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eAIP

AMDT
06/2016
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10 NOV 2016
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10 NOV 2016

wp-AMDT-2016-06

1. SIGNIFICANT INFORMATION AND CHANGES

1.1 Singapore Changi Airport (WSSS)

a. Changes in speed control procedure for arrivals

b. Relocation of Runway 02C/20C localizers

c. Changes in Procedure Design Gradient (PDG) for Runway 20C and Runway 20R Standard Instrument Departures (SIDs) ADMIM, ANITO, AROSO, BAVUS, KADAR, MASBO, TOMAN, VENIX and VMR

d. Changes in Missed Approach Climb Gradient for Runway 20C Instrument Approach Procedure (IAP) ICC ILS/DME and Runway 20R IAP ICH ILS/DME

2. THIS AMENDMENT INCORPORATES INFORMATION CONTAINED IN THE FOLLOWING WHICH ARE HEREBY SUPERSEDED:

NOTAMS:
A2256/16 dated 19/09/16
A2388/16 dated 30/09/16
A2520/16 dated 18/10/16

AIP Supplements:
076/2016 dated 01/09/16
087/2016 dated 17/10/16

Amended Pages

GEN 0.1-1/2: *: replace.*
GEN 0.2-1: *: replace.*
GEN 0.3-1/2: *: replace.*
GEN 0.3-3/4: *: replace.*
GEN 0.3-5/6: *: replace.*
GEN 0.6-1/2: *: replace.*
GEN 1.1-1/2: *: replace.*
GEN 1.7-1/2: *: replace.*
GEN 1.7-3/4: *: replace.*
GEN 1.7-5: *: replace.*
GEN 2.2-1/2: *: replace.*
GEN 2.2-3/4: *: replace.*
GEN 2.2-5: *: replace.*
GEN 3.1-3/4: *: replace.*
GEN 3.2-3/4: *: replace.*
ENR 0.6-1/2: *: replace.*
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ENR 3.1-3/4: *: replace.*

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ENR 3.1-11/12: *: replace.*
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ENR 4.4-1/2: *: replace.*
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AD 2.WSSS-13/14: *: replace.*
AD 2.WSSS-19/20: *: replace.*
AD 2.WSSS-21/22: *: replace.*
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AD 2.WSSS-41/42: *: replace.*
AD 2.WSSS-49/50: *: replace.*
AD 2.WSSS-51/52: *: replace.*
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AD-2-WSSS-SID-1 to 1.1: *: replace.*
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AD-2-WSSS-SID-3 to 3.1: *: replace.*
AD-2-WSSS-SID-4 to 4.1: *: replace.*
AD-2-WSSS-SID-5 to 5.1: *: replace.*
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AD 2.WSAT-5/6: *: replace.*

Part 1 — General (GEN)

GEN 0

GEN 0.1 PREFACE

1 Name of the publishing authority

AIP Singapore is published by authority of the Civil Aviation Authority of Singapore.

2 Applicable ICAO documents

The AIP is prepared in accordance with the Standards and Recommended Practices (SARPs) of Annex 15 to the Convention on International Civil Aviation and the *Aeronautical Information Services Manual* (ICAO Doc 8126). Charts contained in the AIP are produced in accordance with Annex 4 to the Convention on International Civil Aviation and with the *Aeronautical Chart Manual* (ICAO Doc 8697). Differences from ICAO Standards, Recommended Practices and Procedures are given in subsection GEN 1.7.

3 The AIP structure and established regular amendment interval

3.1 The AIP structure

The AIP forms part of the Integrated Aeronautical Information Package, details of which are given in subsection GEN 3.1. The principal AIP structure is shown in graphic form on page GEN 0.1-3.

The AIP is made up of three Parts, General (GEN), En-route (ENR) and Aerodromes (AD), each divided into sections and subsections as applicable, containing various types of information.

3.1.1 *PART 1 — GENERAL (GEN)*

Part 1 consists of five sections containing information briefly described hereafter.

- GEN 0 - Preface; Record of AIP Amendments; Record of current AIP Supplements; Checklist of AIP pages; List of hand amendments to the AIP; and Table of Contents to Part 1.
- GEN 1 - *National regulations and requirements* - Designated authorities; Entry, transit and departure of aircraft; Entry, transit and departure of passengers and crew; Entry, transit and departure of cargo; Aircraft instruments, equipment and flight documents; Summary of national regulations and international agreements/conventions; and Differences from ICAO Standards, Recommended Practices and Procedures.
- GEN 2 - *Tables and codes* - Measuring system, aircraft markings, holidays; Abbreviations used in AIS publications; Chart symbols; Location indicators; List of radio navigation aids; Conversion tables; and Sunrise/Sunset tables.
- GEN 3 - *Services* - Aeronautical Information Services; Aeronautical Charts; Air Traffic Services; Communication Services; Meteorological Services; and Search and Rescue.
- GEN 4 - *Charges for aerodromes and air navigation services* - Aerodrome charges and Air navigation services charges.

3.1.2 *PART 2 — EN-ROUTE (ENR)*

Part 2 consists of seven sections containing information briefly described hereafter.

- ENR 0 - Table of Contents to Part 2.
- ENR 1 - *General rules and procedures* - General rules; Visual flight rules; Instrument flight rules; ATS airspace classification; Holding, approach and departure procedures; Radar services and procedures; Altimeter setting procedures; Regional supplementary procedures; Air traffic flow management; Flight planning; Addressing of flight plan messages; Interception of civil aircraft; Unlawful interference; and Air traffic incidents.
- ENR 2 - *Air traffic services airspace* - Detailed description of Flight Information Region (FIR); Terminal Control Areas (TMA); and other regulated airspace.

ENR 3 - *ATS routes* - Detailed description of ATS routes; Area Navigation Routes; Helicopter Routes; other routes; and en-route holding.

Note - Other types of routes which are specified in connection with procedures for traffic to and from aerodromes are described in the relevant sections and subsections of Part 3 - Aerodromes.

ENR 4 - *Radio navigation aids/systems* - Radio navigation aids - en-route; special navigation systems; name-code designators for significant points; and aeronautical ground lights - en-route.

ENR 5 - *Navigation warnings* - Prohibited, restricted and danger areas; military exercise and training areas; other activities of a dangerous nature; air navigation obstacles - en-route; aerial sporting and recreational activities; and bird migration and areas with sensitive fauna.

ENR 6 - *En-route charts* - En-route Chart - ICAO.

3.1.3 *PART 3 - AERODROMES (AD)*

Part 3 consists of three sections containing information briefly described hereafter.

AD 0 - Table of Contents to Part 3.

AD 1 - *Aerodromes* - Introduction - Aerodromes availability; Rescue and fire fighting services; Index to aerodromes; and Grouping of aerodromes.

AD 2 - *Aerodromes* - Detailed information about aerodromes listed under 24 sub-sections.

AD 3 - This section has been omitted as there are no heliports in Singapore.

3.2 Regular Amendment Interval

Regular amendments to AIP Singapore will be issued once every two months. The publication dates will be on alternate AIRAC effective dates as follows:

Amendment Nr	Publication Date
01/2017	05 January 2017
02/2017	02 March 2017
03/2017	27 April 2017
04/2017	22 June 2017
05/2017	17 August 2017
06/2017	12 October 2017
07/2017	07 December 2017

4 Service to contact in case of detected AIP errors or omissions

In the compilation of the AIP, care has been taken to ensure that the information contained therein is accurate and complete. Any errors and omissions which may nevertheless be detected, as well as any enquiries or suggestions concerning the Integrated Aeronautical Information Package, should be referred to:

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GEN 0.2 RECORD OF AIP AMENDMENTS

AIP AMENDMENT

NR/Year	*Publication date*	*Date inserted*	*Inserted by*
5/2014	18 SEP 2014	18 SEP 2014	
6/2014	13 NOV 2014	13 NOV 2014	
1/2015	08 JAN 2015	08 JAN 2015	
2/2015	05 MAR 2015	05 MAR 2015	
3/2015	30 APR 2015	30 APR 2015	
4/2015	25 JUN 2015	25 JUN 2015	
5/2015	20 AUG 2015	20 AUG 2015	
6/2015	15 OCT 2015	15 OCT 2015	
07/2015	10 DEC 2015	10 DEC 2015	
01/2016	04 FEB 2016	04 FEB 2016	
02/2016	31 MAR 2016	31 MAR 2016	
03/2016	26 MAY 2016	26 MAY 2016	
04/2016	21 JUL 2016	21 JUL 2016	
05/2016	15 SEP 2016	15 SEP 2016	
06/2016	10 NOV 2016	10 NOV 2016	

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GEN 0.3 RECORD OF CURRENT AIP SUPPLEMENTS

NR/Year	*Subject*	*AIP section(s) affected*	*Period of validity (from/to)*	*Cancellation record*
1/2014	Paya Lebar AP - Luffer Cranes	AD	*03 JAN 2014 / 31 DEC 2016*	
2/2014	Paya Lebar AP - Luffer Cranes	AD	*03 JAN 2014 / 31 DEC 2016*	
3/2014	Paya Lebar AP - Luffer Cranes	AD	*03 JAN 2014 / 31 DEC 2016*	
4/2014	Paya Lebar AP - Topless Cranes	AD	*03 JAN 2014 / 31 DEC 2016*	
5/2014	Paya Lebar AP - Topless Cranes	AD	*03 JAN 2014 / 31 DEC 2016*	
218/2014	Paya Lebar AP - Luffer Cranes	AD	*01 AUG 2014 / 30 DEC 2017*	
219/2014	Paya Lebar AP - Luffer Cranes	AD	*01 AUG 2014 / 31 DEC 2017*	
220/2014	Paya Lebar AP - Hammerhead and Luffer Cranes	AD	*01 AUG 2014 / 31 DEC 2017*	
221/2014	Paya Lebar AP - Luffer Crane	AD	*01 AUG 2014 / 31 DEC 2017*	
222/2014	Paya Lebar AP - Luffer Cranes	AD	*01 AUG 2014 / 31 DEC 2017*	
238/2014	Paya Lebar AP - Luffer Cranes	AD	*01 AUG 2014 / 01 DEC 2016*	
239/2014	Paya Lebar AP - Topless Cranes	AD	*01 AUG 2014 / 31 DEC 2016*	
240/2014	Paya Lebar AP - Topless Cranes	AD	*01 AUG 2014 / 31 DEC 2016*	
241/2014	Paya Lebar AP - Luffer Cranes	AD	*01 AUG 2014 / 31 DEC 2016*	
242/2014	Paya Lebar AP - Topless Cranes	AD	*01 AUG 2014 / 31 DEC 2016*	
380/2014	Paya Lebar AP - Hammerhead and Topless Cranes	AD	*01 DEC 2014 / 31 DEC 2016*	
381/2014	Paya Lebar AP - Topless Cranes / A Frames	AD	*01 DEC 2014 / 31 DEC 2016*	
382/2014	Paya Lebar AP - Topless Cranes	AD	*01 DEC 2014 / 31 DEC 2016*	
383/2014	Paya Lebar AP - Luffer and Hammerhead Canes	AD	*01 DEC 2014 / 31 DEC 2016*	
384/2014	Paya Lebar AP - Topless and Hammerhead Cranes	AD	*01 DEC 2014 / 31 DEC 2016*	
21/2015	Paya Lebar AP - Saddle Crane	AD	*02 JAN 2015 / 04 DEC 2017*	
22/2015	Paya Lebar AP - Luffer Cranes	AD	*02 JAN 2015 / 09 DEC 2017*	
23/2015	Paya Lebar AP - Topless Cranes	AD	*02 JAN 2015 / 31 DEC 2017*	
24/2015	Paya Lebar AP - Luffer Crane	AD	*02 JAN 2015 / 31 DEC 2017*	
25/2015	Paya Lebar AP - Hammerhead Cranes	AD	*02 JAN 2015 / 31 DEC 2017*	
27/2015	Singapore Changi AP - Work activities due to construction of new aircraft stands and modification of engine run-up bays at East Cargo Area	AD	*12 JAN 2015 / 31 MAR 2017*	
29/2015	Paya Lebar AP - Mobile Cranes	AD	*02 FEB 2015 / 01 JAN 2017*	

