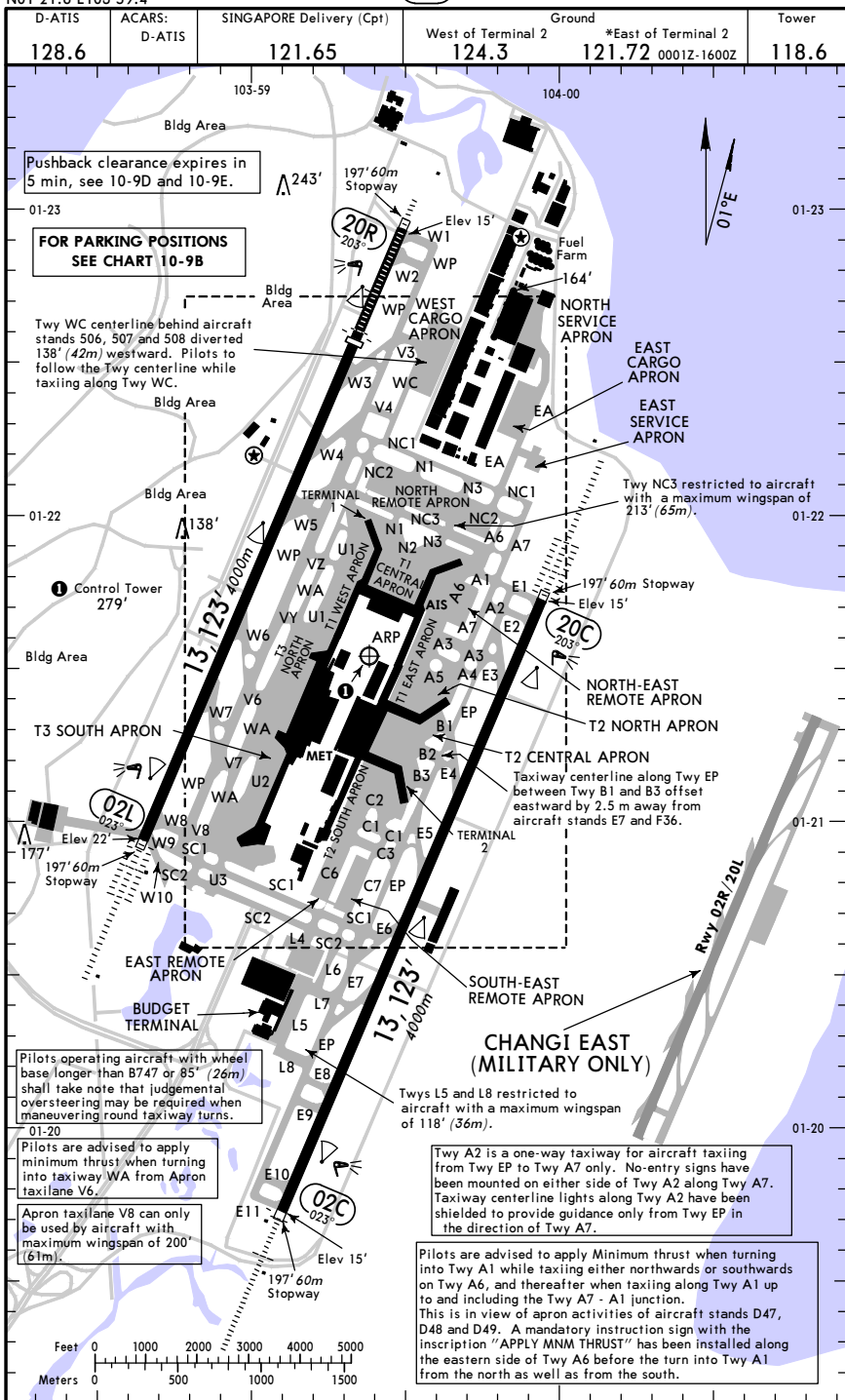
Trans level: FL130 Trans alt: 11000'

1. For RNAV operations, aircraft shall be GNSS-equipped and meet RNP-1/P-RNAV standard of accuracy. 2. Non-RNP-1/P-RNAV approved aircraft shall fly this as a basic RNAV (B-RNAV) procedure ① or EXPECT RADAR vectors from ATC. 3. restriction to cross SUNVA at or above 2000' is applicable between 2301-1100 UTC. All departure aircraft on Runway 20R issued with heading instructions by ATC shall also cross VTK 8 DME at or above 2000' between 2301-1100 UTC. If the altitude restriction cannot be complied with, the pilot-in-command of an aircraft departing on Runway 20R shall inform ATC during the time when the aircraft commences taxiing to the holding point for departure. 4. All SIDs include noise preferential routes. 5. Initial departure climb altitude is 3000' or as directed by ATC. 6. Cruising levels will be issued after take-off by Singapore RADAR. 7. RADAR required.



SID	① INITIAL CLIMB
VEN 1E (RWY 02L)	Climb straight ahead to TOPOM, turn RIGHT and track 115° to DOKTA. Turn RIGHT and track 173° to DOBLU, then track 177° to DOSNO.
VEN 1F (RWY 20R)	Climb straight ahead to SUNVA, turn LEFT and track 172° to SUSIN. Turn LEFT and track 120° to DOBLU, then turn RIGHT and track 177° to DOSNO.
② ROUTING	
From DOSNO turn LEFT and track 128° to VENTU and follow the appropriate transition route to join the ATS route.	

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CHANGES: Terminal 3 added.

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GENERAL										
Due to close proximity of Paya Lebar and Seletar airports, correct approach is vital.										
Maritime vessels of variable heights off Changi Apt.										
Birds in vicinity of airport.										
Low-level wind shear alert system.										
Departures on Runway 20R are not permitted between 1600/2200 UTC. However, this restriction is not applicable when Runway 20C/02C is unavailable because of maintenance work or for other reasons.										
ADDITIONAL RUNWAY INFORMATION										
RWY							USABLE LENGTHS			
							LANDING BEYOND		TAKE-OFF	WIDTH
02L	HIRL	CL	ALSF-II	TDZ	REIL	① PAPI	RVR	Threshold		
20R	HIRL	CL	ALSF-I	REIL	① PAPI	RVR		10,696' 3260m	9613' 2930m	60m
① Angle 3.0°.										
02C	HIRL	CL	ALSF-I	REIL	② PAPI	RVR		12,021' 3664m		197'
20C	HIRL	CL	ALSF-II	TDZ	REIL	② PAPI-L	RVR	12,096' 3687m		60m
② Angle 3.0°.										
TAKE-OFF										
AIR CARRIER (JAA)										
LVP must be in Force										
All Rwys		All Rwys		All Rwys		AIR CARRIER (FAR 121)				
RL & CL		RCLM (DAY only) or RL		RCLM (DAY only) or RL		CL & RCLM any RVR out, other two required		Adequate Vis Ref		
A						2 Eng	TDZ RVR 175m	RVR 500m		
B	200m (150m)		250m		400m	3 & 4 Eng	MID RVR 175m	VIS 400m		
C							Rollout RVR 175m			
D	250m (200m)		300m							

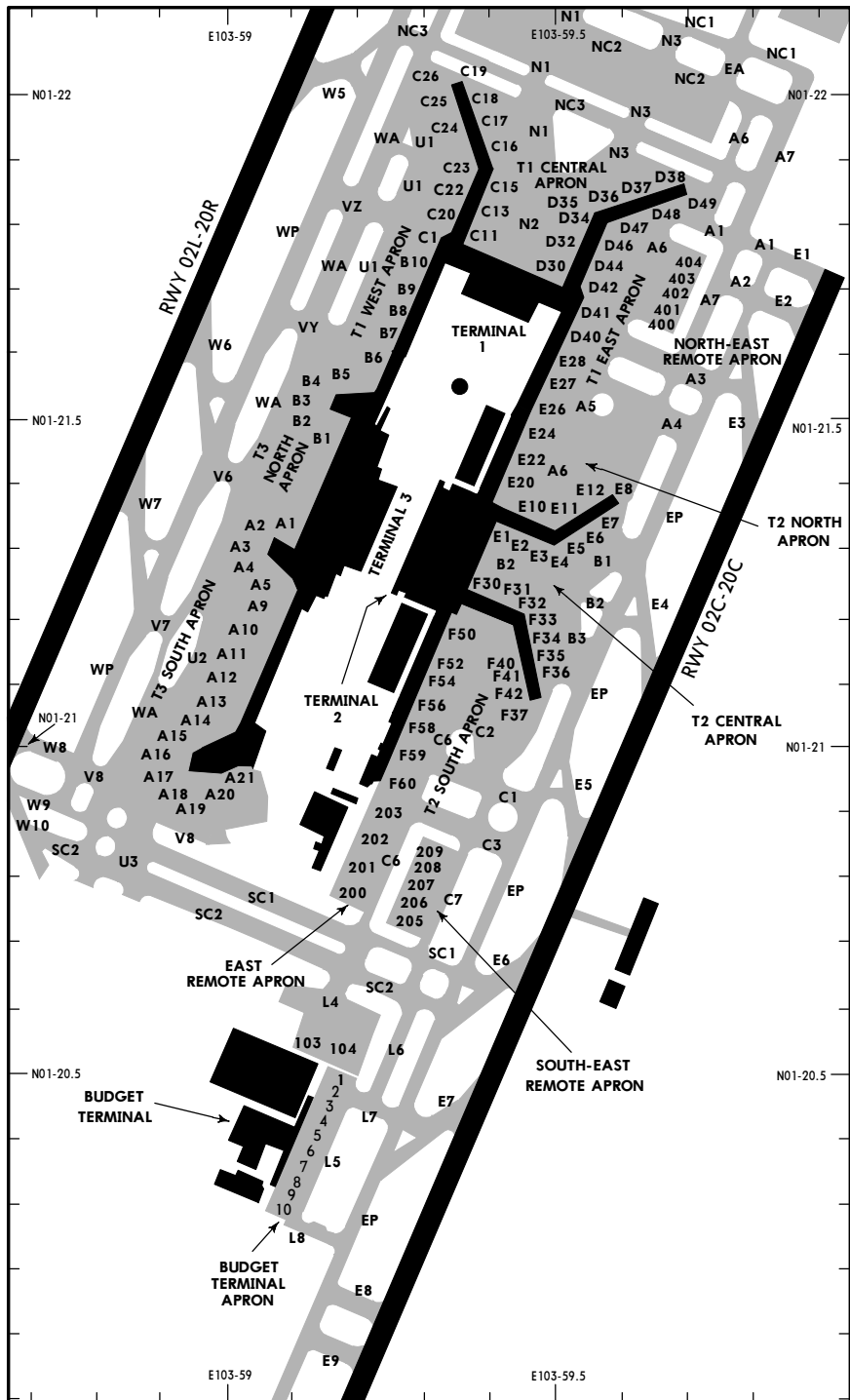
CHANGES: None.

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 2 MAY 08 (10-9B)

SINGAPORE, SINGAPORE
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CHANGES: Taxiway U1.

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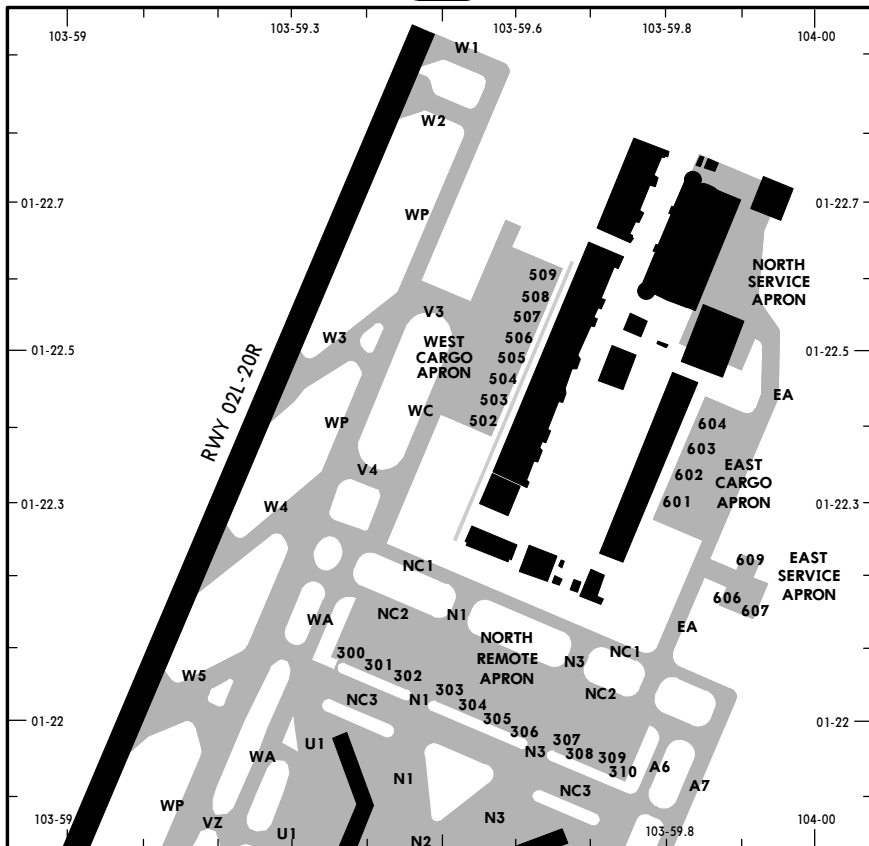
JEPPESEN
 2 MAY 08 (10-9C)