NR/Year	Subject	AIP section(s) affected	Period of validity (from/to)	Cancellation record
30/2015	Paya Lebar AP - Luffer Cranes	AD	*02 FEB 2015 / 02 JAN 2017*	
31/2015	Paya Lebar AP - Topless Cranes	AD	*02 FEB 2015 / 03 JAN 2017*	
32/2015	Paya Lebar AP - Luffer Crane	AD	*02 FEB 2015 / 31 JAN 2017*	
33/2015	Paya Lebar AP - Luffer Crane and Topless Cranes	AD	*02 FEB 2015 / 31 JAN 2017*	
62/2015	Paya Lebar AP - Topless Cranes	AD	*16 APR 2015 / 31 DEC 2016*	
68/2015	Paya Lebar AP - Luffer Crane	AD	*16 APR 2015 / 07 JUL 2017*	
69/2015	Paya Lebar AP - Tower Cranes	AD	*16 APR 2015 / 31 JUL 2017*	
70/2015	Paya Lebar AP - Luffer Cranes and Saddle Cranes	AD	*16 APR 2015 / 19 AUG 2017*	
71/2015	Paya Lebar AP - Tower Cranes	AD	*16 APR 2015 / 10 SEP 2017*	
72/2015	Paya Lebar AP - Tower Cranes	AD	*16 APR 2015 / 10 SEP 2017*	
73/2015	Paya Lebar AP - Saddle Cranes	AD	*16 APR 2015 / 09 OCT 2017*	
74/2015	Paya Lebar AP - Topless Cranes and Luffer Crane	AD	*16 APR 2015 / 31 DEC 2017*	
75/2015	Paya Lebar AP - Hydraulic Crawler Cranes	AD	*16 APR 2015 / 07 JAN 2018*	
76/2015	Paya Lebar AP - Tower Cranes	AD	*16 APR 2015 / 31 MAR 2018*	
77/2015	Paya Lebar AP - Saddle Cranes	AD	*16 APR 2015 / 01 MAY 2018*	
78/2015	Paya Lebar AP - Tower Cranes	AD	*16 APR 2015 / 01 MAR 2017*	
79/2015	Paya Lebar AP - Hammerhead Cranes	AD	*16 APR 2015 / 04 MAR 2017*	
80/2015	Paya Lebar AP - Topless Cranes	AD	*16 APR 2015 / 01 APR 2017*	
81/2015	Paya Lebar AP - Hammerhead Cranes	AD	*16 APR 2015 / 29 APR 2017*	
82/2015	Paya Lebar AP - Topless Cranes	AD	*16 APR 2015 / 10 MAY 2017*	
83/2015	Paya Lebar AP - Luffer Cranes	AD	*16 APR 2015 / 01 FEB 2017*	
84/2015	Paya Lebar AP - Hammerhead Cranes	AD	*16 APR 2015 / 28 FEB 2017*	
85/2015	Paya Lebar AP - Crane	AD	*16 APR 2015 / 28 FEB 2017*	
86/2015	Paya Lebar AP - Luffer Crane	AD	*16 APR 2015 / 28 FEB 2017*	
87/2015	Sembawang AP -Hammerhead Cranes	AD	*16 APR 2015 / 01 FEB 2017*	
109/2015	Singapore Changi AP - Shortening of Runway 20C approach lighting to 720m to facilitate the construction of the northern end-around-taxiway	AD	*02 OCT 2015 / 31 OCT 2018*	
116/2015	Paya Lebar AP - Luffer Crane	AD	*01 JUL 2015 / 14 NOV 2016*	
117/2015	Paya Lebar AP - Crane	AD	*01 JUL 2015 / 30 NOV 2016*	
118/2015	Paya Lebar AP - Tower Cranes	AD	*01 JUL 2015 / 31 DEC 2016*	

NR/Year	Subject	AIP section(s) affected	Period of validity (from/to)	Cancellation record
119/2015	Paya Lebar AP - Luffer Cranes	AD	*01 JUL 2015 / 31 DEC 2016*	
120/2015	Paya Lebar AP - Topless Tower Cranes	AD	*01 JUL 2015 / 01 APR 2017*	
121/2015	Paya Lebar AP - Luffer Crane	AD	*01 JUL 2015 / 01 JUN 2017*	
122/2015	Paya Lebar AP - Topless Cranes	AD	*01 JUL 2015 / 30 JUN 2017*	
123/2015	Paya Lebar AP - Topless Cranes	AD	*01 JUL 2015 / 30 JUN 2017*	
124/2015	Paya Lebar AP - Luffer Cranes	AD	*01 JUL 2015 / 30 JUN 2017*	
125/2015	Paya Lebar AP - Luffer Crane	AD	*01 JUL 2015 / 01 JUL 2017*	
126/2015	Paya Lebar AP - Luffer Crane	AD	*01 JUL 2015 / 30 DEC 2017*	
127/2015	Tengah AD - Topless Cranes and Luffer Crane	AD	*01 SEP 2015 / 31 AUG 2017*	
128/2015	Tengah AD - Topless Cranes	AD	*01 SEP 2015 / 31 AUG 2017*	
129/2015	Tengah AD - Luffer Crane	AD	*01 JUL 2015 / 31 DEC 2017*	
130/2015	Sembawang AD - Luffer Cranes	AD	*01 JUL 2015 / 31 DEC 2017*	
131/2015	Paya Lebar AP - Topless Cranes	AD	*01 JUL 2015 / 31 DEC 2017*	
132/2015	Paya Lebar AP - Cranes	AD	*01 JUL 2015 / 12 APR 2018*	
133/2015	Paya Lebar AP - Luffer Crane and Topless Crane	AD	*01 JUL 2015 / 30 JUN 2018*	
134/2015	Paya Lebar AP - Luffer Cranes	AD	*01 JUL 2015 / 30 JUN 2018*	
135/2015	Tengah AD - Luffer Cranes	AD	*01 JUL 2015 / 30 JUN 2018*	
138/2015	Paya Lebar AP- Luffer Crane	AD	*03 AUG 2015 / 30 JUN 2017*	
139/2015	Paya Lebar AP- Topless Cranes and Luffer Crane	AD	*03 AUG 2015 / 30 JUN 2017*	
140/2015	Paya Lebar AP - Luffer Cranes	AD	*03 AUG 2015 / 30 DEC 2017*	
141/2015	Paya Lebar AP - Saddle Crane	AD	*03 AUG 2015 / 30 DEC 2017*	
142/2015	Paya Lebar AP - Topless Cranes	AD	*03 AUG 2015 / 31 AUG 2018*	
155/2015	Paya Lebar AP - Luffer Crane	AD	*21 SEP 2015 / 31 MAY 2017*	
156/2015	Paya Lebar AP - Topless Cranes	AD	*21 SEP 2015 / 01 JUN 2017*	
157/2015	Paya Lebar AP- Luffer Crane	AD	*21 SEP 2015 / 14 AUG 2017*	
158/2015	Paya Lebar AP - Hammerhead and Luffer Cranes	AD	*21 SEP 2015 / 30 JUN 2017*	
159/2015	Paya Lebar AP - Luffer Cranes	AD	*21 SEP 2015 / 31 JUL 2017*	
160/2015	Paya Lebar AP - Luffer Cranes	AD	*21 SEP 2015 / 15 AUG 2018*	
161/2015	Paya Lebar AP - Luffer Cranes	AD	*21 SEP 2015 / 01 SEP 2018*	
162/2015	Sembawang AD - Topless Cranes	AD	*31 OCT 2015 / 31 OCT 2018*	

NR/Year	Subject	AIP section(s) affected	Period of validity (from/to)	Cancellation record
004/2016	Singapore Changi Airport - Shortening of Runway 02C Approach Lighting System to 810M to Facilitate southern End-Round-Taxiway Construction	AD	*01 JUN 2016 / 30 APR 2020*	
015/2016	Paya Lebar AP - Mobile Crane	AD	*04 MAR 2016 / 23 NOV 2016*	
016/2016	Paya Lebar AP - Crawler Crane	AD	*04 MAR 2016 / 30 NOV 2016*	
017/2016	Paya Lebar AP - Topless Cranes	AD	*04 MAR 2016 / 31 JAN 2017*	
018/2016	Paya Lebar AP - Luffer Crane	AD	*04 MAR 2016 / 31 DEC 2016*	
019/2016	Sembawang AD - Luffer and Topless Cranes	AD	*04 MAR 2016 / 31 DEC 2016*	
020/2016	Paya Lebar AP - Topless Crane	AD	*04 MAR 2016 / 31 DEC 2016*	
021/2016	Paya Lebar AP - Crawler Cranes	AD	*04 MAR 2016 / 31 DEC 2016*	
022/2016	Sembawang AD - Tower Cranes and Piling Rigs	AD	*04 MAR 2016 / 20 JAN 2017*	
023/2016	Paya Lebar AP - Topless Cranes and Luffer Cranes	AD	*04 MAR 2016 / 31 JAN 2017*	
024/2016	Paya Lebar AP - Luffer Crane	AD	*04 MAR 2016 / 31 JAN 2017*	
025/2016	Paya Lebar AP - Luffer Cranes	AD	*04 MAR 2016 / 31 DEC 2017*	
026/2016	Paya Lebar AP - Topless Cranes	AD	*04 MAR 2016 / 31 DEC 2017*	
027/2016	Paya Lebar AP - Topless Cranes and Luffer Cranes	AD	*04 MAR 2016 / 31 DEC 2017*	
028/2016	Paya Lebar AP - Tower Cranes	AD	*04 MAR 2016 / 26 MAR 2018*	
029/2016	Paya Lebar AP - Luffer Cranes	AD	*04 MAR 2016 / 01 JUN 2018*	
030/2016	Paya Lebar AP - Saddle Cranes	AD	*04 MAR 2016 / 17 JUN 2018*	
031/2016	Paya Lebar AP - Saddle Cranes	AD	*04 MAR 2016 / 31 DEC 2018*	
032/2016	Paya Lebar AP - Luffer Crane	AD	*04 MAR 2016 / 31 DEC 2018*	
033/2016	Paya Lebar AP - Luffer Crane	AD	*04 MAR 2016 / 31 DEC 2018*	
034/2016	Paya Lebar AP - Saddle Cranes	AD	*04 MAR 2016 / 31 DEC 2018*	
036/2016	Paya Lebar AP - Luffer Crane	AD	*04 MAR 2016 / 01 AUG 2017*	
037/2016	Paya Lebar AP - Mobile Cranes and Crawler Cranes	AD	*04 MAR 2016 / 07 JAN 2018*	
039/2016	Paya Lebar AP - Topless Cranes	AD	*04 MAR 2016 / 31 JAN 2019*	
044/2016	Singapore Changi Airport -Construction of New Aircraft Stands 605 and 600 at East Cargo Area	AD	*03 MAY 2016 / 30 NOV 2016*	
047/2016	Seletar Airport - Construction of New Sunken Glide Path Building, Service Road and Associated Works at Northeast Apron	AD	*14 JUL 2016 / 01 JUL 2017*	
049/2016	Paya Lebar AP - Implementation of RNAV (GNSS) Approach Procedures for Runway 02 and Runway 20	AD	*15 SEP 2016* UFN	

NR/Year	Subject	AIP section(s) affected	Period of validity (from/to)	Cancellation record
051/2016	Paya Lebar AP - Crawler Crane and Piling Rig	AD	*04 AUG 2016 / 14 DEC 2016*	
052/2016	Paya Lebar AP - Obstacles	AD	*04 AUG 2016 / 31 DEC 2016*	
053/2016	Paya Lebar AP - Luffer Crane	AD	*04 AUG 2016 / 30 MAR 2017*	
054/2016	Paya Lebar AP - Crawler Cranes	AD	*04 AUG 2016 / 22 MAY 2017*	
055/2016	Paya Lebar AP - Mobile Crane and Crawler Crane	AD	*04 AUG 2016 / 30 JUN 2017*	
056/2016	Paya Lebar AP - Mobile Crane and Crawler Cranes	AD	*04 AUG 2016 / 30 JUL 2017*	
057/2016	Paya Lebar AP - Mobile Crane	AD	*04 AUG 2016 / 31 JUL 2017*	
058/2016	Paya Lebar AP - Saddle Cranes	AD	*04 AUG 2016 / 15 NOV 2017*	
059/2016	Paya Lebar AP - Luffer Crane	AD	*04 AUG 2016 / 31 DEC 2017*	
060/2016	Paya Lebar AP - Luffer Crane	AD	*04 AUG 2016 / 31 MAY 2018*	
061/2016	Paya Lebar AP - Luffer Crane and Topless Crane	AD	*04 AUG 2016 / 29 JUN 2018*	
062/2016	Paya Lebar AP - Luffer Cranes	AD	*04 AUG 2016 / 31 JUL 2018*	
063/2016	Paya Lebar AP - Topless Cranes	AD	*04 AUG 2016 / 31 DEC 2018*	
064/2016	Paya Lebar AP - Topless Cranes	AD	*04 AUG 2016 / 31 DEC 2018*	
065/2016	Paya Lebar AP - Luffer Crane	AD	*04 AUG 2016 / 31 DEC 2018*	
066/2016	Paya Lebar AP - Piling Rig and Crawler Crane	AD	*04 AUG 2016 / 01 AUG 2018*	
067/2016	Paya Lebar AP - Topless Cranes and Luffer Crane	AD	*04 AUG 2016 / 31 MAR 2019*	
068/2016	Paya Lebar AP - Topless Cranes and Luffer Cranes	AD	*04 AUG 2016 / 01 JUN 2019*	
069/2016	Paya Lebar AP - Saddle Cranes	AD	*04 AUG 2016 / 30 JUN 2019*	
070/2016	Paya Lebar AP - Luffer Cranes and Topless Cranes	AD	*04 AUG 2016 / 31 DEC 2019*	
071/2016	Paya Lebar AP - Luffer Crane	AD	*04 AUG 2016 / 31 DEC 2016*	
072/2016	Paya Lebar AP - Saddle Cranes	AD	*04 AUG 2016 / 10 MAR 2017*	
073/2016	Paya Lebar AP - Crawler Cranes	AD	*04 AUG 2016 / 22 MAY 2017*	
074/2016	Paya Lebar AP - Luffer Cranes	AD	*04 AUG 2016 / 04 JUL 2017*	
075/2016	Paya Lebar AP - Topless Cranes	AD	*04 AUG 2016 / 31 OCT 2017*	
079/2016	Singapore Changi AP - Introduction of new aircraft stand 461; new multiple aircraft receiving stands (MARS) 462, 463; and new taxiway S1 connecting to existing taxiways U3 WA, WP and W10	AD	*30 NOV 2016* UFN	
081/2016	Singapore Changi AP - Operational Trials for Simultaneous Independent Parallel Approaches	AD	*23 SEP 2016 / 04 JAN 2017*	

NR/Year	*Subject*	*AIP section(s) affected*	*Period of validity (from/to)*	*Cancellation record*
083/2016	Singapore Changi AP - Implementation of Airport Collaborative decision Making (A-CDM)	AD	*31 OCT 2016* UFN	
084/2016	Singapore Changi AP - Works schedule and movement area restrictions pertaining to runway resurfacing works, diversion of airside services and soil improvement works	AD	*29 OCT 2016* */ 24 MAR 2017*	
085/2016	Singapore Changi AP - Air Traffic Flow Management (ATFM) operations during November - December 2016	AD	*04 NOV 2016* */ 30 DEC 2016*	
086/2016	Singapore Changi AP - Opening of New Multiple Aircraft Receiving Stand (MARS) 600	AD	*30 NOV 2016* UFN	
088/2016	Singapore Changi AP - Revision to Aircraft Stand D42 and Opening of New Aircraft Stands D42L and D42R at Terminal 1	AD	*24 OCT 2016* UFN	
089/2016	Seletar AP- Partial closure of Taxiway EC and Taxiway EC2 due to new aircraft stands and service road construction and associated works	AD	*01 NOV 2016* */ 31 MAR 2018*	

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GEN 0.6 TABLE OF CONTENTS TO PART 1

GEN 1 NATIONAL REGULATIONS AND REQUIREMENTS

GEN 1.1 DESIGNATED AUTHORITIES

The authority responsible for civil aviation in Singapore is the Civil Aviation Authority of Singapore under the Ministry of Transport. The addresses of the designated authorities concerned with facilitation of international air navigation are as follows:

1 CIVIL AVIATION

Post:
CIVIL AVATION AUTHORITY OF SINGAPORE
SINGAPORE CHANGI AIRPORT, P.O. BOX 1
SINGAPORE 918141
Tel: (65) 65421122
Fax: (65) 65421231
AFS: WSSSYAYX
URL: www.caas.gov.sg

2 METEOROLOGY

Post:
DIRECTOR-GENERAL METEOROLOGICAL SERVICE DIVISION
Singapore Changi Airport, P.O. Box 8
SINGAPORE 918141
Tel: (65) 65457190
Fax: (65) 65457192
AFS: WSSSYMYX
URL: www.weather.gov.sg

3 CUSTOMS

Post:
CUSTOMS AND EXCISE
World Trade Centre, 1 Maritime Square, #03-01 / #10-01
SINGAPORE 099253
Tel: (65) 62728222
Fax: (65) 63752090
URL: www.customs.gov.sg

4 IMMIGRATION

Post:
IMMIGRATION & CHECKPOINTS AUTHORITY
10 Kallang Road, #08-00 ICA Building
SINGAPORE 208718
Tel: (65) 63916100
Fax: (65) 62980837
URL: www.ica.gov.sg

5 HEALTH

Post:
MINISTRY OF ENVIRONMENT
ENVIRONMENTAL PUBLIC HEALTH DIVISION
Environment Building, 40 Scotts Road
SINGAPORE 228231
Tel: (65) 67327733
Fax: (65) 67319456
URL: www.moh.gov.sg

6 ENROUTE AND AERODROME CHARGES

Post:
CIVIL AVIATION AUTHORITY OF SINGAPORE
Singapore Changi Airport P.O. Box 1
SINGAPORE 918141
Tel: (65) 65421122
Fax: (65) 65421231
AFS: WSSSYAYX

Post:
CHANGI AIRPORT GROUP (SINGAPORE) PTE LTD
SELATAR AIRPORT
Building 556, West Camp Road
SINGAPORE 797794
Tel: (65) 64813632
Fax: (65) 64811190

7 AGRICULTURE QUARANTINE

Post:
Head Office: IMPORT AND EXPORT DIVISION, AGRI FOOD AND VET AUTHORITY
5 Maxwell Road #02-03 Tower Block, MND Complex
SINGAPORE 069110
Tel: (65) 62270670 or (65) 63257333
Fax: (65) 62276305
URL: www.ava.gov.sg

Post:
CHANGI ANIMAL AND PLANT QUARANTINE STATION
AGRI-FOOD AND VETERINARY AUTHORITY
Gate C7, Airport Cargo Road Changi Airfreight Centre
Changi Animal and Plant Quarantine
SINGAPORE 918104
Tel: (65) 65457522
Fax: (65) 65453023

← 8 TRANSPORT SAFETY INVESTIGATION BUREAU

←

Post:
Director (TSIB)
MINISTRY OF TRANSPORT
c/o Changi Airport Post Office P.O. Box 1005
SINGAPORE 918155
Tel: (65) 65956010
Fax: (65) 65422394
URL: www.mot.gov.sg

GEN 1.7 DIFFERENCES FROM ICAO STANDARDS, RECOMMENDED PRACTICES AND PROCEDURES

ANNEX 1 Personnel Licensing, 11th edition

Chapter 2 (10th edition, Amendment 169)

2.3.3.1.2	Due to local geographical constraints and boundary, it is not possible to complete one cross-country flight totalling not less than 270km (150NM) in the course of which full- stop landings at two different aerodromes are made. In such cases, a Private Pilot Licence with restriction to fly within Singapore only will be issued.
2.8.2.1	Singapore issues two types of ratings for flying instructors: Flying Instructor Rating and Assistant Flying Instructor Rating. Both ratings meet the ICAO standards for flying instructors. Newly qualified instructors are issued with an Assistant Flying Instructor Rating, and may qualify for a Flying Instructor Rating after acquiring additional flying and instructional experience. An Assistant Flying Instructor Rating does not entitle the holder to: a. give flying instructions unless under the supervision of a person holding a Flying Instructor Rating; or b. give directions in respect of the student pilot's first solo day/night flight and first solo cross-country day/night flight.
2.9.1.1	The applicant for a Commercial Pilot Licence (Gliders) shall not be less than 18 years of age.
2.10.1.1	The applicant for a Private Pilot Licence (Balloons and Airships) shall not be less than 17 years of age. The applicant for a Commercial Pilot Licence (Balloons and Airships) shall not be less than 18 years of age.

ANNEX 2 Rules of the Air, 10th edition

Appendix 3 (Amendment 42)

VFR or IFR flights when operating in uncontrolled airspace within certain parts of the Singapore FIR at or above 3,000ft and below FL250 are required to use the cruising levels specified in the quadrantal table of cruising levels (quadrantal rule) as shown in page ENR 1.7-5 para 4.4.

DOC 4444 Procedures for Air Navigation Services - Air Traffic Management,15th edition (PANS-ATM)

- Nil differences.

DOC 7030 Regional Supplementary Procedures, 5th edition

MID/ASIA REGIONAL SUPPLEMENTARY PROCEDURES

1.2.1	Flights shall be conducted in accordance with the Instrument Flight Rules (even when not operating in instrument meteorological conditions) when operated: a. Above FL200.

← **ANNEX 3 Meteorological Service for International Air Navigation,** 19th edition

Chapter 4	(Amendment 75)
4.3.2(a)	The automated weather observing system (AWOS) provides for visual display system at the appropriate ATS units (corresponding to the visual display system in the meteorological station) showing real-time weather conditions at appropriate locations along the runways. The ATS units use these real-time weather conditions for aircraft landing and take-off. The information provided by the visual display system at the ATS units is used in place of specifically-formatted local routine reports.

ANNEX 4 Aeronautical Charts, 11th edition

Chapter 4	(Amendment 34)
4.4.2	ICAO requires the horizontal scale of the Aerodrome Obstacle Chart - ICAO Type B to be between 1:10,000 and 1:20,000. Our national requirement for the horizontal scale for this chart is 1:25,000. The Aerodrome Obstacle Chart - ICAO Type B contained in the Singapore AIP is published according to the scale of 1:25,000.

ANNEX 5 Units of Measurement to be used in Air and Ground Operations, 5th edition (Amendment 17)

- Nil differences.

ANNEX 6 Operation of Aircraft

Part I	(International Commercial Air Transport - Aeroplanes) - 9th edition
Chapter 6	(Amendment 34)
6.3.1.2.3	All aeroplanes of a MTWA of over 5700kg, regardless of the date that their individual certificate of airworthiness is first issued, shall be equipped with a Type I FDR.
6.3.1.2.4	As above for ICAO ANNEX 6 Part I paragraph 6.3.1.2.3.
6.3.1.2.6	As above for ICAO ANNEX 6 Part I paragraph 6.3.1.2.3.
6.3.1.2.9	As above for ICAO ANNEX 6 Part I paragraph 6.3.1.2.3.
6.3.1.3.3	As above for ICAO ANNEX 6 Part I paragraph 6.3.1.2.3.
6.3.2.1.3	As above for ICAO ANNEX 6 Part I paragraph 6.3.1.2.3.
6.3.2.1.4	As above for ICAO ANNEX 6 Part I paragraph 6.3.1.2.3.
Chapter 12	(Amendment 34)
12.4(b)	Singapore regulations do not require all cabin crew to be trained on the use of automated external defibrillator (AED). However, the regulations require that at least one senior cabin crew on board every aircraft carrying AED to be trained on the use of AED.
Part II	(International General Aviation - Aeroplanes) - 8th edition
Chapter 3	(Amendment 29)
3.6.3.1.2.2	All aeroplanes of a MTWA of over 5700kg, regardless of the date that their individual certificate of airworthiness is first issued, shall be equipped with a Type I FDR.
3.6.3.1.3.3	Currently, the use of analogue FDRs using FM is not permitted.
3.6.3.2.1.3	All aeroplanes of a MTWA of over 5700kg, regardless of the date that their individual certificate of airworthiness is first issued, shall be equipped with a CVR.
Chapter 6	(Amendment 29)
6.1.1	General aviation aircraft in Singapore are required to be registered in the Public Transport Category.

Part III	(International Operations - Helicopters) - 7th edition
Chapter 4	(Amendment 15)
4.3.2.1.1	All helicopters of a MTWA of over 3180kg (adopting ICAO recommendation of ANNEX 6 Part III paragraph 4.3.2.1.2), instead of 7000kg, are required to be equipped with a CVR.
4.3.2.1.3	As above for ICAO ANNEX 6 Part III paragraph 4.3.2.1.1.

ANNEX 7 Aircraft Nationality and Registration Marks, 6th edition (Amendment 6)

- Nil differences.

ANNEX 8 Airworthiness of Aircraft, 11th edition (Amendment 104)

- Nil differences.