SINGAPORE, SINGAPORE
 CHANGI

PARKING BAY COORDINATES			
BAY No.	COORDINATES	BAY No.	COORDINATES
T3 South Apron		T2 Central Apron	
A1, A2	N01 21.4 E103 59.1	E1	N01 21.3 E103 59.4
A3, A4	N01 21.3 E103 59.0	E2 thru E4	N01 21.3 E103 59.5
A5	N01 21.3 E103 59.1	E5	N01 21.3 E103 59.6
A9	N01 21.2 E103 59.1	E6, E7	N01 21.4 E103 59.6
A10	N01 21.2 E103 59.0	F30, F31	N01 21.2 E103 59.4
A11 thru A13	N01 21.1 E103 59.0	F32, F33	N01 21.2 E103 59.5
A14	N01 21.0 E103 59.0	F34 thru F36	N01 21.1 E103 59.5
A15 thru A17	N01 21.0 E103 58.9	T2 North Apron	
A18	N01 20.9 E103 58.9	E8	N01 21.5 E103 59.6
A19, A20	N01 20.9 E103 59.0	E10	N01 21.4 E103 59.5
A21	N01 21.0 E103 59.0	E11	N01 21.4 E103 59.6
T3 North Apron		E12	N01 21.5 E103 59.6
B1	N01 21.4 E103 59.1	E20, E22	N01 21.4 E103 59.5
B2 thru B4	N01 21.5 E103 59.1	E24, E26	N01 21.5 E103 59.5
B5, B6	N01 21.6 E103 59.2	E27, E28	N01 21.6 E103 59.5
T1 West Apron		T2 South Apron	
B7	N01 21.6 E103 59.2	F37	N01 21.0 E103 59.4
B8 thru B10	N01 21.7 E103 59.3	F40, F41	N01 21.1 E103 59.4
C1, C20	N01 21.8 E103 59.3	F42	N01 21.0 E103 59.4
C22	N01 21.9 E103 59.3	F50	N01 21.2 E103 59.4
C23	N01 21.9 E103 59.4	F52, F54, F56	N01 21.1 E103 59.3
C24	N01 21.9 E103 59.5	F58, F59	N01 21.0 E103 59.3
C25	N01 22.0 E103 59.4	East Remote Apron	
C26	N01 22.0 E103 59.5	F60	N01 21.0 E103 59.3
T1 Central Apron		200, 201	N01 20.8 E103 59.2
C11, C13	N01 21.8 E103 59.4	202, 203	N01 20.9 E103 59.2
C15	N01 21.9 E103 59.4	South-East Remote Apron	
C16, C17	N01 21.9 E103 59.5	103, 104	N01 20.5 E103 59.2
C18	N01 22.0 E103 59.5	205	N01 20.7 E103 59.3
C19	N01 22.1 E103 59.5	206 thru 208	N01 20.8 E103 59.3
D30	N01 21.7 E103 59.5	209	N01 20.9 E103 59.3
D32, D34	N01 21.8 E103 59.5	North-East Remote Apron	
D35 thru D38	N01 21.9 E103 59.7	400	N01 21.6 E103 59.7
T1 East Apron		401 thru 403	N01 21.7 E103 59.7
D40	N01 21.6 E103 59.5	404	N01 21.8 E103 59.7
D41, D42, D44	N01 21.7 E103 59.6	Budget Terminal Apron	
D46	N01 21.8 E103 59.6	1, 2	N01 20.5 E103 59.2
D47, D48	N01 21.8 E103 59.8	3	N01 20.4 E103 59.2
D49	N01 21.9 E103 59.8	4 thru 6	N01 20.4 E103 59.1
		7 thru 10	N01 20.3 E103 59.1

CHANGES: None.

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PARKING BAY COORDINATES

BAY No.	COORDINATES	BAY No.	COORDINATES
North Remote Apron		East Cargo Apron	
300, 301	N01 22.1 E103 59.5	601, 602	N01 22.3 E103 59.8
302, 303	N01 22.1 E103 59.6	603	N01 22.4 E103 59.8
304	N01 22.1 E103 59.7	604	N01 22.4 E103 59.9
305, 306	N01 22.0 E103 59.7	East Service Apron	
307 thru 309	N01 22.0 E103 59.8	606	N01 22.2 E103 59.9
310	N01 22.0 E103 59.9	607	N01 22.1 E103 59.9
West Cargo Apron		609	N01 22.2 E103 59.9
502	N01 22.4 E103 59.5		
503, 504	N01 22.4 E103 59.6		
505, 506	N01 22.5 E103 59.6		
507, 508	N01 22.6 E103 59.6		
509	N01 22.7 E103 59.6		

TAXIING GUIDANCE SYSTEM AT SINGAPORE CHANGI AIRPORT

The taxiing guidance system at Singapore Changi Airport consists of stop bars and selectable segments of green taxiway centerline lights. The system is designed to provide pilots with visual guidance while taxiing during night operations and during periods of low visibility. It is controlled by the Ground Movement Controller (GMC) at Changi Control Tower using the Taxiway Lighting Control Panel (TLCP).

Route Selection and Priority

When a taxiing route is selected on the TLCP, corresponding segments of taxiway centerline lights on the maneuvering area are switched on automatically. When two or more routes are selected, the system will give priority to the first route and activate red stopbar lights across conflicting routes, as necessary. A segment of the centerline lights of the conflicting routes that cut across the first route will also be suppressed. The GMC has the option of overriding the taxiing route priority by selecting or deselecting the appropriate stopbar lights.

All taxing guidance lights on taxiways leading to the runways terminate at the runway holding positions where, by default, red stopbar lights remain on unless deselected by the runway controller. When deselected, these stopbar lights will re-activate automatically after 50 seconds.

Information and Mandatory Signs / Markings

When following the directional guidance provided by the green taxiway centerline lights and red stop bar lights, pilots are advised to also navigate their taxi route with reference to information and mandatory sign / markings provided at the airport so as to maintain situational awareness of their whereabouts at all times.

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PROCEDURES FOR PUSH BACK AND ASSIGNMENT OF FLIGHT LEVELS TO DEPARTING AIRCRAFT

GENERAL

- a. Assignment of flight levels to departing aircraft is made on a first-come-first-served basis. Aircraft will normally be assigned the level requested unless an alternate level is offered after coordination with the adjacent ATC centers.
- b. Departing flights from Singapore requesting FL 280 or FL 320 on L759, M770, N571, N571/N877 or P628.
 1. Aircraft departing Singapore will be cleared to FL 280.
 2. Succeeding aircraft on the same route will be cleared to FL 280 with 10 min longitudinal separation provided there is no closing speed with the preceding aircraft.
 3. Additional longitudinal separation as appropriate shall be provided by ATC for the faster aircraft following a slower aircraft on the same route.
 4. The first aircraft from either Singapore or Kuala Lumpur to be over GUNIP on N571 or N571/N877, the Kuala Lumpur/Bangkok FIR boundary on M770 or L759 and VPL on P628 can expect its requested flight level.
- c. To avoid confusion, pilots shall use the correct phraseology as detailed in **PROCEDURES** paragraph a. when ready for push back.
- d. A Multilateration Surveillance System (MSS) is operational at Changi airport. The Mode S MSS will provide the controller with surveillance and identification of all aircraft and transponder equipped vehicles on the airport surface. Procedures/Actions required by pilots pre-push back/taxi:
 1. The pilot will be requested to enter a Mode A code at start-up (i.e. assigned Mode A code). This code will be either a discrete or non-discrete code (A conspicuous code E.G. 1000). Pilot shall ensure that the transponder is operating (i.e. XPNDR or the equivalent according to specific installation, auto if available, not OFF or SDBY) and the assigned Mode A code is selected from the request for pushback or taxi, whichever is earlier.
 2. Whenever the aircraft is capable of reporting aircraft identification (i.e. the ICAO callsign used in flight inserted in the FMS (Flight Management System) or transponder control panel) the aircraft's identification should also be entered from the request for pushback or taxi whichever is earlier, through the FMS (Flight Management System) or the transponder control panel. Flight crew must use the 3-letter ICAO designator of the operator, followed by the Flight Identification number (i.e. BAW123, SIA002). After landing, pilots shall ensure that the transponder is operating (i.e. XPNDR or the equivalent according to specific installation, auto if available, not OFF or SDBY) after landing, continuously until the aircraft is fully parked on the stand.

PROCEDURES

- a. The pilot shall notify ATC when the aircraft is ready to push back within 5 min using the following phraseology:
 - o call sign
 - o destination
 - o proposed flight level and alternate level, if any
 - o parking position
 - o 'ready to push back in 5 minutes'
- b. On receipt of the 'ready to push back' call, ATC will advise the pilot whether the proposed flight level or other alternate flight level is available and an ATC clearance will be issued accordingly. If pre-departure coordination with an adjacent unit or center is required, the pilot will be instructed to standby.
- c. Once the flight level is accepted by the pilot and an ATC clearance issued, the aircraft must be pushed back within 5 minutes from the time the ATC clearance is accepted unless other ATC restrictions are imposed. The ATC clearance will be canceled upon expiration of the 5 minute grace period.

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CHANGI

- d. At the end of the push back, the departing aircraft must have all engines started and be ready to taxi immediately, unless otherwise instructed by ATC.

NOTE: The first aircraft to taxi may not necessarily be the first aircraft to take-off as distances between aircraft stands and the departure runway vary.

DELAY IN PUSH BACK AND/OR TAXI DUE TO OTHER AIRCRAFT

Delays may be expected for the second aircraft to push back and to taxi when two or more aircraft are parked either adjacent to one another or close together. However, it will retain its ATC clearance even if the 5 minutes grace period allowed for under **PROCEDURES** paragraph c. is exceeded.

DELAY IN TAKE-OFF DUE TO RESTRICTIONS IN THE ATC CLEARANCE

The ATC clearance may require an aircraft to arrive at a reporting point at a specific time and level or to depart a number of minutes behind a preceding traffic to establish longitudinal separation. Such a delay will not deprive a departing aircraft of its ATC clearance even though the 5 minutes grace period would have been exceeded.

DELAY DUE TO OVERFLIGHTS

These are flights operating through Singapore FIR without landing at Changi Airport. Depending on their positions, a departing aircraft requesting the same level may have to accept an alternate level or may have to delay its departure in order to establish the prescribed separation.

FLIGHTS EXEMPTED

The above procedures are not applicable to VIP, CASEVAC, SAR and other special tasks aircraft. ATC shall have full discretion in the conduct of such operations.

CANCELLATION OF ATC CLEARANCE

- a. A departing aircraft may have its ATC clearance cancelled under the following circumstances:
 1. on expiry of the 5 minutes grace period under **PROCEDURES** paragraph c., it is until unable to push back; or
 2. after pushing back, the pilot advises that it is returning to blocks; or
 3. it develops a technical problem and is unable to continue taxiing.
- b. ATC will inform the aircraft when a clearance is cancelled using the following phraseology:

'(Call sign of aircraft) your ATC clearance is cancelled (reason) '.

OBTAINING A FRESH CLEARANCE

Pilots who are ready to depart following the cancellation of an ATC clearance will adopt the normal procedures as if it is the first time they are ready to depart.

REGULATING OF AIR TRAFFIC MOVEMENTS AFTER CLOSURE OF SINGAPORE CHANGI AIRPORT'S RUNWAYS/CONTROL ZONE

- a. In order to prevent unnecessary air traffic congestion which normally occurs following the resumption of air traffic operations after the closure of the Singapore Changi Airport's Runways/Control Zone, due to VIP Movement or Major Air Exercise, slot-times will be introduced to regulate the flow of aircraft which are scheduled to depart for a period of at least one hour after the commencement of operations. Thus, depending on the prevailing traffic conditions all such departures will be spaced at intervals of 5 minutes or more to minimize unnecessary delays on the ground, which may be caused by arriving aircraft.
- b. During the one hour period, pilots will be required to give ATC 5 minutes notice prior to starting engines.
- c. Slot time is defined as the time during which take-off clearance may be expected.

PROCEDURES FOR START-UP AND PUSHBACK OF AIRCRAFT

1. Ground crew must ensure that the area behind an aircraft is clear of vehicles, equipment and other obstructions before the start-up or pushback of aircraft commences.
2. When the pilot is ready for start-up and pushback, he/she shall seek confirmation from the ground crew that there is no hazard to the aircraft starting up. The pilot shall then notify the Ground Movement Controller (Callsign: Singapore Ground) that the aircraft is ready for pushback. On being informed by Singapore Ground that pushback is approved, the pilot shall coordinate with the ground crew for the start-up and pushback of the aircraft.
3. The following table describes the procedures for the pushback of aircraft from the various aircraft stands. When it becomes necessary to vary a procedure to expedite aircraft movements, Singapore Ground will issue specific instructions to the pilot.