← **ANNEX 9 Facilitation**, 14th edition

Chapter 2	
2.4	General Declaration is required.
2.5	Name of flight crew members are required and to be provided on General Declaration on entry and departure of aircraft.
2.6	Two copies of Embarking Passenger manifests are required.
2.12	Crew lists are required.
2.15	Crew lists are required.
2.18	Documents for entry and departure of aircraft should be in English.
Chapter 3	
3.7	Visa is only required for persons who are holders of Certificate of Identity and Travel Documents issued by countries which have not entered visa agreement with the Singapore Government.
3.8	Visa fees are payable at standard rates.
3.8.4	Permanent residents who are not Singapore Citizens are required to be in possession of Re-Entry Permits when they return from overseas trips.
3.9	Embarkation/Disembarkation forms and certain supplementary information are required.
3.10	Embarkation/Disembarkation forms and certain supplementary information are required.
3.23	Crew members when travelling as passengers are required to be in possession of passports.
Chapter 4	
4.8	Except for certain scheduled items for which a Diversion Certificate or other authority is required, in/out cargo is as free as possible of governmental documentary requirements.
Chapter 5	
5.2	Facilities for provisional declarations are available to expedite clearance.
5.4.1	Passports and visas, when necessary, are required where passengers have to leave the International Airport and stay in Singapore.

Chapter 6	
6.57	Any requests to station representatives of the public authorities of another State will be considered on its merits.
Chapter 8	
8.1	As laws differ between Government Departments, the use of a single comprehensive bond is not acceptable.
8.14	There is a medical centre at the airport which provides consultation, pharmaceutical, dental, x-ray and minor operations facilities. Requests for medical care and assistance could be made prior to arrival of aircraft.

ANNEX 10 Aeronautical Telecommunications

Volume I	(Radio Navigation Aids) - 6th edition (Amendment 87)
Volume II	(Communications Procedures including those with PANS status) - 6th edition (Amendment 87)
Volume III	(Communications Systems) - 2nd edition (Amendment 87)
	Part I - Digital Data Communication Systems (Amendment 87)
	Part II - Voice Communication Systems (Amendment 87)
Volume IV	(Surveillance Radar and Collision Avoidance Systems) - 4th edition (Amendment 87)
Volume V	(Aeronautical Radio Frequency Spectrum Utilization) - 3rd edition (Amendment 88-A)

- Nil Differences

ANNEX 11 Air Traffic Services,14th edition

Chapter 4	(Amendment 47)
4.3.6.1(g)	The AWOS systems at the airports have visual display systems at the relevant ATS units showing real-time weather conditions at appropriate locations along the runways. The ATS units use these real-time weather conditions for aircraft landing and take-off. However, specifically formatted MET REPORT and SPECIAL as described in Annex 3 paragraphs 4.3.2(a) and 4.4.2(a) are not prepared.

ANNEX 12 Search and Rescue, 8th edition (Amendment 18)

- Nil Differences

ANNEX 13 Aircraft Accident and Incident Investigation, 11th edition

Chapter 5	(Amendment 13)
5.1.2	ICAO requires States to investigate serious incident involving aircraft of a maximum certificated take-off (MCT) mass of over 2250kg. With effect from 2 August 2010, Singapore requires all serious incidents to be investigated, regardless of the aircraft's MCT mass.

ANNEX 14 Aerodromes

Volume I	(Aerodrome Design and Operations) - 6th edition
Chapter 2	
2.5.3	Geographical coordinates of appropriate taxiway centre line points are not provided at Changi Airport and Seletar Airport.
Chapter 4	
4.2.13	In addition to the obstacle limitation surfaces described in para 4.2.13 of the Annex, the inner approach surface, inner transitional surfaces and balked landing surface shall also be established for a precision approach runway category I.
Chapter 7	
7.4.1	In addition to para 7.4.1 of the Annex, unserviceability markers shall also be displayed at the entrances to a permanently or temporarily closed runway or taxiway, or part thereof.
Chapter 9	
9.2.3	The remission factor described in para 9.2.3 of the Annex has been removed from our national regulations.
Volume II	(Heliports) - 4th edition (Amendment 6)

- Not applicable

← **ANNEX 15 Aeronautical Information Services**, 15th edition

Chapter 10	(Amendment 36)

Singapore has not promulgated regulations or requirements on electronic terrain and obstacle data (ETOD). ETOD is currently not provided in Singapore.

ANNEX 16 Environmental Protection

Volume I	(Aircraft Noise) - 7th edition (Amendment 11-B)
Volume II	(Aircraft Engine Emissions) - 3rd edition (Amendment B)

- Nil Differences

ANNEX 17 Security - Safeguarding International Civil Aviation Against Acts of Unlawful Interference, 9th edition (Amendment 14)

- Nil Differences

ANNEX 18 The Safe Transport of Dangerous Goods by Air, 4th edition (Amendment 11)

- Nil Differences

← **ANNEX 19 Safety Management**, 2nd edition

- Nil Differences

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GEN 2.2 ABBREVIATIONS USED IN AIS PUBLICATIONS

Abbreviations marked by asterisks (*) are either different from or not contained in ICAO DOC 8400.

A

A/A	Air-to-air
AAIM	Aircraft autonomous integrity monitoring
AAL	Above aerodrome level
AAR	Air to air refuelling
ABM	Abeam
ABN	Aerodrome beacon
ABV	Above
ACAS	Airborne collision avoidance system
ACC	Area control centre or area control
ACCID	Notification of an aircraft accident
ACFT	Aircraft
ACK	Acknowledge
ACL	Altimeter check location
ACPT	Accept or accepted
ACT	Active or activated or activity
AD	Aerodrome
ADA	Advisory area
ADC	Aerodrome Chart
ADDN	Addition or additional
ADF	Automatic direction finding equipment
ADIZ	Air defence identification zone
ADJ	Adjacent
ADR	Advisory route
ADS-B	Automatic dependent surveillance-broadcast
ADS-C	Automatic dependent surveillance-contract
ADZ	Advise
AFIS	Aerodrome flight information service
AFS	Aeronautical fixed service
AFT	After...(time or place)
AFTN	Aeronautical fixed telecommunication network
A/G	Air-to-ground
AGL	Above ground level
AIC	Aeronautical information circular
AIDC	Air traffic services interfacility data communications
AIM	Aeronautical information management
AIP	Aeronautical information publication
AIRAC	Aeronautical information regulation and control
AIREP	Air-report
AIS	Aeronautical information services
ALERFA	Alert phase
ALRS	Alerting service
ALS	Approach lighting system
ALT	Altitude
AMA	Area minimum altitude
AMDT	Amendment (AIP amendment)
AMSL	Above mean sea level
ANSP*	Air Navigation Service Provider
AO	Aircraft operator
AOC	Aerodrome obstacle chart (followed by type and name/title)
AP	Airport
APCH	Approach
APN	Apron
APP	Approach control office or approach control or approach control service
APR	April
APRX	Approximate or approximately
APU	Auxiliary power unit
APV	Approach procedure with vertical guidance
ARC	Area Chart
ARO	Air traffic services reporting office
ARP	Aerodrome reference point
ARR	Arrive or arrival or Arrival (message type designator)
ASC	Ascend to or ascending to
ASDA	Accelerate-stop distance available
ASPH	Asphalt
ASTO*	Aeroshell turbine oil
ATA	Actual time of arrival
ATC	Air traffic control (in general)
ATD	Actual time of departure
ATFM	Air traffic flow management
ATIS	Automatic terminal information service
ATM	Air Traffic Management
ATN	Aeronautical telecommunication network
ATS	Air traffic services
ATTN	Attention
ATZ	Aerodrome traffic zone
AUG	August
AUTO	Automatic
AUW	All up weight
AUX	Auxiliary
AVBL	Available or availability
AVGAS	Aviation gasoline
AWOS	Automated Weather Observation System
AWUT*	Allocated Wheels Up Time
AWY	Airway
AZM	Azimuth

B

BA	Braking action
BAROVNAV	Barometric vertical navigation
BCN	Beacon (Aeronautical ground light)
BCST	Broadcast
BDRY	Boundary
BLDG	Building
BLW	Below ...
BOBCAT*	Bay of Bengal Cooperative Air Traffic Flow Management Advisory System
BRG	Bearing
BRKG	Braking
BTN	Between

.

... C	Centre (preceded by runway designation number to identify a parallel runway)

C

C	Degrees Celsius (Centigrade)
CAAS*	Civil Aviation Authority of Singapore
CAT	Clear air turbulence
CAVOK	(to be pronounced "KAV-OH-KAY") visibility, cloud and present weather better than prescribed values or conditions
CAFHI*	Changi Airport Fuel Hydrant Installation
CCO	Continuous climb operations
CDO	Continuous descent operations
CDR	Conditional route
CH	Channel
CHG	Modification (message type designator)
CIV	Civil
CL	Centre line
CLBR	Calibration
CLSD	Close or closed or closing
CMB	Climb to or climbing to
CMPL	Completion or completed or complete
CNL	Cancel or cancelled or flight plan cancellation (message type designator)
CNS	Communications, Navigation and Surveillance
COM	Communications
CONC	Concrete
COND	Condition
CONST	Construction or constructed
CONT	Continue(s) or continued
COOR	Coordinate or coordination
COORD	Coordinates
COP	Change-over point
CPDLC	Controller-pilot data link communications
CPL	Current flight plan (message type designator)
CRC	Cyclic redundancy check
CRP	Compulsory reporting point
CS	Call sign
CTA	Control area
CTC	Contact
CTL	Control
CTN	Caution
CTR	Control zone
CUST	Customs
CWY	Clearway

D

D ...	Danger area (followed by identification)

DA	Decision altitude
DCKG	Docking
DCPC	Direct controller-pilot communications
DCT	Direct (in relation to flight plan clearances and type of approach)
DEC	December
DEG	Degrees
DEP	Depart or departure or Departure (message type designator)
DER	Departure end of the runway
DES	Descend to or descending to
DEST	Destination
DETRESFA	Distress phase
DEV	Deviation or deviating
DFTI	Distances from touch down indicator
DH	Decision height
DISP*	Displaced
DIST	Distance
DLA	Delay or delayed or Delay (message type designator)
DLY	Daily
DME	Distance measuring equipment
DNG	Danger or dangerous
DOF	Date of flight
DPT	Depth
DR	Dead reckoning
DRG	During
DTG	Date-time group
DTHR	Displaced runway threshold
DUR	Duration
DVOR	Doppler VOR

E

E ...	East or eastern longitude
EAT	Expected approach time
EET	Estimated elapsed time
ELBA	Emergency location beacon-aircraft
ELEV	Elevation
ELT	Emergency locator transmitter
EM	Emission
EMERG	Emergency
ENG	Engine
ENR	Enroute
ENRC	Enroute Chart (followed by name/title)
EOBT	Estimated off-block time
EQPT	Equipment
EST	Estimate or estimated or estimate (as message type designator)
ETA	Estimated time of arrival or estimating arrival
ETD	Estimated time of departure or estimating departure
ETO	Estimated time over significant point
EV	Every
EXC	Except
EXER	Exercises or exercising or to exercise
EXP	Expect or expected or expecting
EXTD	Extend or extending or Extended

F

FAC	Facilities
FAF	Final approach fix
FAP	Final approach point
FATO	Final approach and take-off area
FAX	Facsimile transmission
FCST	Forecast
FCT	Friction coefficient
FDPS	Flight data processing system
FEB	February
FIC	Flight information centre
FIR	Flight information region
FIS	Flight information service
FL	Flight level
FLG	Flashing
FLR	Flares
FLT	Flight
FLTCK	Flight check
FLUC	Fluctuating or fluctuation or fluctuated
FLW	Follow(s) or following
FLY	Fly or flying
FM	Course from a fix to manual termination (used in navigation database coding)
FMS	Flight management system
FMU	Flow management unit
FNA	Final approach
FOD*	Foreign object damage
FPL	Flight Plan
FREQ	Frequency
FRI	Friday
FRNG	Firing
FSL	Full stop landing
FST	First
FT	Feet (dimensional unit)

G

GA	General Aviation
G/A	Ground-to-air
GCA	Ground controlled approach system or ground controlled approach
GEN	General
GEO	Geographic or true
GLD	Glider
GLONASS	Global orbiting navigation satellite system
GND	Ground
GNDCK	Ground check
GNSS	Global navigation satellite system
GOV	Government
GP	Glide path
GPA	Glide path angle
GPS	Global positioning system
GRASS	Grass landing area
GS	Ground speed
GUND	Geoid undulation

H

H+*	Hours plus.....minutes past the hour
H24	Continuous day and night service
HBN	Hazard beacon
HDG	Heading
HEL	Helicopter
HEL-L*	Light helicopter (radius of action, for rescue purposes, up to 185km (100NM) and capacity of evacuating 1-5 persons)
HEL-M*	Medium helicopter (radius of action, for rescue purposes, 185-370km (100- 200NM) and capacity of evacuating 6-15 persons)
HEL-H*	Heavy helicopter (radius of action, for rescue purposes, more than 370km (200NM) and capacity of evacuating more than 15 persons)
HF	High frequency (3 000 to 30 000kHz)
HGT	Height or height above
HJ	Sunrise to sunset
HLDG	Holding
HN	Sunset to sunrise
HO	Service available to meet operational requirements
HOL	Holiday
HOSP	Hospital aircraft
HPA	Hectopascal
HQ*	Headquarters
HR	Hours
HS	Service available during hours of scheduled operations
HUM	Humanitarian
HX	No specific working hours
HZ	Haze or Hertz (cycle per second)

I

IAC	Instrument approach chart (followed by name/title)
IAF	Initial approach fix
IAP	Instrument approach procedure
IAR	Intersection of air routes
IAS	Indicated airspeed
IBN	Identification beacon
ICAO	International Civil Aviation Organisation
ID	Identifier or identify
IDENT	Identification
IF	Intermediate approach fix
IFR	Instrument flight rules
ILS	Instrument landing system
IM	Inner marker
IMC	Instrument meteorological conditions
INA	Initial approach
INBD	Inbound
INCORP	Incorporated
INCERFA	Uncertainty phase
INFO	Information
INOP	Inoperative
INPR	In progress

INS	Inertial navigation system
INSTL	Install or installed or installation
INSTR	Instrument
INT	Intersection
INTL	International
INTRG	Interrogator
INTRP	Interrupt or interruption or interrupted
INTST	Intensity
IRS	Inertial reference system
ISA	International standard atmosphere

J

JAN	January
JUL	July
JUN	June

K

KG	Kilograms
KHZ	Kilohertz
KM	Kilometres
KMH	Kilometres per hour
KPA	Kilopascal
KT	Knots
KW	Kilowatts

.

... L	Left (preceded by runway designation number to identify a parallel runway)

L

L	Locator (see LM, LO)
LAT	Latitude
LDA	Landing distance available
LDAH	Landing distance available, helicopter
LDG	Landing
LDI	Landing direction indicator
LEN	Length
LGT	Light or lighting
LGTD	Lighted
LIH	Light intensity high
LIL	Light intensity low
LIM	Light intensity medium
LLZ	Localizer
LM	Locator middle
LNAV	Lateral navigation
LO	Locator, outer
LONG	Longitude
LORAN	LORAN (Long range air navigation system)
LRG	Long range
LT*	Local time
LTD	Limited
← LVL	Level
LVP	Low visibility procedures

M

M	Mach number (followed by figures) or Metres (preceded by figures)
MAD*	Maximum Acceptable Delay
MAG	Magnetic
MAINT	Maintenance
MAP	Aeronautical maps and charts
MAPT	Missed approach point
MAR	March
MAX	Maximum
MAY	May
MCA	Minimum crossing altitude
MDA	Minimum descent altitude
MDH	Minimum descent height
MEA	Minimum en-route altitude
MEDEVAC	Medical evacuation flight
MEHT	Minimum eye height over threshold (for visual approach slope indicator systems)
MET	Meteorological or meteorology
METAR	Aerodrome routine meteorological report (in meteorological code)
MHA	Minimum holding altitude
MHZ	Megahertz
MID	Mid-point (related to RVR)
MIL	Military
MIN	Minutes
MINDEF*	Ministry of Defence
MLS	Microwave landing system
MM	Middle marker
MNM	Minimum
MNPS	Minimum navigation performance specifications
MNT	Monitor or monitoring or monitored
MNTN	Maintain
MOA	Military operating area
MOC	Minimum obstacle clearance (required)
MOCA	Minimum obstacle clearance altitude
MON	Monday
MOPS	Minimum operational performance standards
MOV	Move or moving or movement
MPS	Metres per second
MSA	Minimum sector altitude
MSAW	Minimum safe altitude warning
MSG	Message
MSL	Mean sea level
MWO	Meteorological watch office

N

N	North or northern latitude
NAV	Navigation
NAVAID	Navigation aid
NC	No change
NDB	Non-directional radio beacon
NGT	Night
NM	Nautical miles
NML	Normal
NOF	International NOTAM Office
NONSTD	Non-standard
NOSIG	No significant change (used in trend-type landing forecasts)
NOTAM	A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations
NOV	November
NR	Number

O

OAC	Oceanic area control centre
OAS	Obstacle assessment surface
OBS	Observe or observed or observation
OBST	Obstacle
OCA	Oceanic control area or Obstacle clearance altitude
OCC	Occulting (light)
OCH	Obstacle clearance height
OCNL	Occasional or occasionally
OCS	Obstacle clearance surface
OCT	October
OFZ*	Obstacle free zone
OHD	Overhead
OM	Out marker
OPMET	Operational meteorological (information)
OPR	Operator or operate or operative or operating or operational
OPS	Operations
O/R	On request
OTP	On top
OTS	Organized track system
OUBD	Outbound

P

P ...	Prohibited area (followed by identification)
PA	Precision approach
PALS	Precision approach lighting system (specify category)
PANS	Procedures for air navigation services
PAPI	Precision approach path indicator
PAR	Precision approach radar
PARA*	Paragraph
PARL	Parallel
PAX	Passenger(s)
PBC	Performance-based communication
PBN	Performance-based navigation
PBS	Performance-based surveillance
PCD	Proceed or proceeding
PCL	Pilot-controlled lighting
PCN	Pavement classification number
PDC	Pre-departure clearance
PER	Performance
PERM	Permanent
PIB	Pre-flight information bulletin
PJE	Parachute jumping exercise

PLA	Practice low approach
PN	Prior notice required
PNR	Point of no return
POB	Persons on board
PPR	Prior permission required
PRI	Primary
PRKG	Parking
PROC	Procedure
← PSN	Position
PSP	Pierced steel plank
PSR	Primary surveillance radar
PT*	Point(s)
PTN	Procedure turn
PVT*	Private
PWR	Power

Q

QDM	Magnetic heading (zero wind)
QDR	Magnetic bearing
QFE	Atmospheric pressure at aerodrome elevation (or at runway threshold)
QFU	Magnetic orientation of runway
QNH	Altimeter sub-scale setting to obtain elevation when on the ground
QTE	True bearing
QUAD	Quadrant

R

R ...	Restricted area (followed by identification)

.

R ...	Radial from VOR (followed by three figures)
... R	Right (preceded by runway designation number to identify a parallel runway)

R

RA	Rain
RAD*	Radius
RAF*	Royal Air Force
RAG	Runway arresting gear
RAI	Runway alignment indicator
RAIM	Receiver autonomous integrity monitoring
RB	Rescue boat
RCC	Rescue coordination centre
RCF	Radiocommunication failure (message type designator
RCL	Runway centre line
RCLL	Runway centre line light(s)
RCP	Required communication performance
RDH	Reference datum height
RDL	Radial
RDO	Radio
REC	Receive or receiver
REDL	Runway edge light(s)
REF	Reference to ... or refer to ...
REG	Registration
RENL	Runway end light(s)
REP	Report or reporting or reporting point
REQ	Request or requested
RESA	Runway end safety area
RFC*	Radio facility chart
RFFS	Rescue and fire fighting services
RH*	Rescue helicopter
RHC	Right-hand circuit
RIF	Reclearance in flight
← RLLS	Runway lead-in lighting system
RMAF*	Royal Malaysian Air Force
RMK	Remark
RNAV	(to be pronounced "AR-NAV") Area navigation
RNP	Required navigation performance
ROC	Rate of climb
ROD	Rate of descent
RPI	Receiving only
RPLC	Replace or replaced
RPS	Radar position symbol
RQMNTS	Requirements
RQP	Request flight plan (message type designator)
RQS	Request supplementary flight plan (message type designator)
RSAF*	Republic of Singapore Air Force
RSC	Rescue sub-centre
RSCD	Runway surface condition
RSFC*	Republic of Singapore Flying Club
RSP	Required surveillance performance
RSP	Responder beacon
RSR	En-route surveillance radar
RTE	Route
RTF	Radiotelephone
RTHL	Runway threshold light(s)
RTN	Return or returned or returning
RTODAH	Rejected take-off distance available, helicopter
RTT	Radioteletypewriter
RTZL	Runway touchdown zone light(s)
RUT	Standard regional route transmitting frequencies
RV	Rescue vessel
RVA	Radar vectoring area
RVR	Runway visual range
RWY	Runway
RVSM	Reduced vertical separation minimum (300m(1000ft)) between FL290 and FL410

S

S	South or southern latitude
SAF*	Singapore Armed Forces
SALS	Simple approach lighting system
SAR	Search and rescue
SARPS	Standards and recommended practices (ICAO)
SAT	Saturday
SATCC*	Singapore Air Traffic Control Centre
SATCOM	Satellite communication (used only when referring generally to both voice and data satellite communication or only data satellite communication)
SATVOICE	Satellite voice communication
SDBY	Stand by
SDF	Step down fix
SEC	Seconds
SELCAL	Selective calling system
SEP	September
SER	Service or servicing or served
SFC	Surface
SFL*	Sequenced flashing light
SGL	Signal
SIA*	Singapore Airlines Limited
SID	Standard instrument departure
SIG	Significant
SIGMET	Information concerning en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations
SIMUL	Simultaneous or simultaneously
SKED	Schedule or scheduled
SMC	Surface movement control
SMR	Surface movement radar
SOC	Start of climb
SPECI	Aerodrome special meteorological report (in meteorological code)
SPECIAL	Local special meteorological report (in abbreviated plain language)
SPL	Supplementary flight plan (message type designator)
SPOT	Spot wind
SQ	Squall
SR	Sunrise
SRA	Surveillance radar approach
SRE	Surveillance radar element of precision approach radar system
SRR	Search and rescue region
SRY	Secondary
SS	Sunset
SSR	Secondary surveillance radar
STA	Straight-in approach
STAR	Standard instrument arrival
STD	Standard
STN	Station
STOL	Short take-off and landing
STS	Status
STT*	Standard Taxi Time
STWL	Stopway light(s)
SUBJ	Subject to
SUN	Sunday
SUP	Supplement (AIP Supplement)
SUPPS	Regional supplementary procedures
SVCBL	Serviceable
SWY	Stopway

T

TA	Traffic advisory
TAA	Terminal arrival altitude

TACAN	UHF tactical air navigation aid
TAF	Aerodrome forecast (in meteorological code)
TAIL	Tail wind
TAR	Terminal area surveillance radar
TAS	True airspeed
TAX	Taxiing or taxi
TCAS RA	Traffic alert and collision avoidance system resolution advisory
TCH	Threshold crossing height
TDZ	Touchdown zone
TECR	Technical reason
TEL	Telephone
TEMPO	Temporary or temporarily
TFC	Traffic
TGL	Touch-and-go landing
TGS	Taxiing guidance system
THR	Threshold
THRU	Through
THU	Thursday
TIBA	Traffic information broadcast by aircraft
TIL	Until
TKOF	Take off
TLOF	Touchdown and lift-off area
TMA	Terminal control area
TOC	Top of climb
TODA	Take-off distance available
TODAH	Take-off distance available, helicopter
TOP	Cloud top
TORA	Take-off run available
TP	Turning point
TR	Track
TRA	Temporary reserved airspace
← TRANS	Transmits or transmitter
TRG	Training
TRL	Transition level
TT	Teletypewriter
TUE	Tuesday
TURB	Turbulence
T-VASIS	T visual approach slope indicator system
← TWR	Aerodrome control tower or aerodrome control
TWY	Taxiway
← TXL	Taxilane
TYP	Type of aircraft
TYPH	Typhoon

U

UAC	Upper area control centre
UAR	Upper air route
UFN	Until further notice
UHF	Ultra high frequency (300 to 3 000 MHz)
UIC	Upper information centre
UIR	Upper flight information region
ULM	Ultra light motorized aircraft
UNL	Unlimited
UNREL	Unreliable
U/S	Unserviceable
UTA	Upper control area
UTC	Coordinated universal time

V

VA	Volcanic ash
VAAC	Volcanic ash advisory centre
VAC	Visual approach chart (followed by name/title)
VAR	Magnetic variation
VASIS	Visual approach slope indicator system
VCY	Vicinity
VER	Vertical
VFR	Visual flight rules
VHF	Very high frequency (30 to 300 MHz)
VIP	Very important person
VIS	Visibility
VLR	Very long range
VMC	Visual meteorological conditions
VNAV	Vertical navigation
VOLMET	Meteorological information for aircraft in flight
VOR	VHF omnidirectional radio range
VORTAC	VOR and TACAN combination
VOT	VOR airborne equipment test facility
VRB	Variable
VSA	By visual reference to the ground
VSP	Vertical speed
VTOL	Vertical take-off and landing
VVIP*	Very, very important person