APRON/ACFT STANDS	PUSHBACK PROCEDURES	PHRASEOLOGY USED BY SINGAPORE GROUND
T3 WEST		
A1	The aircraft shall be pushed back onto Taxilane V6 to face West such that the pushback line is always kept midway between the aircraft main gear until its nosewheel is at the "END OF PUSH (for A1 nose gear)" position. The aircraft shall then be towed forward along the pushback line until its nosewheel is at the "END OF TOW (for A1, A2, B1, B2)" position. The aircraft may breakaway from there. Engine start up is not permitted during standard pushback. ALTERNATE PUSHBACK PROCEDURE The aircraft (on idle thrust) shall be pushed back onto TWY WA such that the lead-in line is always kept midway between the aircraft main gear until the nose of the aircraft is behind the stopbar on TWY WA. The aircraft may breakaway from there. Alternate pushback procedure is to be exercised only when auxiliary power unit of aircraft at aircraft stand is unserviceable.	Standard pushback approved. Pushback approved onto WA, to face North (or South).
A2	The aircraft (on idle thrust) shall be pushed back onto Taxilane V6 to face West such that the pushback line is always kept midway between the aircraft main gear until its main gear is at the intersection of the pushback line and Taxilane V6 centerline and the nosewheel stops at the "END OF PUSH (A2, B2)" position. The aircraft shall then be towed forward along Taxilane V6 centerline until its nosewheel is at the "END OF TOW (for A1, A2, B1, B2)" position. The aircraft may breakaway from there.	Standard pushback approved.
A3, A4	The aircraft (on idle thrust) shall be pushed back onto TWY WA until its nosewheel is at the intersection of the aircraft stand lead-in line and TWY WA centerline. The aircraft may breakaway from there.	Pushback approved, to face North (or South).
A5, A9	The aircraft (on idle thrust) shall be pushed back onto TWY U2 to face North until nose of the aircraft is behind the stopbar behind aircraft stand A11. The aircraft may breakaway from there. OR The aircraft (on idle thrust) shall be pushed back onto TWY WA to face South until nose of the aircraft is behind the stopbar behind aircraft stand A4. The aircraft may breakaway from there.	Pushback approved, to face North. Pushback approved, to face South.
A10	The aircraft (on idle thrust) shall be pushed back onto TWY U2 to face North until the nose of the aircraft is behind the stopbar behind aircraft stand A11. The aircraft may breakaway from there. OR The aircraft (on idle thrust) shall be pushed back onto TWY WA to face South until the nose of the aircraft is behind the stopbar behind aircraft stand A4. The aircraft may breakaway from there.	Pushback approved, to face North. Pushback approved, to face South.

APRON/ACFT STANDS	PUSHBACK PROCEDURES	PHRASEOLOGY USED BY SINGAPORE GROUND
A11	The aircraft (on idle thrust) shall be pushed back onto TWY U2 to face North until the nose of the aircraft is at the intersection of the aircraft stand lead-in line and TWY U2 centerline. The aircraft shall then be towed forward until the nose of the aircraft is behind the stopbar behind aircraft stand A11. The aircraft may breakaway from there. OR The aircraft (on idle thrust) shall be pushed back onto TWY U2 to face South until the nose of the aircraft is at the intersection of the aircraft stand lead-in line and TWY U2 centerline. The aircraft shall then be towed forward until its nosewheel is behind the stopbar behind aircraft stand A12. The aircraft may breakaway from there.	Pushback approved, to face North. Pushback approved, to face South.
A12	The aircraft (on idle thrust) shall be pushed back onto TWY U2 to face North until the nose of the aircraft is at the intersection of the aircraft stand lead-in line and TWY U2 centerline. The aircraft shall then be towed forward until its nosewheel is behind the stopbar behind aircraft stand 11. The aircraft may breakaway from there. OR The aircraft (on idle thrust) shall be pushed back onto TWY U2 to face South until its nosewheel is at the intersection of the aircraft stand lead-in line and TWY U2 centerline. The aircraft may breakaway from there.	Pushback approved, to face North. Pushback approved, to face South.
A13, A14, A15	The aircraft (on idle thrust) shall be pushed back onto TWY WA to face North until the nose of the aircraft is behind the stopbar behind aircraft stand A16. The aircraft may breakaway from there. OR The aircraft (on idle thrust) shall be pushed back onto TWY U2 to face South until the nose of the aircraft is behind the stopbar behind aircraft stand A12. The aircraft may breakaway from there.	Pushback approved to face North. Pushback approved, to face South.
A16	The aircraft (on idle thrust) shall be pushed back onto TWY WA until its nosewheel is at the intersection of the aircraft stand lead-in line and TWY WA centerline. The aircraft may breakaway from there.	Pushback approved to face North (or South).
A17	The aircraft (on idle thrust) shall be pushed back onto Taxilane V8 to face West until its nosewheel is at the intersection of the aircraft stand lead-in line and Taxilane V8 centerline with the nose of the aircraft behind the stopbar behind aircraft stand A17. The aircraft may breakaway from there. OR The aircraft (on idle thrust) shall be pushed back onto TWY WA to face South until the nose of the aircraft is behind the stopbar behind aircraft stand A16. The aircraft may breakaway from there. All lead-in lines provided are for nosewheel guidance only.	Pushback approved to face West. Pushback approved to face South.
A18	The aircraft (on idle thrust) shall be pushed back onto Taxilane V8 to face West such that the pushback line is always kept midway between the aircraft main gear until its main gear is aligned with the centerline of Taxilane V8 and the nose of the aircraft is behind the stopbar behind aircraft stand A18. The aircraft may breakaway from there. Pushback to face East is not permitted.	Standard pushback approved.

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APRON/ACFT STANDS	PUSHBACK PROCEDURES	PHRASEOLOGY USED BY SINGAPORE GROUND
A19	The aircraft (on idle thrust) shall be pushed back onto Taxilane V8 to face West such that the pushback line is always kept midway between the aircraft main gear until its main gear is aligned with the centerline of Taxilane V8 and the nose of the aircraft is behind the "END OF PUSH" line. The aircraft may breakaway from there. Pushback to face East is not permitted.	Standard pushback approved.
A20	The aircraft (on idle thrust) shall be pushed back onto Taxilane V8 to face West such that the pushback line is always kept midway between the aircraft main gear until its nosewheel is at the "END OF PUSH (for A20 nose gear)" position. The aircraft may breakaway from there. Pushback to face East is not permitted.	Standard pushback approved.
A21	The aircraft (on idle thrust) shall be pushed back onto Taxilane V8 to face East such that the pushback line is always kept midway between the aircraft main gear until the nose of the aircraft is at the "END OF PUSH (for A21 nose gear)" position. The aircraft shall then be towed forward until its nose is behind the stopbar behind aircraft stand A18. The aircraft may breakaway from there.	Standard pushback approved.
B1	The aircraft shall be pushed back onto Taxilane V6 to face West such that the pushback line is always kept midway between the aircraft main gear until its nosewheel is at the "END OF PUSH (for B1 nose gear)" position. The aircraft shall then be towed forward along the pushback line until its nosewheel is at the "END OF TOW (for A1, A2, B1, B2)" position. The aircraft may breakaway from there. Engine startup is not permitted during standard pushback. ALTERNATE PUSHBACK PROCEDURE The aircraft (on idle thrust) shall be pushed back onto TWY WA such that the lead-in line is always kept midway between the aircraft main gear until the nose of the aircraft is behind the stopbar on TWY WA. The aircraft may breakaway from there. Alternate pushback procedure is to be exercised only when auxiliary power unit of aircraft at aircraft stand is unserviceable.	Standard pushback approved. Pushback approved onto WA to face North (or South).
B2	The aircraft (on idle thrust) shall be pushed back onto Taxilane V6 to face West such that the pushback line is always kept midway between the aircraft main gear until its main gear is at the intersection of the pushback line and Taxilane V6 centerline and the nosewheel stops at the "END OF PUSH (A2, B2)" position. The aircraft shall then be towed forward along Taxilane V6 centerline until its nosewheel is at the "END OF TOW (for A1, A2, B1, B2)" position. The aircraft may breakaway from there.	Standard pushback approved.
B3, B4	The aircraft (on idle thrust) shall be pushed back onto TWY WA until its nosewheel is at the intersection of the aircraft stand lead-in line and TWY WA centerline. The aircraft may breakaway from there.	Pushback approved, to face North (or South).
B5, B6	The aircraft (on idle thrust) shall be pushed back onto TWY WA to face North until the nose of the aircraft is behind the stopbar behind aircraft stand B4. The aircraft may breakaway from there. OR The aircraft (on idle thrust) shall be pushed back onto TWY U1 to face South until the nose of the aircraft is behind the stopbar behind aircraft stand B7. The aircraft may breakaway from there.	Pushback approved, to face North. Pushback approved, to face South.

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APRON/ACFT STANDS	PUSHBACK PROCEDURES	PHRASEOLOGY USED BY SINGAPORE GROUND
B7	The aircraft (on idle thrust) shall be pushed back onto TWY U1 to face South until the nose of the aircraft is behind the stopbar behind aircraft stand B7. The aircraft may breakaway from there.	Standard pushback approved.
B8	The aircraft (on idle thrust) shall be pushed back onto TWY U1 to face South until its nosewheel is at the intersection of the aircraft stand lead-in line and TWY U1 centerline. The aircraft may breakaway from there.	Standard pushback approved.
B9, B10	The aircraft (on idle thrust) shall be pushed back onto TWY U1 until its nosewheel is at the intersection of the aircraft stand lead-in line and TWY U1 centerline. The aircraft may breakaway from there.	Pushback approved to face North (or South).
EAST REMOTE		
200 to 203	The aircraft (on idle thrust) shall be pushed back onto TWY C6 to face North (or South).	Pushback approved, to face North (or South).
SOUTH-EAST REMOTE		
103, 104	The aircraft (on idle thrust) shall be pushed back onto Twy SC2 until the nose of the aircraft is behind the stopbar on Twy SC2. OR The aircraft shall be pushed back onto TWY L4 to face East until its nosewheel is at the "END OF PUSH" marking. The aircraft shall be on tow only.	Pushback approved, onto SC2 to face West (or East). Pushback approved, onto L4 to face East.
205, 206, 207, 208	The aircraft (on idle thrust) shall be pushed back onto TWY C7 to face North (or South).	Pushback approved, to face North (or South).
209	The aircraft (on idle thrust) shall be pushed back to face North (or South) until its nosewheel is at the intersection of the lead-in line and TWY C7 centerline.	Pushback approved, to face North (or South).
NORTH REMOTE		
300, 303	The aircraft (on idle thrust) shall be pushed back facing West until its nosewheel is at the intersection of the lead-in line and taxiway centerline. OR The aircraft (on idle thrust) shall be pushed back facing East until its nosewheel is at the intersection of the lead-in line and taxiway centerline.	Pushback approved, to face West. Pushback approved, to face East.
301, 304, 305	The aircraft (on idle thrust) shall be pushed back to face East (or West) until its nosewheel is at the intersection of the lead-in line and the taxiway centerline.	Pushback approved, to face East (or West).
302, 306	The aircraft (on idle thrust) shall be pushed back to face East until its nosewheel is at the intersection of the lead-in line and the taxiway centerline. OR The aircraft (on idle thrust) shall be pushed back to face West until its nosewheel is at the intersection of the lead-in line and TWY A6 centerline.	Pushback approved, to face East. Pushback approved, to face West.
307, 308, 309, 310	The aircraft (on idle thrust) shall be pushed back to face East (or West) until its nosewheel is at the intersection of the lead-in line and TWY NC2 centerline.	Pushback approved, to face East (or West).

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SINGAPORE, SINGAPORE

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APRON/ACFT STANDS	PUSHBACK PROCEDURES	PHRASEOLOGY USED BY SINGAPORE GROUND
NORTH-EAST REMOTE		
400, 401, 402, 403, 404	The aircraft (on idle thrust) shall be pushed back to face North (or South) until its nosewheel is at the intersection of the lead-in line and TWY A6 centerline.	Pushback approved, to face North (or South).
WEST CARGO		
502	The aircraft (on idle thrust) shall be pushed back to face North (or South). The aircraft may breakaway from here. There shall be no simultaneous pushback of aircraft unless with two aircraft stands separation.	Pushback approved, to face North (or South)
503, 504, 505, 506	The aircraft (on idle thrust) shall be pushed back to face North (or South).	Pushback approved, to face North (or South).
507, 508	The aircraft (on idle thrust) shall be pushed back to face South.	Standard pushback approved.
509	The aircraft (on idle thrust) shall be pushed back to face South until its nosewheel is at the intersection of the pushback line and TWY WC centerline.	Standard pushback approved.
EAST CARGO		
601, 602	The aircraft (on idle thrust) shall be pushed back to face South until its nosewheel is at the intersection of the lead-in line and TWY EA centerline.	Standard pushback approved.
603	The aircraft (on idle thrust) shall be pushed back to face South until its nosewheel is at the intersection of the lead-in line and TWY EA centerline. The aircraft shall then be towed forward along the centerline of TWY EA until its nosewheel is on the "END OF TOW" marking behind aircraft stand 602.	Standard pushback approved.
604	The aircraft (on idle thrust) shall be pushed back to face South until its nosewheel is at the position of "END OF PUSH". The aircraft shall then be towed forward along the centerline of TWY EA until its nosewheel is on the "END OF TOW" marking behind aircraft stand 602.	Standard pushback approved.
T1 WEST		
C1, C20, C22, C23, C24, C25	The aircraft (on idle thrust) shall be pushed back onto TWY U1 to face North (or South).	Pushback approved, to face North (or South).
C26	The aircraft (on idle thrust) shall be pushed back onto TWY WA to face North. The aircraft may breakaway from there. OR The aircraft (on idle thrust) shall be pushed back onto TWY WA to face South until its nosewheel is at the intersection of the aircraft stand lead-in line and TWY WA centerline. The aircraft shall then be towed forward until its nosewheel is on the "END OF TOW" position. This is marked as "EOT" on the ground. The aircraft may breakaway from there.	Pushback approved, to face North. Pushback approved, to face South.
T1 CENTRAL		
C11	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at Stopbar 21. The aircraft shall then be towed forward following the curved line until it is aligned with the straight broken line.	Standard pushback approved.
C13, D32	Aircraft with Wing Engines The aircraft (on idle thrust) shall be pushed back facing North until its nosewheel is at Stopbar 22. This is marked as "END OF PUSHBACK" on the ground.	Standard pushback approved.