W

W	West or western longitude or White
WAAS	Wide area augmentation system
WAC	World Aeronautical Chart - ICAO 1:1 000 000 (followed by name/title)
WBAR	Wing bar lights
WDI	Wind direction indicator
WED	Wednesday
WEF	With effect from or effective from
WGS-84	World Geodetic System - 1984
WI	Within
WID	Width or wide
WIE	With immediate effect or effective immediately
WIP	Work in progress
WPT	Way-point
WRNG	Warning
WS	Wind shear
WSPD	Wind speed
WT	Weight
WUT*	Wheels Up Time
WX	Weather
WXR	Weather radar

X

XBAR	Crossbar (of approach lighting system)
XNG	Crossing

Y

YCZ	Yellow caution zone (runway lighting)

4

4D/15*	Four dimensional (latitude, longitude, altitude, time) position information at 15 minutes interval

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NOTAM are exchanged with other International NOTAM Offices (NOF) as follows:

NOF	NOTAM Series		NOF	NOTAM Series		NOF	NOTAM Series	
	Received	Sent		Received	Sent		Received	Sent
Abu Dhabi	A	A	Jakarta	AB	A	Port Moresby	A	A
Addis Ababa	A	A	Jeddah	AW	A	Praha	-	A
Almaty	K	-	Johannesburg	ABC	A	Pyongyang	A	-
Amman	A	-	Kabul	ADG	A	Riga	A	-
Amsterdam	AM	A	Karachi	A	A	Rio de Janeiro	-	A
Ankara	ABC	A	Kathmandu	A	A	Roma	AW	A
Antananarivo	AB	A	Khartoum	A	-	Sanaa	-	A
Athinai	A	A	Kiev	A	-	Seoul	AG	A
			Kobenhavn	AB	-	Shannon	ABD HJNV	A
Baghdad	A	A	Kolkata	A	A	Sofia	A	A
Bahrain	A	A	Kuala Lumpur	AD	A	Stockholm	ABC	A
Baku	A	-	Kuwait	A	A	Taipei	A	A
Bangkok	AGHJ	A	Lisboa	A	-	Tallinn	A	-
Beijing	AEFG LUWY	A	Ljubljana	A	-	Tbilisi	G	-
Beograd	AK	A	London	ABDF GHJMV	A	Tehran	A	A
Brisbane	DEFG HJKLN	A	Luqa	A	-	Tel Aviv	A	A
Brunei	B	A	Macao	A	A	Tirana	A	-
Bruxelles	A	A	Madrid	ABDE FG	A	Tokyo	ABCE FJ	A
Bucuresti	ABDM	A	Mahé	A	A	Tripoli	A	A
Budapest	AK	A	Male	A	A	Vientiane	A	A
Cairo	-	A	Manila	B	A	Vilnius	A	-
			Minsk	O	-	Washington	A	A
Chennai	A	A	Moskva	AEGK OPV	A	Wien	A	A
Christchurch	B	A	Mumbai	A	A	Windhoek	A	-
Colombo	A	A	Muscat	A	A	Yangon	AB	A
Congo	B	-	Nadi	A	A	Yerevan	-	A
Damascus	A	-	Nairobi	A	-	Zurich	A	A
Dar es-Salaam	A	-	New Delhi	AG	A			
Dhaka	A	A	Nicosia	A	-			
Frankfurt	A	A	Niew Milligen	M	-			
Harare	-	A	Ottawa	AB	A			
Helsinki	A	A	Paris	AFRW	-			
Ho Chi-Minh	AJ	A	Phnom-Penh	A	-			
Hong Kong	A	A	Plaisance	A	A			

Pre-flight Information Bulletin (PIB), a recapitulation of valid NOTAM in plain language, can be retrieved from AIM-SG URL: https://fpl-1.caasaim.gov.sg

3.6 Aeronautical Information Circular (AIC)

Aeronautical Information Circular (AIC) contains information on the long-term forecast of major change in legislation, regulations, procedures or facilities; information of a purely explanatory or advisory nature liable to affect flight safety; and information or notification of an explanatory or advisory nature concerning technical, legislative or purely administrative matters which is inappropriate to the AIP or NOTAM, and is published as required.

Each AIC is numbered consecutively on a calendar year basis. The year, indicated by 2 digits, is a part of the serial number of the AIC. A checklist of current AIC is issued in the form of an AIC once a year.

3.7 Checklist and NOTAM List

A checklist of current NOTAM is issued monthly via the AFS. A monthly NOTAM List containing the plain language presentation of current NOTAM, information on the latest AIP Amendment, AIP Supplement, AIC issued and a checklist for AIP Supplements is also available online.

4 AIRAC SYSTEM

4.1 In order to control and regulate operationally significant changes requiring amendments to charts, route manuals, etc., such changes, whenever possible, will be issued on predetermined dates according to the AIRAC SYSTEM. This type of information will be published in an AIRAC AIP Supplement.

4.2 AIRAC information will be issued so that the information will be received by the user not later than 28 days, and for major changes not later than 56 days, before the effective date. The table below indicates AIRAC effective dates for Years 2016 to 2020:

AIRAC Effective Dates				
Year 2016	**Year 2017**	**Year 2018**	**Year 2019**	**Year 2020**
7 January	5 January	4 January	3 January	2 January
4 February	2 February	1 February	31 January	30 January
3 March	2 March	1 March	28 February	27 February
31 March	30 March	29 March	28 March	26 March
28 April	27 April	26 April	25 April	23 April
26 May	25 May	24 May	23 May	21 May
23 June	22 June	21 June	20 June	18 June
21 July	20 July	19 July	18 July	16 July
18 August	17 August	16 August	15 August	13 August
15 September	14 September	13 September	12 September	10 September
13 October	12 October	11 October	10 October	8 October
10 November	9 November	8 November	7 November	5 November
8 December	7 December	6 December	5 December	3 December
				31 December

4.3 A TRIGGER NOTAM will be issued 10 days before the effective date of the AIRAC AIP Supplement giving a brief description of the contents of the AIP Supplement, the effective date and the reference number of the AIRAC AIP Supplement. This trigger NOTAM will come into force on the same effective date as the AIRAC AIP Supplement and will remain in force until 14 days after the effective date.

4.4 A NIL AIRAC NOTAM will be issued one cycle before the AIRAC effective date if no information is submitted for publication of an AIRAC AIP Supplement for an AIRAC effective date. The NIL AIRAC NOTAM will remain current until the next AIRAC effective date.

5 PRE-FLIGHT INFORMATION SERVICE AT AERODROMES

Aerodrome	***Briefing Coverage***	***Availability of Bulletins***
SINGAPORE CHANGI	All route stages emanating from Singapore.	Pre-flight Information Bulletin (PIB) can be retrieved from AIM-SG URL - https://fpl-1.caasaim.gov.sg
SELETAR		

k. **Visual Approach Chart - ICAO**

This chart is produced for aerodromes used by civil aviation where:

* only limited navigation facilities are available; or
* radio communication facilities are not available; or
* no adequate aeronautical charts of the aerodrome and its surroundings at 1:500 000 or greater scale are available; or
* visual approach procedures have been established

The aeronautical data shown include information on aerodromes obstacles, designated airspace, visual approach information, radio navigation aids and communication facilities, as appropriate.

5 LIST OF AERONAUTICAL CHARTS AVAILABLE

GEN 3.2.5 LIST OF AERONAUTICAL CHARTS AVAILABLE					
Title of Chart Series	*Scale*	*Name and/or number*		*Price ($)*	*Date*
World Aeronautical Chart ICAO (WAC)	1:1 000 000		WAC 2860	In AIP	21 JUL 16
Enroute Chart ICAO (ENRC)			ERC 6-1	In AIP	15 SEP 16
Instrument Approach Chart ICAO (IAC)		***Singapore Changi***			
←	1:400 000	RWY 02L - ICW ILS/DME	AD-2-WSSS-IAC-1	In AIP	10 NOV 16
←	1:400 000	RWY 02C - ICE ILS/DME	AD-2-WSSS-IAC-2	In AIP	10 NOV 16
←	1:400 000	RWY 20R - ICH ILS/DME	AD-2-WSSS-IAC-5	In AIP	10 NOV 16
←	1:400 000	RWY 20C - ICC ILS/DME	AD-2-WSSS-IAC-6	In AIP	10 NOV 16
←	1:400 000	RWY 20C - VTK DVOR/DME	AD-2-WSSS-IAC-7	In AIP	10 NOV 16
←	1:400 000	RWY 02L - RNAV(GNSS)	AD-2-WSSS-IAC-9	In AIP	10 NOV 16
←	1:400 000	RWY 02C - RNAV(GNSS)	AD-2-WSSS-IAC-10	In AIP	10 NOV 16
←	1:400 000	RWY 20R - RNAV(GNSS)	AD-2-WSSS-IAC-11	In AIP	10 NOV 16
←	1:400 000	RWY 20C - RNAV(GNSS)	AD-2-WSSS-IAC-12	In AIP	10 NOV 16
		Paya Lebar			
←	1:400 000	RWY 20 - PU DVOR/DME	AD-2-WSAP IAC-1	In AIP	10 NOV 16
	1:400 000	RWY 02 - PU DVOR/DME	AD-2-WSAP IAC-2	In AIP	15 SEP 16
←	1:400 000	RWY 20 - IPS ILS/DME	AD-2-WSAP IAC-3	In AIP	10 NOV 16
	1:400 000	RWY 02 - IPN ILS/DME	AD-2-WSAP IAC-4	In AIP	15 SEP 16
←	1:400 000	RWY 02 - RNAV(GNSS)	AD-2-WSAP-IAC-5	In AIP	10 NOV 16
←	1:400 000	RWY 20 - RNAV(GNSS)	AD-2-WSAP-IAC-6	In AIP	10 NOV 16
← **Visual Approach Chart** ICAO (VAC)	1:400 000	***Singapore Changi***	AD-2-WSSS-VAC-1	In AIP	10 NOV 16
		Seletar			
←	1:100 000	RWY 03	AD-2-WSSL-VAC-1	In AIP	10 NOV 16
←	1:100 000	RWY 21	AD-2-WSSL-VAC-2	In AIP	10 NOV 16
←	1:100 000	RWY 03	AD-2-WSSL-VAC-3	In AIP	10 NOV 16
←	1:100 000	RWY 21	AD-2-WSSL-VAC-4	In AIP	10 NOV 16
Visual Departure Chart		***Seletar***			
←	1:100 000	RWY 03	AD-2-WSSL-VDC-1	In AIP	10 NOV 16
←	1:100 000	RWY 21	AD-2-WSSL-VDC-2	In AIP	10 NOV 16
← **Aerodrome Chart** ICAO (AC)		***Singapore Changi***	AD-2-WSSS-ADC-2	In AIP	10 NOV 16
		Seletar	AD-2-WSSL-ADC-1	In AIP	15 SEP 16
		Paya Lebar	AD-2-WSAP-ADC-1	In AIP	12 NOV 15
Aerodrome Obstacle Chart ICAO TYPE A (AOC)		***Singapore Changi***			
	1:10 000	RWY 20R/02L	AD-2-WSSS-AOC-1	In AIP	12 NOV 15
	1:10 000	RWY 20C/02C	AD-2-WSSS-AOC-2	In AIP	21 JUL 16
		Seletar			
←	1:10 000	RWY 03/21	AD-2-WSSL-AOC-1	In AIP	10 NOV 16
		Paya Lebar			
←	1:20 000	RWY 20/02	AD-2-WSAP-AOC-1	In AIP	10 NOV 16
Aerodrome Obstacle Chart ICAO TYPE B (AOC)		***Singapore Changi***			
	1:25 000	RWY 02L/20R and 02C/20C	AD-2-WSSS-AOC-3	In AIP	31 MAR 16
		Seletar			
←	1:12 500	RWY 03/21	AD-2-WSSL-AOC-2	In AIP	10 NOV 16
Precision Approach Terrain Chart ICAO (PATC)		***Singapore Changi***			
	1:2 500	RWY 02L	AD-2-WSSS-PATC-1	In AIP	12 NOV 15
	1:2 500	RWY 20C	AD-2-WSSS-PATC-2	In AIP	12 NOV 15

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5.6 USE OF RUNWAY

5.6.1 The Aerodrome Controller will nominate the runway direction according to prevailing conditions.

5.6.2 Notwithstanding the runway direction nominated by ATC, the pilot-in-command shall ensure that there is sufficient length of run and that the crosswind or downwind component is within the operational limits of each particular operation. If the nominated runway direction is not suitable for these reasons or for any other safety reason, he may request for an alternative runway direction. ATC will grant the use of an alternative runway direction but the flight may be subject to some delay because of other traffic.

5.6.3 The decision to undertake a take-off or landing rests solely with the pilot-in-command.

5.6.4 Unless prior permission has been obtained from ATC, the pilot-in-command shall not hold on the runway in use.

5.6.5 Only one aircraft will be cleared to land on the runway in use at any one time.

5.6.6 In VMC, an aircraft may be cleared to continue approach to a runway occupied by a preceding aircraft but clearance to land will not be given until the runway is vacated.

5.7 CLOSURE OF AERODROMES

5.7.1 Aircraft will not be refused permission to land or take off from airfields in the Singapore FIR solely because of adverse weather conditions. The pilot-in-command of a public transport aircraft shall be responsible for operation in accordance with applicable company weather minima.

5.7.2 Aerodrome will be closed:

a. When the surface of the landing area is unfit (e.g. soft surface or dangerous obstruction on the manoeuvring area); or
b. At such other times and in conditions specified by NOTAM.

5.7.3 In an emergency, an aircraft will be permitted to land regardless of the conditions of the aerodrome and aerodrome facilities, but the pilot will be advised of these conditions.

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

5.8.1 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 minimise unnecessary delays on the ground, which may be caused by arriving aircraft.

5.8.2 During the one hour period, pilots will be required to give ATC 5 minutes notice prior to starting engines.

5.8.3 Slot time is defined as the time during which take-off clearance may be expected.

5.9 AIR TRAFFIC CONTROL CLEARANCES

5.9.1 All flights within a CTR, or ATZ, irrespective of weather conditions, require an air traffic control clearance.

5.9.2 The pilot-in-command of an aircraft departing from a CTR or an ATZ shall obtain an air traffic control clearance prior to departure.

5.9.3 A clearance to enter or cross a CTR or ATZ will include the following information:

a. A clearance limit and holding instructions, if necessary;
b. The route to be flown; and
c. The altitude or flight level.

5.10 NOISE ABATEMENT PROCEDURE

5.10.1 To alleviate the problem of noise, all aircraft on Awy G579 between SINJON and JAYBEE shall operate at/above 5,000ft.

5.11 SPEED CONTROL PROCEDURES FOR ARRIVALS INTO AIRPORTS IN SINGAPORE

5.11.1 Speed control procedures are in force unless notified otherwise by ATC or on ATIS.

5.11.2 All arriving turbo-propeller and turbo-jet aircraft are to fly at not faster than indicated air speed 250knots when within 40NM from Singapore Changi Airport or when at or below 10,000ft, except all arriving aircraft into Singapore Changi Airport shall comply with the speed restrictions depicted on the transitions and RNAV STARs. Further speed reductions will be regulated by ATC as necessary.

5.11.3 All arrivals into Singapore Changi Airport will be issued instructions by ATC to maintain 180KT till 8NM from touchdown and thereafter 150kt till 4NM from touchdown.

5.11.4 Pilots who may not be able to comply with the speed limits specified above for reasons of flight safety and/or weather should inform ATC and state the speed(s) acceptable.

5.12 AUTHORIZATION

5.12.1 Either an IFR clearance or a Special VFR authorisation shall be issued by Air Traffic Control prior to every movement within a control zone in the following weather conditions:

When the ceiling is less than 1,500ft and/or a visibility less than 5km.

5.12.2 The deciding factors determining whether conditions are such that compliance with IFR or Special VFR authorisation is required will be the official meteorological observations.

5.12.3 When a pilot so requests and traffic conditions permit, Special VFR flight may be authorised within control zones, clear of cloud and in sight of land or water.

5.12.4 When a Special VFR flight has been authorised, ATC will provide it with standard separation from other similar flights and any IFR flight.

5.12.5 Special VFR flights will not normally be given a special level to fly; they will be merely instructed to remain clear of cloud and in sight of land or water. If, however, it is necessary to provide vertical separation from aircraft above, the Special VFR flight will be instructed not to fly above a certain level.

5.12.6 A Special VFR flight may be required to make good a prescribed track. When no track is prescribed, the pilot must fly directly towards his destination or towards the first turning point shown in the flight plan.

5.12.7 Special VFR absolves the pilot from complying with Instrument Flight Rules. Special VFR flight does not, however, absolve the pilot-in-command from the responsibility of maintaining minimum safe levels as prescribed in Part 2, para 5 of the eleventh Schedule of the Air Navigation Order. He must comply with ATC instructions and it will be entirely his responsibility to ensure that his flight conditions i.e. forward visibility and distance from cloud, will enable him to determine his flight path and remain clear of all obstructions.

5.12.8 Authorisation for Special VFR flight will depend not only upon zonal traffic conditions but also whether or not air/ground communications can be maintained and the extent of the flight proposed.

5.13 APPLICATION OF GENERAL FLIGHT RULES

5.13.1 Aircraft flying under Special VFR authorisation are subject to the general flight rules. Compliance with these rules is the responsibility of the pilot.

Route Designator {RNP Type}	*[Route Usage Notes]*								
Significant Point Name	*Significant Point Coordinates*								*Remarks*
{RNP Type}	*Track MAG* ↓ ↑	*Dist NM*	*(COP)*	*Upper limit / Lower limit*	*MNM FLT ALT*	*Lateral limits NM*	*FL series* ↓	*FL series* ↑	*Controlling unit Frequency {Airspace class} Remarks*
1	2	3	4	5	6	7	8	9	10
A464	*Route availability:* (1) H24								
▲ ARAMA (50 DME SJ) (Delegated airspace BDRY)	013654N 1030712E								
	117° / 297°	14.9NM		FL 460 / 3500 FT ALT	5500 FT	10	Odd(1)		[Class A –ABV FL150 Class B –BLW FL150] (2)
∆ 35DME	012954N 1032024E								
	118° / 298°	5.0NM		FL 460 / 3000 FT ALT	5500 FT	10	Odd(1)		[Class A –ABV FL150 Class B –BLW FL150] (2)
∆ LELIB	012729N 1032450E								
	117° / 297°	14.6NM		FL 460 / 3000 FT ALT	5500 FT	10	Odd(1)		[Class A –ABV FL150 Class B –BLW FL150] (2)
▲ MASNI (FIR BDRY)	012037N 1033746E								
	118° / 298°	15.3NM		FL 460 / 3000 FT ALT	5500 FT	10	Odd(1)		[Class A –ABV FL150 Class B –BLW FL150] (2)
▲ SINJON DVOR/DME (SJ)	011319N 1035120E								
	114° / 294°	44.0NM		FL 460 / 2000 FT ALT	6000 FT		Odd(1)	Even(1)	[Class A –ABV FL150 Class B –BLW FL150] (3) (4)
▲ TANJUNG PINANG VOR/DME (TPG)	005413N 1043052E								

Route Remarks:
Flight Planning:
Default STAR for FLT landing at WSSS shall be ARAMA 1A or ARAMA 1B. When traffic permits, ATC will offer LELIB 3B for WSSS RWY 20. For FLT landing at WSSS, pilots are to request for the STAR from Singapore ATC when the FLT is within 120 DME SJ and RWY 20 is in use. FLT shall still remain under the control of WMKK ATC.

Singapore ACC FREQ:
P134.4 S128.1MHz

Point/Segment Remarks:
(2) 5NM either side of track to SJ Singapore ACC FREQ: P133.25MHz S135.8MHz
(3) within the lateral limits of the OCA. 15min longitudinal separation minima will apply in OCA A464/A576.
(4) Eastbound aircraft to reach 6,000ft ALT when 25NM SE of SJ.

Route Designator {RNP Type}	[Route Usage Notes]								
Significant Point Name	Significant Point Coordinates								Remarks
{RNP Type}	Track MAG ↓ ↑	Dist NM	(COP)	Upper limit / Lower limit	MNM FLT ALT	Lateral limits NM	FL series ↓	FL series ↑	Controlling unit Frequency {Airspace class} Remarks
1	2	3	4	5	6	7	8	9	10
A576	*Route availability:* (1) H24								
▲ REKOP (50 DME SJ) (delegated airspace BDRY)	013306N 1030521E								
	112° 292°	16.1NM		FL 460 6500 FT ALT	7000 FT		Odd(1)	Even(1)	[Class A –ABV FL150 Class B –BLW FL150] (2)
∆ PIMOK	012648N 1032008E								
	113° 293°	18.6NM		FL 460 6500 FT ALT	7000 FT		Odd(1)		[Class A –ABV FL150 Class B –BLW FL150] (2)
▲ BONSU (FIR BDRY)	011928N 1033710E								
	113° 293°	15.4NM		FL 460 6500 FT ALT	7000 FT		Odd(1)		[Class A –ABV FL150 Class B –BLW FL150] (2)
▲ SINJON DVOR/DME (SJ)	011319N 1035120E								

Route Remarks:
15 min longitudinal separation.

RMK: AVBL for southbound FLT only BTN PIMOK and SJ DVOR/DME.

Southbound FLT landing at WSSS are to flight plan via ATS Route A464.

Singapore ACC FREQ:
P133.25MHz S135.8MHz (westbound)
P134.4MHz S128.1MHz (southbound)

Point/Segment Remarks:
(2) 5NM either side of a rhumb line joining MDN and SJ, funnelling out at 7.5° to a width of 15NM either side of track.

Route Designator {RNP Type} / Significant Point Name	Significant Point Coordinates: Track MAG ↓ ↑	Dist NM	(COP)	Upper limit / Lower limit	MNM FLT ALT	Lateral limits NM	FL series ↓	FL series ↑	Remarks: Controlling unit Frequency {Airspace class} Remarks
{RNP Type}									
1	2	3	4	5	6	7	8	9	10
B469	*Route availability:* (1) H24								
▲ PEKAN DVOR/DME (VPK)	032259N 1032524E								*(4)*
	335° / 155°	14.9NM		FL 460 / 7500 FT ALT	8000 FT	10	Odd*(1)*	Even*(1)*	[Class A –ABV FL150 Class B –BLW FL150]
∆ PADLI	030918N 1033133E								
	335° / 155°	17.1NM		FL 460 / 7500 FT ALT	8000 FT	10	Odd*(1)*	Even*(1)*	[Class A –ABV FL150 Class B –BLW FL150]
▲ 90DME (90 DME PU)	025341N 1033836E								
	335° / 155°	11.0NM		FL 460 / 7500 FT ALT	8000 FT	10	Odd*(1)*	Even*(1)*	[Class A –ABV FL150 Class B –BLW FL150]
▲ BIKTA	024337N 1034308E								
	335° / 155°	22.2NM		FL 460 / 7500 FT ALT	8000 FT	10	Odd*(1)*	Even*(1)*	[Class A –ABV FL150 Class B –BLW FL150]
▲ MERSING DVOR/DME (VMR) (58 DME PU)	022318N 1035218E								
	356° / 176°	27.9NM		FL 460 / 3000 FT ALT	4000 FT		Odd*(1)*	Even*(1)*	[Class A –ABV FL150 Class B –BLW FL150] *(2)*
∆ 30DME (30 DME PU)	015520N 1035405E								
	356° / 176°	9.9NM		FL 460 / 2000 FT ALT	4000 FT		Odd*(1)*	Even*(1)*	[Class A –ABV FL150 Class B –BLW FL150] *(2)*
∆ AKOMA (20 DME PU)	014522N 1035443E								
	356° / 176°	10.0NM		FL 460 / 2000 FT ALT	4000 FT		Odd*(1)*	Even*(1)*	[Class A –ABV FL150 Class B –BLW FL150] *(2)*
∆ 10DME (10 DME PU)	013523N 1035522E								
	356° / 176°	10.0NM		FL 460 / GND	4000 FT		Odd*(1)*	Even*(1)*	[Class A –ABV FL150 Class B –BLW FL150] *(2)*
▲ PAPA UNIFORM DVOR/DME (PU)	012524N 1035600E								*(5)*
	201° / 021°	12.9NM		FL 460 / 3000 FT ALT	4000 FT		Odd*(1)*	Even*(1)*	[Class A –ABV FL150 Class B –BLW FL150] *(3)*
▲ SINJON DVOR/DME (SJ)	011319N 1035120E								
	157° / 337°	30.2NM		FL 460 / 2000 FT ALT	4000 FT	10	Odd*(1)*		[Class A –ABV FL150 Class B –BLW FL150]
∆ BAVAL (30 DME SJ)	004518N 1040242E								
	159° / 339°	61.5NM		FL 460 / 2000 FT ALT	5000 FT	10	Odd*(1)*		[Class A –ABV FL150 Class B –BLW FL150]
∆ FIRJ1 (WSJC/WIIZ FIR BDRY)	001230N 1042424E								
	154° / 334°	21.0NM		FL 460 / 2000 FT ALT	5000 FT	10	Odd*(1)*		[Class A –ABV FL150 Class B –BLW FL150]
▲ SINGKEP NDB (NE)	003136S 1043324E								

Route Remarks:
Singapore ACC FREQ:
P123.7MHz, S127.3MHz

Point/Segment Remarks:

(2) **Lateral Limits:**
The eastern and western airway sectors are enclosed by a line joining
022830N 1035504E
015100N 1041436E
013542N 1041442E
012550N 1040109E
to a point 5NM west of PU DVOR/DME and northwards to a point 5NM west of VMR DVOR/DME.