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SINGAPORE, SINGAPORE

CHANGI

APRON/ACFT STANDS	PUSHBACK PROCEDURES	PHRASEOLOGY USED BY SINGAPORE GROUND
	Aircraft with High Tail Engines The aircraft (wing engine on idle thrust) shall be pushed back facing North until its nosewheel is at the intersection of the lead-in line and TWY N2 centerline. The aircraft shall then be towed forward to Stopbar 23. This is marked as "END OF TOW" on the ground.	Standard pushback approved.
C15, D34	The aircraft (on idle thrust) shall be pushed back facing North until its nosewheel is at the intersection of the lead-in line and TWY N2 centerline.	Standard pushback approved.
C16, C17	The aircraft (on idle thrust) shall be pushed back to face North (or South) until its nosewheel is at the intersection of the lead-in line and TWY N1 centerline.	Pushback approved, to face North (or South).
C18	The aircraft (on idle thrust) shall be pushed back to face North until its nosewheel is at the intersection of the lead-in line and TWY N1 centerline.	Standard pushback approved.
C19	The aircraft (on idle thrust) shall be pushed back to face North along TWY N1 until the "END OF PUSHBACK" position.	Standard pushback approved.
D30	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at Stopbar 20. The aircraft shall then be towed forward following the curved line until it is aligned with the straight broken line.	Standard pushback approved.
D35, D36	The aircraft (on idle thrust) shall be pushed back to face North (or South) until its nosewheel is at the intersection of the lead-in line and TWY N3 centerline.	Pushback approved, to face North (or South).
D37	The aircraft (on idle thrust) shall be pushed back to face North until its nosewheel is at the intersection of the lead-in line and TWY N3 centerline.	Standard pushback approved.
D38	The aircraft (on idle thrust) shall be pushed back to face North along TWY N3 until the "END OF PUSHBACK" position.	Standard pushback approved.
T1 EAST		
D40, D41, D42, D44, D46, D47, D48, D49	The aircraft (on idle thrust) shall be pushed back to face North (or South) until its nosewheel is at the intersection of the lead-in line and TWY A6 centerline.	Pushback approved, to face North (or South).
T2 CENTRAL		
E1	The aircraft (on idle thrust) shall be pushed back such that the pushback line is always kept midway between the aircraft main gear until its nosewheel is at Stopbar 12. This is marked as "END OF PUSHBACK" on the ground. The aircraft shall then be towed forward to Stopbar 9. This is marked as "END OF TOW" on the ground.	Standard pushback approved.
E2	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at the intersection of the lead-in line and TWY B2 centerline. The aircraft shall then be towed forward to Stopbar 9. This is marked as "END OF TOW" on the ground.	Standard pushback approved.
E3	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at Stopbar 9. This is marked as "END OF TOW" on the ground.	Standard pushback approved.

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APRON/ACFT STANDS	PUSHBACK PROCEDURES	PHRASEOLOGY USED BY SINGAPORE GROUND
E4	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at Stopbar 8. This is marked as "END OF PUSHBACK" on the ground. OR	Standard pushback approved.
	The aircraft (on idle thrust) shall be pushed back onto TWY B3 until its nosewheel is at Stopbar 7A. OR	Pushback approved, to pushback onto TWY B3.
	The aircraft (on idle thrust) shall be pushed back onto TWY B1 until its nosewheel is at Stopbar 13A.	Pushback approved to pushback onto TWY B1.
E5, E6	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at the intersection of the lead-in line and TWY B1 centerline. The aircraft shall then be towed forward to Stopbar 13. This is marked as "END OF TOW" on the ground.	Standard pushback approved.
E7	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at Stopbar 13. This is marked as "END OF TOW" on the ground.	Standard pushback approved.
F30	The aircraft (on idle thrust) shall be pushed back such that the pushback line is always kept midway in-between the aircraft main gear until its nosewheel is at Stopbar 11. This is marked as "END OF PUSHBACK" on the ground. The aircraft shall then be towed forward to Stopbar 9. This is marked as "END OF TOW" on the ground.	Standard pushback approved.
F31	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at Stopbar 10. This is marked as "END OF PUSHBACK" on the ground. The aircraft shall then be towed forward to Stopbar 9. This is marked as "END OF TOW" on the ground.	Standard pushback approved.
F32	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at Stopbar 9. This is marked as "END OF TOW" on the ground.	Standard pushback approved.
F33	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at Stopbar 8. This is marked as "END OF PUSHBACK" on the ground. OR	Standard pushback approved.
	The aircraft (on idle thrust) shall be pushed back onto TWY B1 until its nosewheel is at Stopbar 13A. OR	Pushback approved to pushback onto TWY B1.
	The aircraft (on idle thrust) shall be pushed back onto TWY B3 until its nosewheel is at Stopbar 7A.	Pushback approved, to pushback onto TWY B3.
F34, F35	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at the intersection of the lead-in line and TWY B3 centerline. The aircraft shall then be towed forward to Stopbar 7. This is marked as "END OF TOW" on the ground.	Standard pushback approved.
F36	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at Stopbar 7. This is marked as "END OF TOW" on the ground.	Standard pushback approved.
T2 NORTH		
E8	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at Stopbar 14. This is marked as "END OF PUSHBACK" on the ground. The aircraft shall then be towed forward to Stopbar 15. This is marked as "END OF TOW" on the ground.	Standard pushback approved.

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10-9L2

APRON/ACFT STANDS	PUSHBACK PROCEDURES	PHRASEOLOGY USED BY SINGAPORE GROUND
E10	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at Stopbar 19. This is marked as "END OF PUSHBACK" on the ground. The aircraft shall then be towed forward to Stopbar 18. This is marked as "END OF TOW" on the ground.	Standard pushback approved.
E11, E12	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at the intersection of the lead-in line and TWY A5 centerline. The aircraft shall then be towed forward to Stopbar 16. This is marked as "END OF TOW" on the ground. OR	Standard pushback approved.
	The aircraft (on idle thrust) shall be pushed back onto TWY A6 until its nosewheel is at the intersection of TWY A5 and A6 centerlines.	Pushback approved, to pushback onto TWY A6.
E20	The aircraft (on idle thrust) shall be pushed back with the main gear mid-point following the main gear pushback line until its nosewheel is at Stopbar 17. The aircraft shall then be towed forward to "END OF TOW" Stopbar 18. Aircraft may breakaway from here.	Standard pushback approved.
E22	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at Stopbar 19. This is marked as "END OF PUSHBACK" on the ground. The aircraft shall then be towed forward to Stopbar 18. This is marked as "END OF TOW" on the ground.	Standard pushback approved.
E24	The aircraft (on idle thrust) shall be pushed back facing North only until its body is aligned with TWY A6 centerline.	Standard pushback approved.
E26	The aircraft (on idle thrust) shall be pushed back to face North until its body is aligned with TWY A6 centerline.	Standard pushback approved.
E27, E28	The aircraft (on idle thrust) shall be pushed back to face North (or South) until its body is aligned with TWY A6 centerline.	Pushback approved, to face North (or South).
T2 SOUTH		
F37	The aircraft (on idle thrust) shall be pushed back with the main gear following the main gear pushback line, until its nosewheel is on the "END OF PUSH (EOP)" Stopbar 4 behind aircraft stand F42. OR	Standard pushback approved
	The aircraft (on idle thrust) shall be pushed back with the main gear following the main gear pushback line, until its nosewheel is on the "END OF PUSH (EOP)" Stopbar 5 on TWY C1.	Pushback approved, to face East on TWY C1.
F40, F52	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at Stopbar 2. This is marked as "END OF PUSH" on the ground. The aircraft shall then be towed forward to Stopbar 3. This is marked as "END OF TOW" on the ground.	Standard pushback approved.
F41, F42	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at the intersection of the lead-in line and the TWY C2 centerline. The aircraft shall then be towed forward to Stopbar 4. This is marked as "END OF TOW" on the ground. OR	Standard pushback approved.
	The aircraft (on idle thrust) shall be pushed back onto TWY C6 until its nosewheel is at the intersection of TWY C2 and C6 centerline.	Pushback approved, to pushback onto TWY C6.

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11 JAN 08

10-9L3

CHANGI

APRON/ACFT STANDS	PUSHBACK PROCEDURES	PHRASEOLOGY USED BY SINGAPORE GROUND
F50	The aircraft shall be pushed back with the main gear following the main gear pushback line, facing South until its nosewheel is on the "END OF PUSH" Stopbar 1 marking painted on the ground behind aircraft stand F50. The aircraft shall then be towed forward with the nosewheel following the tow-forward line until its nosewheel is on the "END OF TOW" Stopbar 3 marking painted on the ground behind aircraft stand F52.	Standard pushback approved.
F54	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at a point on TWY C6 in line with the mid-point of aircraft stands F52 and F54. It shall breakaway from this position.	Standard pushback approved.
F56	The aircraft (on idle thrust) shall be pushed back until its nosewheel is at position mid-point between aircraft stands F52 and F56 on TWY C6 centerline.	Standard pushback approved.
F58, F59, F60	The aircraft (on idle thrust) shall be pushed back to face North (or South), on TWY C6 centerline.	Pushback approved, to face North (or South).
BUDGET TERMINAL		
1, 2	The aircraft (on idle thrust) shall be pushed back to face West onto TWY L7 until its nosewheel is at the stopbar marked "END OF PUSH" behind aircraft stand 2. The aircraft may breakaway from there. Simultaneous pushback is not permitted for aircraft stands 1, 2, and 3. OR The aircraft (on idle thrust) shall be pushed back onto TWY L5 to face North until its nosewheel is behind the stopbar behind aircraft stand 3. The aircraft may breakaway from there. Simultaneous pushback is not permitted for aircraft stands 1, 2, and 3. Pushback from aircraft stands 1 and 2 to face South is not permitted.	Pushback approved, to face West. Pushback approved, to face North.
3, 4, 5, 6, 7, 8, 9, 10	The aircraft (on idle thrust) shall be pushed back onto TWY L5 to face North or South until its nosewheel is at the intersection of the aircraft stand lead-in line and the centerline of TWY L5. The aircraft may breakaway from there. There shall be no simultaneous pushback of aircraft unless there is at least one aircraft stand separation. Simultaneous pushback is not permitted for aircraft stands 1, 2, and 3.	Pushback approved, to face North or South.

PARKING

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SINGAPORE, SINGAPORE

21 OCT 05

10-9M

CHANGI

RLG VISUAL DOCKING GUIDANCE SYSTEM

INTRODUCTION

- The RLG visual docking guidance system is installed at all the fixed gates in Terminal 2 of Singapore Changi Airport.
- The system is aligned for interpretation by the pilot in the left hand seat.

DOCKING PROCEDURES

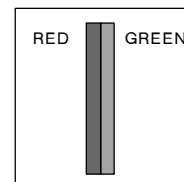
A pilot, while taxiing his/her aircraft into a fixed gate, shall STOP the aircraft immediately if he/she sees that the docking system is not switched on or is un-serviceable, or when it shows a different aircraft type.

a. Aircraft Type Indication

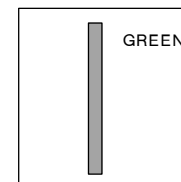
- Confirm that your aircraft type is displayed prior to turning into stand.
- Discontinue docking when wrong aircraft type is illuminated. (Aircraft Marshaller shall recheck system or marshall aircraft into stand.)

b. Centre Line Guidance

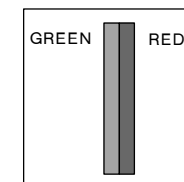
- Look at the bottom half of the housing and interpret vertical neon lights as shown below:



Aircraft left of centreline - steer towards GREEN



Aircraft on centreline

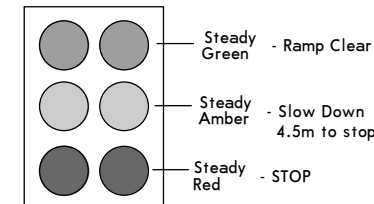


Aircraft right of centreline - steer towards GREEN

- Discontinue docking when lights go off. (Aircraft Marshaller shall marshall aircraft into bay.)

c. Stopping Guidance

- Look at the round incandescent lamps on the top half of the housing and interpret as shown at right:
- Discontinue docking immediately should the lights go off. (Aircraft Marshaller shall then marshall aircraft into bay.)



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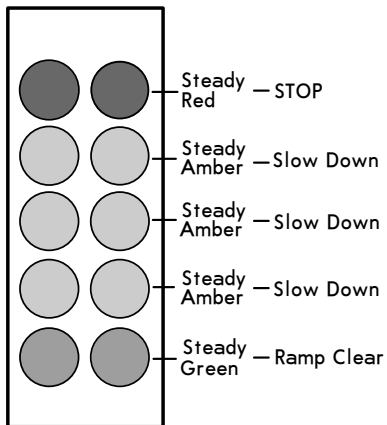
CHANGI

d. Stopping Guidance at the North East and South East Piers at Terminal 2

Look at the round incandescent lamps on the top half of the housing and interpret as illustrated:

TO AVOID OVER SHOOTING

- a. When using the RLG system, pilots are to taxi into the stand at minimum speed.
- b. On seeing the round incandescent amber lights, slow down and prepare to stop.
- c. The round incandescent amber and red lights are activated manually by the RLG system operator as the aircraft approaches the stopbar. Pilots should stop the aircraft immediately when the red lights come on suddenly or when given the stop sign by the Aircraft Marshaller.



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SINGAPORE, SINGAPORE

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(10-9P)

CHANGI

Aircraft types that can be parked at stands are as follows:

Aircraft Type	TERMINAL 1 AIRCRAFT STANDS													
	C1	C11	C13	C15	C16	C17	C18	C19	C20	C22	C23	C24	C25	C26
A300	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A310	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A319	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A320	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A321	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A330	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A342	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A343	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A345	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A346	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A380	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B707	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B717	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B727	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B737	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B747	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B745	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B757	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B762	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B763	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B772	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B773	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B773ER	o	o	o	o	o	o	o	o	o	o	o	o	o	o
BA146	o	o	o	o	o	o	o	o	o	o	o	o	o	o
DC10	o	o	o	o	o	o	o	o	o	o	o	o	o	o
DC8	o	o	o	o	o	o	o	o	o	o	o	o	o	o
DC9	o	o	o	o	o	o	o	o	o	o	o	o	o	o
F100	o	o	o	o	o	o	o	o	o	o	o	o	o	o
IL62	o	o	o	o	o	o	o	o	o	o	o	o	o	o
IL86	o	o	o	o	o	o	o	o	o	o	o	o	o	o
IL96	o	o	o	o	o	o	o	o	o	o	o	o	o	o
L101	o	o	o	o	o	o	o	o	o	o	o	o	o	o
MD11	o	o	o	o	o	o	o	o	o	o	o	o	o	o
MD80	o	o	o	o	o	o	o	o	o	o	o	o	o	o
MD82	o	o	o	o	o	o	o	o	o	o	o	o	o	o
MD88	o	o	o	o	o	o	o	o	o	o	o	o	o	o
YK42	o	o	o	o	o	o	o	o	o	o	o	o	o	o

PARKING

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SINGAPORE, SINGAPORE
 CHANGI

Aircraft types that can be parked at stands are as follows:

Aircraft Type	TERMINAL 1 AIRCRAFT STANDS (cont)														
	D30	D32	D34	D35	D36	D37	D38	D40	D41	D42	D44	D46	D47	D48	D49
A300	o	o	o	o	o	o		o	o	o	o	o	o	o	o
A310	o	o	o	o	o	o		o	o	o	o	o	o	o	o
A319	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A320	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A321	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A330		o	o		o	o		o	o	o	o	o	o	o	o
A342		o	o		o	o		o	o	o	o	o	o	o	o
A343		o	o		o	o		o	o	o	o	o	o	o	o
A345		o	o					o	o	o	o	o	o	o	o
A346		o	o									o			o
A380												o			o
B707	o	o	o					o	o	o	o				
B717	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
B727	o	o	o					o	o	o	o				
B737	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B747		o	o					o	o	o	o	o	o	o	o
B74S		o	o					o	o	o	o	o	o	o	o
B757	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B762	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B763	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B772		o	o		o	o		o	o	o	o	o	o	o	o
B773		o	o					o	o	o	o	o	o	o	o
B773ER		o	o					o	o	o	o	o	o	o	o
BA146	o	o	o												
DC10			o		o	o		o	o	o	o	o	o	o	o
DC9	o	o	o												
F100	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
IL62	o	o	o	o	o	o		o	o	o	o	o	o	o	o
IL86	o	o	o	o	o	o		o	o	o	o	o	o	o	o
IL96		o	o	o	o	o		o	o	o	o	o	o	o	o
L101			o		o	o		o	o	o	o	o	o	o	o
MD11		o		o	o			o	o	o	o	o	o	o	o
MD80	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
MD82	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
MD88	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
YK42										o					

PARKING

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10-9R

SINGAPORE, SINGAPORE
 CHANGI

Aircraft types that can be parked at stands are as follows:

Aircraft Type	TERMINAL 2 AIRCRAFT STANDS																
	E1	E2	E3	E4	E5	E6	E7	E8	E10	E11	E12	E20	E22	E24	E26	E27	E28
A300		o	o	o	o	o	o		o		o	o	o	o	o	o	o
A310	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A319	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A320	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A321																o	o
A330			o	o	o			o		o	o	o	o	o	o	o	o
A342			o	o	o			o		o	o		o	o	o	o	o
A343			o	o	o			o		o	o		o	o	o	o	o
A345			o	o	o			o		o	o		o	o	o	o	o
A346			o	o				o		o							
A380								o		o							
B707															o	o	o
B727	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B737	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B747			o	o	o			o		o	o	o	o	o	o	o	o
B74S			o	o	o			o		o	o		o	o	o	o	o
B757	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B762	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B763	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B772			o	o	o			o		o	o	o	o	o	o	o	o
B773			o	o	o			o		o	o		o	o	o	o	o
B773ER			o	o	o			o		o	o		o	o	o	o	o
DC10					o	o		o	o	o	o		o	o	o	o	o
DC9															o	o	
F100																o	o
F70	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
IL62															o	o	o
IL86															o	o	o
IL96															o	o	o
L101					o	o		o	o	o	o	o	o	o	o	o	o
MD11					o	o		o	o	o	o	o	o	o	o	o	o
MD80															o	o	o
MD82															o	o	o
MD87														o	o		
MD88															o	o	o

PARKING

WSSS/SIN

16 NOV 07



10-9S

SINGAPORE, SINGAPORE
 CHANGI

Aircraft types that can be parked at stands are as follows:

Aircraft Type	TERMINAL 2 AIRCRAFT STANDS (cont)																	
	F30	F31	F32	F33	F34	F35	F36	F37	F42	F41	F40	F50	F52	F54	F56	F58	F59	F60
A300		o	o		o	o			o	o	o	o	o	o	o	o	o	o
A310	o	o	o	o	o	o	o		o	o	o	o	o	o	o	o	o	o
A319		o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A320		o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A330		o			o				o	o	o	o	o	o	o	o	o	o
A342		o			o				o	o	o		o	o	o	o	o	o
A343		o			o				o	o	o		o	o	o	o	o	o
A345		o			o				o	o	o		o	o	o	o	o	o
A346									o									o
A380		o							o									o
B707											o		o				o	o
B727	o	o	o	o	o	o		o	o	o	o	o	o	o	o	o	o	o
B737	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B747		o			o	o			o	o	o		o	o	o	o	o	o
B74S		o			o				o	o	o		o	o	o	o	o	o
B757	o	o	o	o	o	o			o	o	o	o	o	o	o	o	o	o
B762	o	o	o		o	o			o	o	o	o	o	o	o	o	o	o
B763	o	o	o		o	o			o	o	o	o	o	o	o	o	o	o
B772		o		o	o			o	o	o	o	o	o	o	o	o	o	o
B773									o	o				o	o	o	o	o
B773ER									o	o				o	o	o	o	o
DC10					o	o			o	o				o	o	o	o	o
DC8												o						
DC9												o	o	o	o	o	o	o
F70	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
L101					o	o			o	o				o	o	o	o	o
MD11					o	o			o	o				o	o	o	o	o
MD87												o	o	o				

PARKING

WSSS/SIN

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10-9T

SINGAPORE, SINGAPORE
 CHANGI

TERMINAL 3 - Aircraft types that can be parked at stands are as follows:

Stands	A1	A2	A3	A4	A5	A9	A10	A11	A12
A300 A310 A319 A320 A321 A330 A343	o	o	o	o	o	o	o	o	o
A345	o	o	o	o	o		o	o	o
A346		o		o	o		o	o	o
A380		o		o	o		o		
B737	o		o					o	o
B747 B74S	o	o	o	o	o		o	o	o
B757 B767 B772	o	o	o	o	o	o	o	o	o
B773 B773ER		o		o	o		o	o	o

TERMINAL 3 - Aircraft types that can be parked at stands are as follows:(cont)

Stands	A13	A14	A15	A16	A17	A18	A19	A20	A21
A300 A310 A319 A320 A321 A330 A343	o	o	o	o	o	o	o	o	o
A345	o	o	o	o	o				
A346	o	o							
A380									
B737	o	o		o	o	o	o		
B747 B74S	o	o	o	o	o				
B757 B767 B772	o	o	o	o	o	o	o	o	o
B773 B773ER	o	o							

TERMINAL 3 - Aircraft types that can be parked at stands are as follows:(cont)

Stands	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
A300	o	o	o	o	o	o	o	o	o	o
A310 A319	o	o	o	o	o	o	o	o	o	o
A320 A321	o	o	o	o	o	o	o	o	o	o
A330	o	o	o	o	o	o	o	o	o	o
A343	o	o	o	o	o	o	o	o	o	o
A345	o	o	o	o	o	o	o	o	o	o
A346		o		o	o		o			
A380		o		o	o		o			
B707								o	o	
B737	o					o				
B747	o	o	o	o	o	o	o	o	o	o
B74S	o	o	o	o	o	o	o	o	o	o
B757	o	o	o	o	o	o	o	o	o	o
B767	o	o	o	o	o	o	o	o	o	o
B772	o	o	o	o	o	o	o	o	o	o
B773 B773ER		o		o	o	o	o	o	o	o

BUDGET TERMINAL - Aircraft types that can be parked at stands are as follows:

Stands	1	2	3	4	5	6	7	8	9	10
A319 A320 B737	o	o	o	o	o	o	o	o	o	o

PARKING

WSSS/SIN

16 NOV 07



10-9U

SINGAPORE, SINGAPORE
 CHANGI

Aircraft types that can be parked at stands are as follows:

Aircraft Type	REMOTE STANDS										
	103	104	200	201	202	203	205	206	207	208	209
A300 A310 A319 A320	o	o	o	o	o	o	o	o	o	o	o
A330	o	o	o	o	o	o	o	o	o	o	o
A342 A343 A345	o	o	o	o	o	o	o	o	o	o	o
A380	o	o	o	o	o	o	o	o	o	o	o
B707 B727 B737	o	o	o	o	o	o	o	o	o	o	o
B747 B74S	o	o	o	o	o	o	o	o	o	o	o
B757	o	o	o	o	o	o	o	o	o	o	o
B767 B772 B773 B773ER	o	o	o	o	o	o	o	o	o	o	o
DC8	o	o	o	o	o	o	o	o	o	o	o
DC10	o	o	o	o	o	o	o	o	o	o	o
F70	o	o	o	o	o	o	o	o	o	o	o
IL62	o	o	o	o	o	o	o	o	o	o	o
L101	o	o	o	o	o	o	o	o	o	o	o
MD11	o	o	o	o	o	o	o	o	o	o	o

Aircraft Type	REMOTE STANDS (cont)															
	300	301	302	303	304	305	306	307	308	309	310	400	401	402	403	404
A300	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A310	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A319	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A320	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A330	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A342	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A343	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
A345	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B707	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B727	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B737	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B747	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B74S	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B757	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B767	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B772	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B773	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
B773ER	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
DC10	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
DC8	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
F70	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
L101	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
MD11	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o

PARKING

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27 JUL 07



10-9V

SINGAPORE, SINGAPORE
 CHANGI

Aircraft Type	CARGO STANDS											
	502	503	504	505	506	507	508	509	601	602	603	604
A300	o	o	o	o	o	o	o	o	o	o	o	o
A310	o	o	o	o	o	o	o	o	o	o	o	o
A332	o	o	o	o	o	o	o	o	o	o	o	o
A333	o	o	o	o	o	o	o	o	o	o	o	o
A342	o	o	o	o	o	o	o	o	o	o	o	o
A343	o	o	o	o	o	o	o	o	o	o	o	o
A345	o	o	o	o	o	o	o	o	o	o	o	o
A346	o	o	o	o	o	o	o	o	o	o	o	o
A380	o	o	o	o	o	o	o	o	o	o	o	o
B707	o	o	o	o	o	o	o	o	o	o	o	o
B727	o	o	o	o	o	o	o	o	o	o	o	o
B737	o	o	o	o	o	o	o	o	o	o	o	o
B747	o	o	o	o	o	o	o	o	o	o	o	o
B74S	o	o	o	o	o	o	o	o	o	o	o	o
B757	o	o	o	o	o	o	o	o	o	o	o	o
B767	o	o	o	o	o	o	o	o	o	o	o	o
B772	o	o	o	o	o	o	o	o	o	o	o	o
B773	o	o	o	o	o	o	o	o	o	o	o	o
B773ER	o	o	o	o	o	o	o	o	o	o	o	o
DC8	o	o	o	o	o	o	o	o	o	o	o	o
DC10	o	o	o	o	o	o	o	o	o	o	o	o
IL62	o	o	o	o	o	o	o	o	o	o	o	o
IL86	o	o	o	o	o	o	o	o	o	o	o	o
L101	o	o	o	o	o	o	o	o	o	o	o	o
MD11	o	o	o	o	o	o	o	o	o	o	o	o

SAFEGATE AIRCRAFT DOCKING GUIDANCE SYSTEM

INTRODUCTION

The Safegate Aircraft Docking guidance system - SAFEDOCK is a fully automatic aircraft docking guidance system installed at the fixed gates in Terminal 1 and 3 of Singapore Changi airport.

DESCRIPTION OF SYSTEM

The system is based on a laser scanning technique and it tracks both the lateral and longitudinal position of the aircraft. This 3-dimensional technique allows the system to recognize the incoming aircraft and check it against the one selected by the operator to ensure that the pilot is provided with the correct stop indication for the aircraft.

The system is operated only in the Automatic Mode. When the system fails, the aircraft is to be marshalled into the stand manually.

Azimuth guidance, continuous closing rate information, aircraft type, etc., are shown to the pilot on a single display clearly visible to both pilot and co-pilots. Figure A shows the Display and Laser Scanning Unit mounted on the terminal in front of the aircraft stand.

LED DISPLAY AND LASER SCANNING UNIT

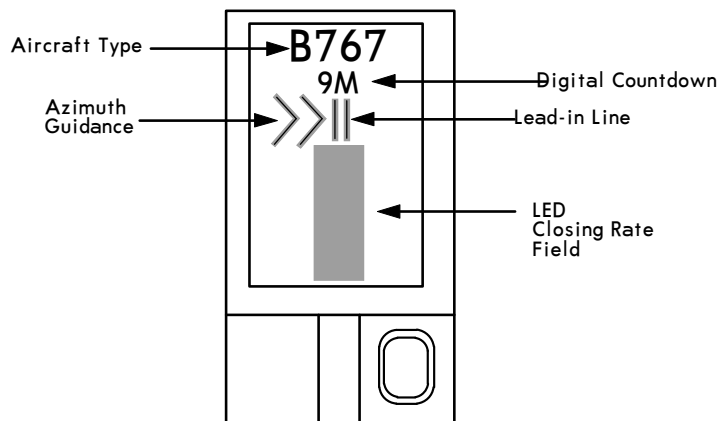


Figure A

DOCKING PROCEDURES

Check that the correct aircraft type is displayed. The scrolling arrows indicate that the system is activated.

Follow the lead-in line.

When the solid yellow closing rate field appears, the aircraft has been caught by the scanning unit. The scanning unit now checks that the aircraft is the correct type and the display provides azimuth guidance information (see Figure 1).

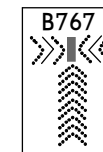


Figure 1: System tracking for aircraft.

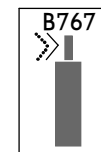


Figure 2: Aircraft tracked and identified correctly.

Look for the flashing red arrow and solid yellow arrow which provide azimuth guidance information. The flashing red arrow shows which direction to steer, while the solid yellow arrow gives an indication of how far the aircraft is off of the centerline (see Figure 2).

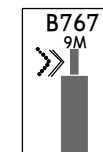


Figure 3: Docking of aircraft commences.

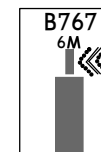


Figure 4: LED closing rate field starts diminishing when the act is 12m from stopbar at one row for every 0.5m that the act moves forward.

When the aircraft is 12m from the stop position, closing rate information is given. "Distance to go" is indicated by turning off one row of LEDs (Laser Electronic Displays) for each one half meter that the aircraft advances towards the stop position. From 9m to the stop position, a digital display will indicate the distance from the stop position for every 1m. At 2m from the stop position, the display will indicate the distance from the stop position for every 0.2m (see Figures 3, 4 and 5).

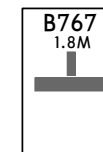


Figure 5: LED closing rate field getting shorter as act moves nearer to stop-bar.

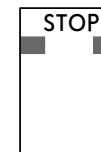


Figure 6: Pilot to stop act when "STOP" is displayed.

When the correct stop position is reached, all of the LEDs for the closing rate field will be off, the word "STOP" will appear in the display and two red, rectangular fields will light in the azimuth guidance area of the display (see Figure 6).

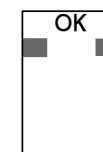


Figure 7: Informs the pilot that everything is in order and he can shutdown engine.

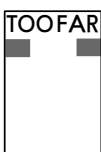


Figure 8: Indicates that the act has gone beyond the stopbar. Pilot to check with ground engineer on the next move.

If the aircraft stops in the correct position, "OK" will be displayed after a few seconds (see Figure 7).

If the aircraft has gone past the correct stop position, the display will show "TOO FAR" (see Figure 8).



Figure 9: Pilot to hold act and wait for other instructions from the display.

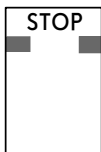


Figure 10: Pilot to stop immediately and wait for further instructions. "STOP" may appear suddenly in the process of docking.

The aircraft must be identified at least 12m before the correct stop position. If this does not occur, the system displays "STOP" and then "WAIT" with two red, rectangular fields being lit in the azimuth guidance area of the display. The system will then attempt to identify the aircraft. If successful, the docking procedure will continue. If not, "WAIT" will be replaced by "STOP" (see Figures 9 and 10).

AIRPORT

WSSS/SIN

JEPPESSEN SINGAPORE, SINGAPORE

21 OCT 05 **(10-9Z)**

CHANGI

SAFETY MEASURES

Pilots should not turn an aircraft into the parking stand if the docking system is not activated or on seeing a wrong aircraft type displayed on the system.

When using the docking system, pilots are to taxi into the aircraft stand at minimum speed. The system will display "SLOW DOWN" to inform the pilot if the aircraft's taxiing speed is too fast (see Figure 11).

To avoid overshooting, pilots are advised to approach the stop position slowly and observe the closing rate information displayed. Pilots should stop the aircraft immediately when seeing the "STOP" display or when given the stop sign by the aircraft marshaller.

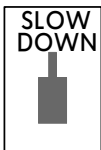


Figure 11: Informs the pilot that the aircraft's taxiing speed is too fast. Pilot to slow down the speed.

- NOTE:**
- Depicts solid yellow arrow.
 - Depicts flashing red arrow.

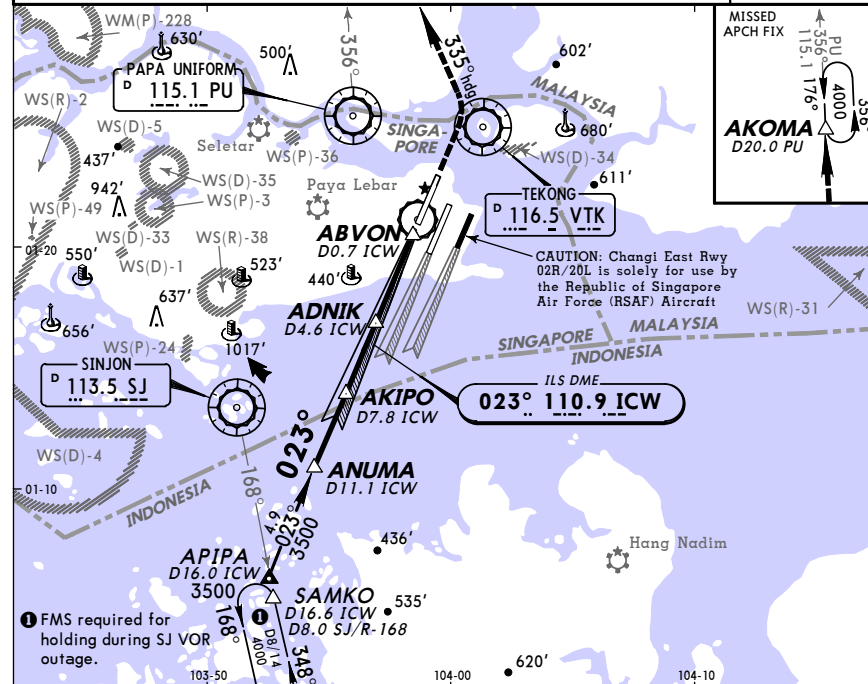
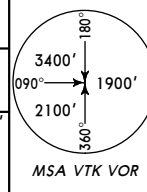
WSSS/SIN
 CHANGI

JEPPESSEN SINGAPORE, SINGAPORE
 17 NOV 06 **(11-1)**
 ILS DME Rwy 02L

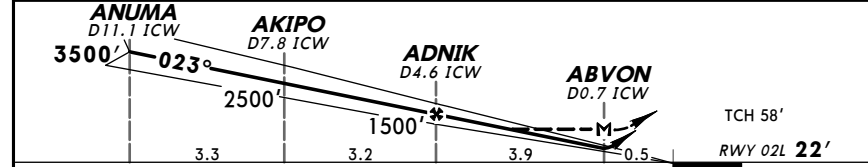
D-ATIS 128.6	SINGAPORE Approach (R) 120.3	SINGAPORE Arrival (R) 119.3	SINGAPORE Tower 118.6	Ground 124.3
LOC ICW 110.9	Final Apch Crs 023°	GS ANUMA 3500' (3478')	ILS DA(H) 222' (200')	Apt Elev 22' RWY 02L 22'

MISSED APCH: Climb to 1000', then climbing LEFT turn to 4000' via heading 335° and PU R-356 to AKOMA (PU R-356/D20.0) and hold or as directed by ATC.

Alt Set: hPa Rwy Elev: 1 hPa Trans level: FL 130 Trans alt: 11000'
 1. RADAR required. 2. Simultaneous approaches authorized with Rwy 2R or 2C. 3. ILS DME co-located with glideslope. 4. Maritime vessels of variable heights in water north and south of Rwy.



LOC (GS out)	ICW DME	4.0	3.0	2.0
	ALTITUDE	1290'	970'	660'



Gnd speed-Kts	70	90	100	120	140	160	ALSF-II	1000'	4000'	335°
GS	3.00°	377	484	538	646	753	861			
FAF to MAP	3.9	3:21	2:36	2:20	1:57	1:40	1:28			
MAP at ABVON/D0.7 ICW										

STRAIGHT-IN LANDING RWY02L				LOC (GS out)		CIRCLE-TO-LAND	
ILS DA(H) 222' (200')				MDA(H) 420' (398')			
FULL				TDZ or CL out		ALS out	
A							
B	RVR 550m	RVR 720m	1200m	RVR 720m	RVR 1500m	NA	
C	VIS 800m	VIS 800m			VIS 1600m		
D				1200m	RVR 1800m		
					VIS 2000m		

Timing not authorized when GS inop.

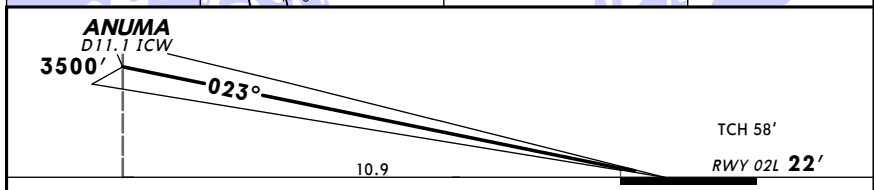
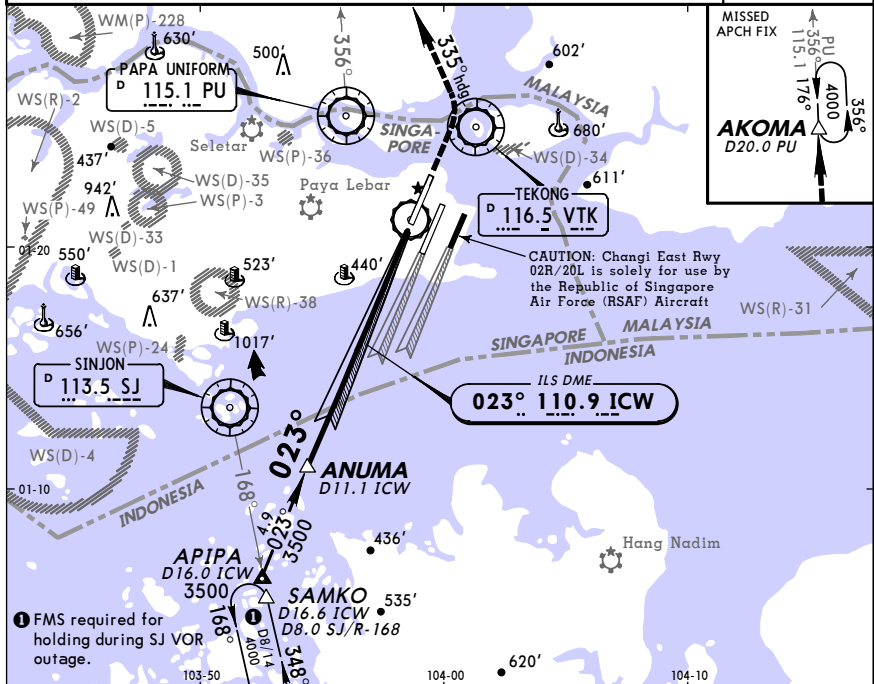
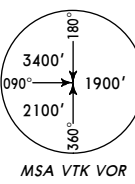
WSSS/SIN SINGAPORE, SINGAPORE
 CHANGI 17 NOV 06 (11-1A) ILS DME Rwy 02L CAT II

D-ATIS 128.6	SINGAPORE Approach (R) 120.3	SINGAPORE Arrival (R) 119.3	SINGAPORE Tower 118.6	Ground 124.3
LOC ICW 110.9	Final Apch Crs 023°	GS ANUMA 3500' (3478')	CAT II ILS RA 104' DA(H) 122' (100')	Apt Elev 22' RWY 02L 22'

MISSED APCH: Climb to 1000', then climbing LEFT turn to 4000' via heading 335° and PU R-356 to AKOMA (PU R-356/D20.0) and hold or as directed by ATC.

Alt Set: hPa Rwy Elev: 1 hPa Trans level: FL 130 Trans alt: 11000'

1. Special Aircrew and Acft Certification Required. 2. RADAR required.
 3. Simultaneous approaches authorized with Rwy 2R or 2C. 4. ILS DME co-located with glideslope. 5. Maritime vessels of variable heights in water north and south of Rwy.



Gnd speed-Kts	70	90	100	120	140	160	ALSF-II	1000'	4000'	335°
GS	3.00°	377	484	538	646	753	REIL PAPI	↑	↑	via hdg

STRAIGHT-IN LANDING RWY02L		CAT II ILS	
RA 104'	DA(H) 122' (100')	RA 160'	DA(H) 172' (150')
RVR 350m		RVR 500m	

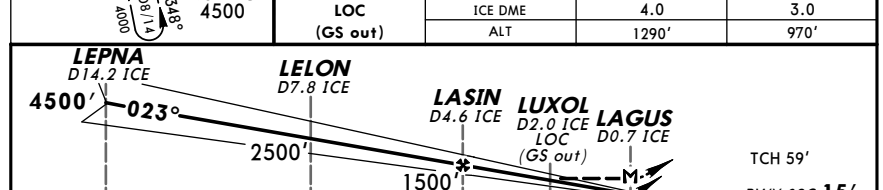
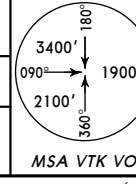
WSSS/SIN SINGAPORE, SINGAPORE
 CHANGI 29 JUL 05 (11-2) Eff 4 Aug ILS DME Rwy 02C

D-ATIS 128.6	SINGAPORE Approach (R) 120.3	SINGAPORE Arrival (R) 119.3	SINGAPORE Tower 118.6	Ground 124.3
LOC ICE 108.3	Final Apch Crs 023°	GS LEPNA 4500' (4485')	ILS DA(H) 215' (200')	Apt Elev 22' RWY 02C 15'

MISSED APCH: Climb to 3000' via heading 023° and VTK R-023 to NYLON (VTK R-023/D13.0) and hold or as directed by ATC.

Alt Set: hPa Rwy Elev: 1 hPa Trans level: FL 130 Trans alt: 11000'

1. RADAR required. 2. Simultaneous approaches authorized with Rwy 2R or 2L. 3. ILS DME co-located with glide slope. 4. Maritime vessels of variable heights in water north and south of Rwy. 5. For acft speed restrictions refer to ATC Singapore-1 or Singapore Area 10-1.



Gnd speed-Kts	70	90	100	120	140	160	ALSF-I	3000'	023°	VTK
GS	3.00°	377	484	538	646	753	PAPI	↑	via hdg	and 116.5

STRAIGHT-IN LANDING RWY02C		CIRCLE-TO-LAND	
ILS DA(H) 215' (200')	LOC (GS out) MDA(H) 420' (405') With LUXOL/D2.0 ICE	LOC (GS out) MDA(H) 660' (645') Without LUXOL/D2.0 ICE	
RVR 720m VIS 800m	1200m	RVR 720m VIS 800m	RVR 1500m VIS 1600m
RVR 1800m VIS 2000m		RVR 1800m VIS 2000m	2800m
		2400m	3200m

WSSS/SIN
CHANGI **JEPPESEN SINGAPORE, SINGAPORE**
29 JUL 05 (11-3) Eff 4 Aug ILS DME Rwy 20C

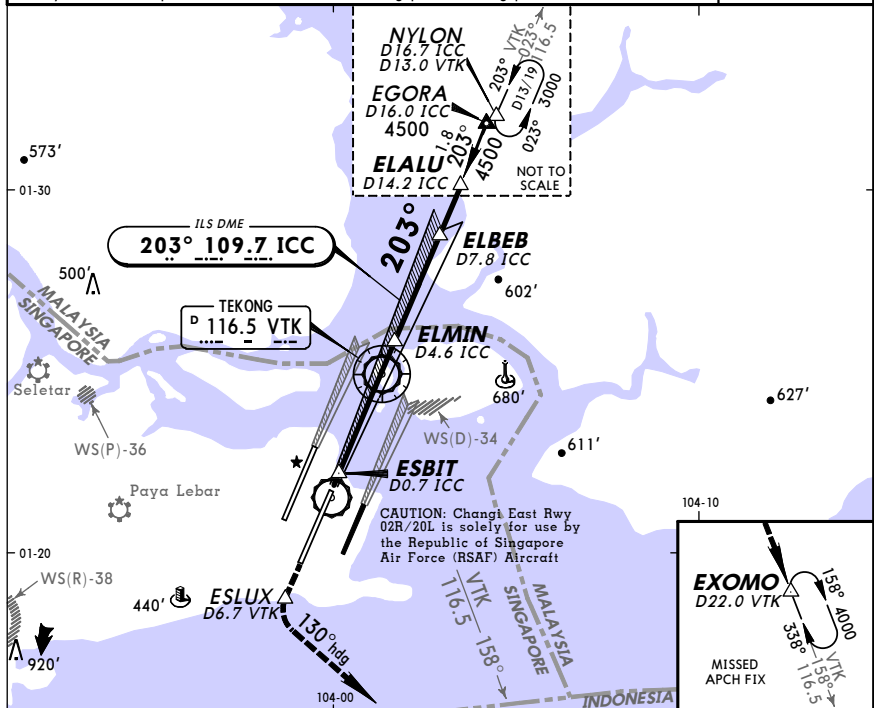
D-ATIS 128.6	SINGAPORE Approach (R) 120.3	SINGAPORE Arrival (R) 119.3	SINGAPORE Tower 118.6	Ground 124.3
LOC ICC 109.7	Final Apch Crs 203°	GS ELALU 4500' (4485')	ILS DA(H) 215' (200')	Apt Elev 22' RWY 20C 15'

MISSED APCH: Climb to 4000' via VTK R-203 to ESLUX (D6.7 VTK). At ESLUX (1000' or above) turn LEFT heading 130° to intercept VTK R-158 to EXOMO (VTK R-158/D22.0) and hold or as directed by ATC.

Alt Set: hPa Rwy Elev: 1 hPa Trans level: FL 130 Trans alt: 11000'

1. RADAR required. 2. Simultaneous approaches authorized with Rwy 20L or 20R. 3. ILS DME co-located with glide slope. 4. Maritime vessels of variable heights in water north and south of Rwy. 5. For acct speed restrictions refer to ATC Singapore-1 or Singapore Area 10-1.

MSA VTK VOR



LOC (GS out)	ICC DME ALTITUDE	2.0 650'	3.0 970'	4.0 1290'
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ELBEB D7.8 ICC ELALU D14.2 ICC

ESBIT D0.7 ICC ELMIN D4.6 ICC

TCH 58' RWY 20C 15'

0.5 3.9 1500' 3.2 6.4

Gnd speed-Kts	70	90	100	120	140	160	ALSF-II	4000'	VTK
GS	3.00°	377	484	538	646	753	861	PAPI	via 116.5
MAP at ESBIT/D0.7 ICC	3.9	3:21	2:36	2:20	1:57	1:40	1:28	REIL	R-203

STRAIGHT-IN LANDING RWY20C				CIRCLE-TO-LAND	
ILS DA(H) 215' (200')		LOC (GS out) MDA(H) 420' (405')		NA	
FULL	TDZ or CL out	ALS out			
A			RVR 720m VIS 800m	RVR 1500m VIS 1600m	A
B	RVR 550m VIS 800m	RVR 720m VIS 800m	1200m		B
C			1200m	RVR 1800m VIS 2000m	C
D					D

WSSS/SIN
CHANGI **JEPPESEN SINGAPORE, SINGAPORE**
29 JUL 05 (11-3A) Eff 4 Aug ILS DME Rwy 20C CAT II

D-ATIS 128.6	SINGAPORE Approach (R) 120.3	SINGAPORE Arrival (R) 119.3	SINGAPORE Tower 118.6	Ground 124.3
LOC ICC 109.7	Final Apch Crs 203°	GS ELALU 4500' (4485')	CAT II ILS RA 102' DA(H) 115' (100')	Apt Elev 22' RWY 20C 15'

MISSED APCH: Climb to 4000' via VTK R-203 to ESLUX (D6.7 VTK). At ESLUX (1000' or above) turn LEFT heading 130° to intercept VTK R-158 to EXOMO (VTK R-158/D22.0) and hold or as directed by ATC.

Alt Set: hPa Rwy Elev: 1 hPa Trans level: FL 130 Trans alt: 11000'

1. RADAR required. 2. Simultaneous approaches authorized with Rwy 20L or 20R. 3. ILS DME co-located with glide slope. 4. Maritime vessels of variable heights in water north and south of Rwy. 5. For acct speed restrictions refer to ATC Singapore-1 or Singapore Area 10-1.

MSA VTK VOR



RA 153' DA(H) 165' (150')	ELALU D14.2 ICC 4500'
RA 102' DA(H) 115' (100')	
TCH 58'	
RWY 20C 15'	

Gnd speed-Kts	70	90	100	120	140	160	ALSF-II	4000'	VTK
GS	3.00°	377	484	538	646	753	861	PAPI	via 116.5
								REIL	R-203

STRAIGHT-IN LANDING RWY20C		CAT II ILS	
RA 102' DA(H) 115' (100')		RA 153' DA(H) 165' (150')	
RVR 350m		RVR 500m	

WSSS/SIN
CHANGI

JEPPESEN SINGAPORE, SINGAPORE
29 JUL 05 (11-4) Eff 4 Aug ILS DME Rwy 20R

D-ATIS 128.6	SINGAPORE Approach (R) 120.3	SINGAPORE Arrival (R) 119.3	SINGAPORE Tower 118.6	Ground 124.3
LOC ICH 108.9	Final Apch Crs 203°	GS IGULA 3500' (3486')	ILS DA(H) 214' (200')	Apt Elev 22' RWY 20R 14'

MISSED APCH: Climb straight ahead to 5000'. On crossing SJ R-146, proceed direct SAMKO holding area and hold or as directed by ATC.

Alt Set: hPa Rwy Elev: 1 hPa Trans level: FL 130 Trans alt: 11000'

1. RADAR required. 2. Simultaneous approaches authorized with Rwy 20L or 20C. 3. ILS DME co-located with glide slope. 4. Maritime vessels of variable heights in water north and south of Rwy. 5. For acft speed restrictions refer to ATC Singapore-1 or Singapore Area 10-1.

MSA VTK VOR



LOC (GS out)	ICH DME	2.0	3.0	4.0
	ALTITUDE	650'	970'	1290'

Gnd speed-Kts	70	90	100	120	140	160	ALSF-I	5000'	SJ	
GS	3.00°	377	484	538	646	753	861			
MAP at IDUNA/D0.8 ICH	3.9	3:21	2:36	2:20	1:57	1:40	1:28			
MAP at IDUNA/D0.8 ICH										

FAF to MAP 3.9 3:21 2:36 2:20 1:57 1:40 1:28

MAP at IDUNA/D0.8 ICH

STRAIGHT-IN LANDING RWY20R

LOC (GS out)	ICH DME	2.0	3.0	4.0
	ALTITUDE	650'	970'	1290'

CIRCLE-TO-LAND

ALS out	RVR 720m	1200m	RVR 1500m	1600m
FULL	RVR 720m	1200m	RVR 1500m	1600m
ALS out	RVR 720m	1200m	RVR 1500m	1600m
FULL	RVR 720m	1200m	RVR 1500m	1600m

Timing not authorized when GS inop.

WSSS/SIN
CHANGI

JEPPESEN SINGAPORE, SINGAPORE
13 JUN 08 (12-1) RNAV (GNSS) Rwy 02L

D-ATIS 128.6	SINGAPORE Approach (R) 120.3	SINGAPORE Arrival (R) 119.3	SINGAPORE Tower 118.6	Ground 124.3
RNAV	Final Apch Crs 023°	Procedure Alt C02LF 2500' (2478')	LNAV/VNAV DA(H) 530' (508')	Apt Elev 22' Rwy 02L 22'

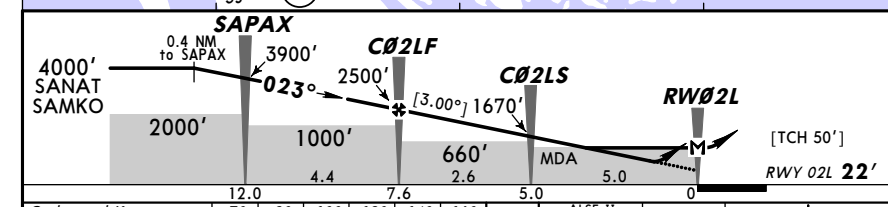
MISSED APCH: Climb to 1000', then climbing LEFT turn to 4000' via heading 335° and outbound PU VOR R-356 to AKOMA (PU VOR R-356/D20.0) and hold or as directed by ATC.

Alt Set: hPa Rwy Elev: 1 hPa Trans level: FL 130 Trans alt: 11000'

1. Minimum temperature for which Baro-VNAV operations are authorized: 15°C.

2. Maritime vessels of variable heights in water north and south of runway.

MSA VTK VOR



Gnd speed-Kts	70	90	100	120	140	160	ALSF-II	1000'	4000'	335°
Descent angle [3.00°]	372	478	531	637	743	849				
MAP at RWY02L	3.9	3:21	2:36	2:20	1:57	1:40				
C02LF to MAP	7.6	6:31	5:04	4:34	3:48	3:15	2:51			

MAP at RWY02L

C02LF to MAP

STRAIGHT-IN LANDING RWY02L

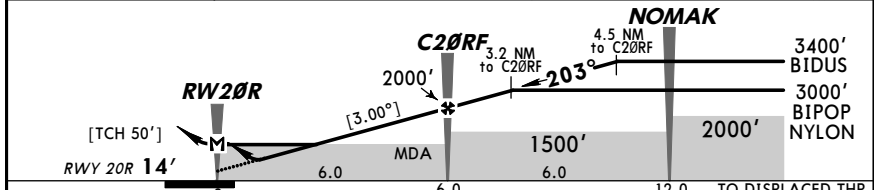
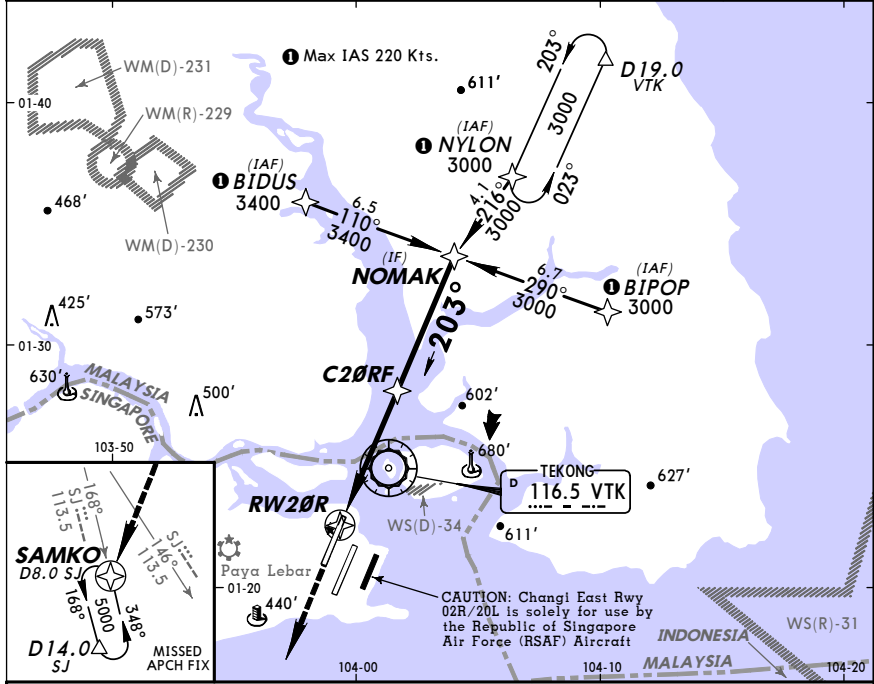
LOC (GS out)	ICH DME	2.0	3.0	4.0
	ALTITUDE	650'	970'	1290'

CIRCLE-TO-LAND

ALS out	RVR 720m	1200m	RVR 1500m	1600m
FULL	RVR 720m	1200m	RVR 1500m	1600m
ALS out	RVR 720m	1200m	RVR 1500m	1600m
FULL	RVR 720m	1200m	RVR 1500m	1600m

WSSS/SIN CHANGI 13 JUN 08 (12-2) **SINGAPORE, SINGAPORE**
RNAV (GNSS) Rwy 20R

D-ATIS	SINGAPORE Approach (R)	SINGAPORE Arrival (R)	SINGAPORE Tower	Ground
128.6	120.3	119.3	118.6	124.3
RNAV	Final Apch Crs 203°	Procedure Alt C20RF	LNAV/VNAV DA(H) 530' (516')	Apt Elev 22' Rwy 20R 14'
MISSED APCH: Climb STRAIGHT AHEAD to 5000'. On crossing SJ VOR R-146, proceed direct to SAMKO holding area and hold or as directed by ATC.				
Alt Set: hPa Rwy Elev: 1 hPa Trans level: FL 130 Trans alt: 11000' 1. Minimum temperature for which Baro-VNAV operations are authorized: 15°C. 2. Maritime vessels of variable heights in water north and south of runway.				
				MSA VTK VOR

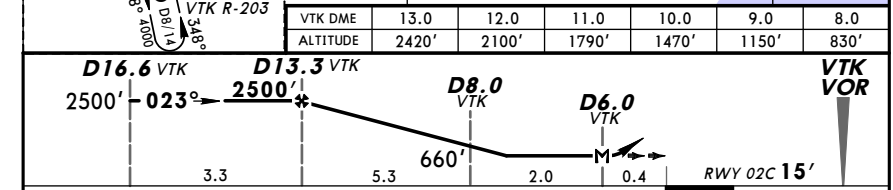


Gnd speed-Kts	70	90	100	120	140	160	ALS-I	5000'	SJ	cross	113.5	SAMKO
Descent angle [3.00°]	372	478	531	637	743	849	REIL PAPI					
MAP at RW20R							PAPI					
C20RF to MAP	6.0	5:09	4:00	3:36	3:00	2:34						

STRAIGHT-IN LANDING RWY20R				CIRCLE-TO-LAND			
LNAV/VNAV DA(H) 530' (516')		LNAV MDA(H) 580' (566')					
ALS out		ALS out					
A		RVR 720m VIS 800m	RVR 1500m VIS 1600m	A		NA	
B	2000m			B			
C		RVR 1500m VIS 1600m	2400m	C			
D		RVR 1800m VIS 2000m	2800m	D			

WSSS/SIN CHANGI 29 JUL 05 (13-1) **SINGAPORE, SINGAPORE**
VOR DME Rwy 02C Eff 4 Aug

D-ATIS	SINGAPORE Approach (R)	SINGAPORE Arrival (R)	SINGAPORE Tower	Ground
128.6	120.3	119.3	118.6	124.3
VOR VTK 116.5	Final Apch Crs 023°	Minimum Alt D13.3 VTK	MDA(H) (CONDITIONAL) 410' (395')	Apt Elev 22' RWY 02C 15'
MISSED APCH: Climb to 3000' via heading 023° and VTK R-023 to NYLON (VTK R-023/D13.0) and hold or as directed by ATC.				
Alt Set: hPa Rwy Elev: 1 hPa Trans level: FL 130 Trans alt: 11000' 1. Maritime vessels of variable heights in water north and south of Rwy. 2. For aircraft speed restrictions refer to ATC Singapore-1 or Singapore Area 10-1.				
				MSA VTK VOR



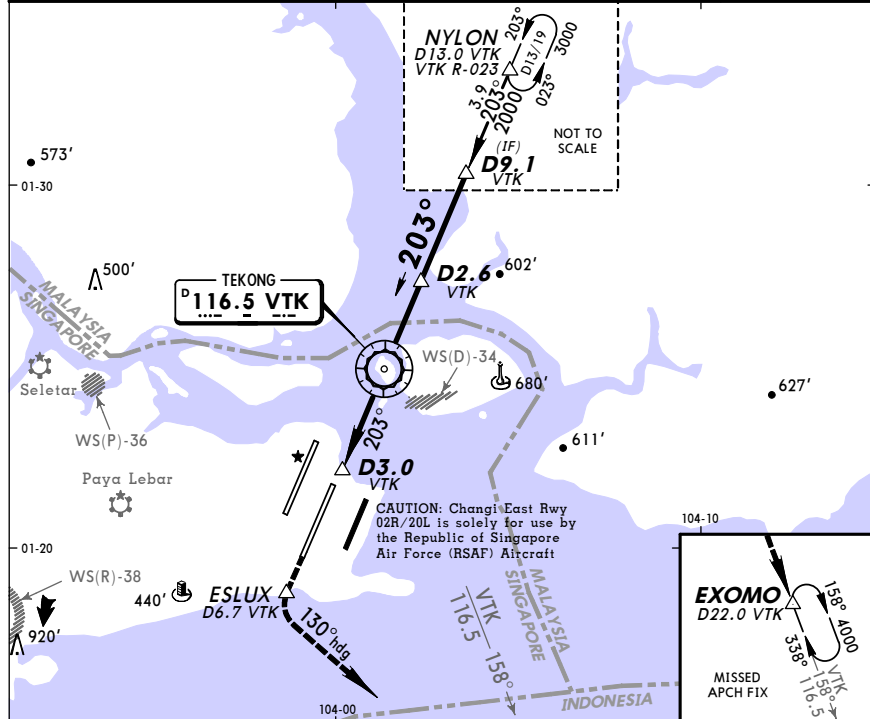
Gnd speed-Kts	70	90	100	120	140	160	ALS-I	3000'	VTK	023°	VTK	116.5	NYLON
Descent Gradient 5.2%	369	474	527	632	737	843	PAPI						
MAP at D6.0 VTK							REIL						
FAF to MAP	7.3	6:15	4:52	4:23	3:39	3:08							

STRAIGHT-IN LANDING RWY 02C			
MDA(H) 410' (395') With D8.0 VTK		MDA(H) 660' (645') Without D8.0 VTK	
ALS out		ALS out	
A		RVR 720m VIS 800m	RVR 1500m VIS 1600m
B			
C		RVR 1800m VIS 2000m	2800m
D		RVR 1500m VIS 1600m	3200m

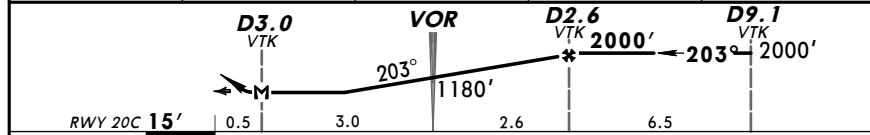
WSSS/SIN
CHANGI

JEPPESEN SINGAPORE, SINGAPORE
29 JUL 05 (13-2) **Eff 4 Aug** **VOR DME Rwy 20C**

D-ATIS 128.6	SINGAPORE Approach (R) 120.3	SINGAPORE Arrival (R) 119.3	SINGAPORE Tower 118.6	Ground 124.3
VOR VTK 116.5	Final Apch Crs 203°	Minimum Alt D2.6 VTK 2000' (1985')	MDA(H) 580' (565')	Apt Elev 22' RWY 20C 15'
<p>MISSED APCH: Climb to 4000' via VTK R-203 to ESLUX (D6.7 VTK). At ESLUX (1000' or above) turn LEFT heading 130° to intercept VTK R-158 to EXOMO (VTK R-158/D22.0) and hold or as directed by ATC.</p>				<p>MSA VTK VOR</p>
<p>Alt Set: hPa Rwy Elev: 1 hPa Trans level: FL 130 Trans alt: 11000'</p> <p>1. Maritime vessels of variable heights in water north and south of Rwy. 2. For aircraft speed restrictions refer to ATC Singapore-1 or Singapore Area 10-1.</p>				



VTK DME	D1.0 AFTER VTK	VTK	D1.0 BEFORE VTK	D2.0 BEFORE VTK
ALTITUDE	860'	1180'	1500'	1820'



Gnd speed-Kts	70	90	100	120	140	160	ALSF-II PAPI REIL 4000' VTK via 116.5 R-203 ESLUX
Descent Gradient 5.2%	369	474	527	632	737	843	
MAP at D3.0 VTK							
FAF to MAP	5.6	4:48	3:44	3:22	2:48	2:24	2:06

STRAIGHT-IN LANDING RWY 20C
MDA(H) **580'** (565')

		ALS out
A	RVR 720m VIS 800m	RVR 1500m VIS 1600m
B		
C	RVR 1500m VIS 1600m	2400m
D	RVR 1800m VIS 2000m	2800m

BRIEFING STRIP

PANS OPS