(3) Within the lateral limits of Paya Lebar CTR.

(4) Eastbound Flight (report FL and flight condition over North CTR boundary). Westbound Flight (report FL and flight condition over VPK).

(5) Kuala Lumpur/Singapore FIR BDRY APRX 0.5NM north of PU.

Route Designator {RNP Type}	[Route Usage Notes]								
Significant Point Name	Significant Point Coordinates								Remarks
{RNP Type}	Track MAG ↓ ↑	Dist NM	(COP)	Upper limit / Lower limit	MNM FLT ALT	Lateral limits NM	FL series ↓	FL series ↑	Controlling unit Frequency {Airspace class} Remarks
1	2	3	4	5	6	7	8	9	10
B470	*Route availability:* (1) H24								
▲ SINJON DVOR/DME (SJ)	011319N 1035120E								
	145° 325°	30.1NM		FL 460 2000 FT ALT	3000 FT		Odd(1)	Even(1)	[Class A –ABV FL150 Class B –BLW FL150] (2)
Δ UDONI (30 DME SJ)	004818N 1040806E								
	145° 325°	60.9NM		FL 460 2000 FT ALT	5000 FT		Odd(1)	Even(1)	[Class A –ABV FL150 Class B –BLW FL150] (2)
FIRJ2 (WSJC/WIIZ FIR BDRY)	000224S 1044205E								(3)
	145° 325°	17.6NM		FL 460 2000 FT ALT	5000 FT		Odd(1)	Even(1)	[Class A –ABV FL150 Class B –BLW FL150] (2)
▲ ANITO	001700S 1045200E								

Route Remarks:
Singapore ACC FREQ:
P134.4MHz S128.1MHz

Point/Segment Remarks:

(2) **Lateral Limits:**
The lateral limits of this airway commence from 5NM either side of a line joining SJ DVOR/DME to OI NDB funnelling out from the SJ DVOR/DME on a 7½° tolerance to intersect the boundary of a similarly projected airway from OI NDB but on a 12° tolerance.
One way routeing from Singapore to Soekarno-Hatta and to destinations beyond. Two-way routeing Singapore/Pangkal Pinang for flights below FL200.

(3) Not a REP.
Reduced separation minima will be applied on B470 south of ANITO between RNAV-equipped aircraft using MNT.

Route Designator {RNP Type}	[Route Usage Notes]								
Significant Point Name	Significant Point Coordinates								Remarks
{RNP Type}	Track MAG ↓ / ↑	Dist NM	(COP)	Upper limit / Lower limit	MNM FLT ALT	Lateral limits NM	FL series ↓	FL series ↑	Controlling unit Frequency {Airspace class} Remarks
1	2	3	4	5	6	7	8	9	10
G579	*Route availability:* (1) H24								
▲ JOHOR BAHRU DVOR/DME (VJB)	013950N 1033939E								
	343° / 163°	10.3NM		FL 460 / 6500 FT ALT	7000 FT	3	Odd(1)	Even(1)	[Class A –ABV FL150 Class B –BLW FL150]
▲ JAYBEE NDB (JB)	013000N 1034242E (Johor Bahru)								(4)
	332° / 152°	4.0NM		FL 460 / 2000 FT ALT	7000 FT	3	Odd(1)	Even(1)	[Class A –ABV FL150 Class B –BLW FL150]
LAPOL	012622N 1034435E								(5)
	333° / 153°	6.1NM		FL 460 / 2000 FT ALT	11000 FT	3	Odd(1)	Even(1)	[Class A –ABV FL150 Class B –BLW FL150]
LEGOL	012053N 1034723E								(5)
	333° / 153°	8.4NM		FL 460 / 2000 FT ALT	3000 FT	3	Odd(1)	Even(1)	[Class A –ABV FL150 Class B –BLW FL150]
▲ SINJON DVOR/DME (SJ)	011319N 1035120E								(3)
	347° / -	30.2NM		FL 460 / 2000 FT ALT	4000 FT			Even(1)	[Class A –ABV FL150 Class B –BLW FL150] (2)
∆ REMES	004342N 1035735E								
	348° / -	27.7NM		FL 460 / 2000 FT ALT	5000 FT			Even(1)	[Class A –ABV FL150 Class B –BLW FL150] (2)
▲ REPOV	001623N 1040300E								
	348° / -	32.8NM		FL 460 / 2000 FT ALT	5000 FT			Even(1)	[Class A –ABV FL150 Class B –BLW FL150] (2)
FIRJ3 (WSJC/WIIZ FIR BDRY)	001606S 1040918E								(5)
	346° / -	18.4NM		FL 460 / 2000 FT ALT	5000 FT			Even(1)	[Class A –ABV FL150 Class B –BLW FL150] (2)
▲ PARDI (ABM NE)	003400S 1041300E								

Route Remarks:
Unidirectional route (Northbound) for flights from Jakarta FIR to Singapore FIR and beyond. Bi-directional route between Palembang and Singapore below FL200.

Point/Segment Remarks:

(2) **Lateral Limits (PLB VOR/SJ DVOR/DME):**
The lateral limits commence from 5NM either side of line joining PLB VOR to SJ DVOR/DME funnelling out from PLB VOR on a 7.5° tolerance to intersect the boundary of an AWY similarly projected from SJ DVOR/DME on a 7.5° tolerance.

(3) All FLT between SJ and JB are to avoid at all times WSR38 which overlaps the eastern edge of the airway.

(4) Kuala Lumpur/Singapore FIR boundary is approximately 2NM south of JB.

(5) Not a REP

Route Designator {RNP Type} / Significant Point Name	[Route Usage Notes] Significant Point Coordinates								Remarks
{RNP Type}	Track MAG ↓ / ↑	Dist NM	(COP)	Upper limit / Lower limit	MNM FLT ALT	Lateral limits NM	FL series ↓	FL series ↑	Controlling unit Frequency {Airspace class} Remarks
1	2	3	4	5	6	7	8	9	10
G580	*Route availability:* (1) H24								
▲ SINJON DVOR/DME (SJ)	011319N 1035120E								
	079° / 259°	33.7NM		FL 460 / 2000 FT ALT	3000 FT	10 NM	Odd(1)	Even(1)	[Class A – ABV FL150 Class B – BLW FL150]
▲ HOSBA (R079/34 DME SJ) (R103/24 DME VTK)	011948N 1042418E								
	088° / 268°	83.1NM		FL 460 / 6500 FT ALT	7000 FT		Odd(1)	Even(1)	[Class A] (2)
▲ TOMAN	012147N 1054717E								
	088° / 268°	58.3NM		FL 460 / 6500 FT ALT	7000 FT		Odd(1)	Even(1)	[Class A] (2)
▲ OBGET	012307N 1064531E								
	088° / 268°	74.0NM		FL 460 / 6500 FT ALT	7000 FT		Odd(1)	Even(1)	[Class A] (2)
▲ NIMIX	012452N 1075926E								
	088° / 268°	30.6NM		FL 460 / 6500 FT ALT	7000 FT		Odd(1)	Even(1)	[Class A] (2)
▲ ATETI (FIR BDRY)	012540N 1083000E								

Route Remarks:

10 min longitudinal separation based on the availability of navigational aids which permit frequent determination of position and speed.

Portion of G580 within Singapore FIR between ATETI and 1080000E has been delegated to Kuching ACC for provision of ATS.

Kuching ACC FREQ:
134.5MHz

Point/Segment Remarks:

(2) **Lateral Limits**:
5 NM on the northern side of line joining HOSBA to ATETI funnelling out at an angle of 15° from HOSBA to 20 NM towards ATETI.
20 NM on the southern side of line joining HOSBA to ATETI.
P134.2 MHz, S133.35 MHz

ENR 3.5 OTHER ROUTES

← 1 SINJON CROSSING BY MILITARY AIRCRAFT

1.1 Introduction

1.1.1 In order to facilitate the movement of various types of military traffic operating through the Changi Control Zone without impeding the flow of procedural traffic operating into and out of the Zone, the following procedures have been established for strict compliance by pilots-in-command (refer to chart ENR 3.5-3).

← *1.2 Crossing by Slow-moving Military Aircraft (Slow-lane Crossings)*

← 1.2.1 All slow-moving military aircraft are permitted to cross the Changi CTR 8.1NM and 6.7NM south of the extended centreline of RWY 02L and RWY 02C respectively. EASTBOUND and WESTBOUND flights at 500ft AMSL without reference to Singapore Tower or Singapore Approach.

← 1.2.2 The EASTBOUND is from PULAU AYER MERBAU (011600N 1034340E) on track of 110° MAG to the northern tip of Lazarus Island (SINJON). Thereafter, the track is 089° MAG to Point “E1” (10 DME SJ) and then direct to NEXUS [34 DME SJ R-077 (23 DME VTK R-100)] (012048N 1042424E).

← 1.2.3 The WESTBOUND is from NEXUS direct to Point “E1”. Thereafter, the track is 269° MAG to the northern tip of Lazarus Island (SINJON) and then 290°MAG until entering Tengah Aerodrome Traffic Zone.

← *1.3 Crossing by Fast-moving Military Aircraft (Fast-lane Crossings)*

← 1.3.1 All fast-moving military aircraft are permitted to cross the Changi Control Zone 9.4NM and 8NM south of the extended centreline of RWY 02L and RWY 02C respectively. EASTBOUND flights are to operate at 1,000ft AMSL and WESTBOUND flights at 500ft AMSL without reference to Singapore Tower or Singapore Approach.

← 1.3.2 The EASTBOUND is from PULAU SAKRA (011545N 1034200E) on a track of 115° MAG to Pulau Bukom Kechil and then track 110° MAG to 1NM south of the southern tip of Lazarus Island (SINJON). Thereafter, the track is 089° MAG to Point “E” (011221N 1040121E) and then direct to SIERRA (011830N 1042600E).

1.3.3 The WESTBOUND is from Point “E” on the reciprocal of the eastbound track to PULAU SAKRA.

← *1.4 Westbound SINJON Crossings at 1,500 FT*

← 1.4.1 A WESTBOUND LOW LEVEL TRACK of 1,500ft crossing the Changi CTR 10.9NM and 9.3NM south of the extended centreline(s) of RWY 02L and RWY 02C respectively, is to be used under VMC. This Westbound Low Level Track is established from Point "E" to a point 0.5NM north of PULAU SAMBU (011045N 1035356E) to SINJON.

1.5 Eastbound SINJON Crossing at 1,500FT

1.5.1 A EASTBOUND LOW LEVEL TRACK of 1,500ft crossing the Changi CTR 10.9NM and 9.3NM south of the extended centreline(s) of RWY 02L and RWY 02C respectively, is subject to coordination from Singapore Approach.

← *1.6 Operating Hours of SINJON Crossings*

← 1.6.1 SINJON Crossings are applicable at all times of the day.

1.7 Suspension of Unrestricted Military Crossings

← 1.7.1 In view of military traffic crossing the Changi CTR to the south, whenever it is known or has been made known ← that procedural or civil training traffic are unable for reasons of load or performance, etc., to effect a normal climb on RWY 20R/20C, the unrestricted crossings shall be suspended and the RSAF FIS Controller be informed immediately.

← 1.7.2 All aircraft departing on RWY 20R/20C on SID are required to cross 8 DME VTK at or above 2,000ft. If the height restriction cannot be complied with, the pilot-in-command of an aircraft departing on RWY 20R/20C shall inform ATC during the time when the aircraft commences taxiing to the holding point for departure.

1.8 Altimeter Setting

1.8.1 The Singapore QNH setting shall be used by military aircraft crossing the Changi CTR under the above procedures.

1.9 Emergency

← 1.9.1 In the event of an emergency occurring to a procedural aircraft in the area e.g. an engine cut on takeoff or landing etc., all unrestricted military crossings under these procedures shall be forthwith suspended. Such suspensions shall be notified immediately to the Duty RSAF FIS Controller, SATCC.

2 TRANSIT CHANNEL

2.1 Introduction

2.1.1 To ensure safety of aircraft operations and minimise interruptions to aircraft operating in Light Aircraft Training Area A, a transit channel is established for military traffic to transit through. The Transit Channel will be all the airspace within Area A north of Mandai Road.

2.2 Activation

2.2.1 The Transit Channel will be activated only when there is a military aircraft crossing. Activation will be initiated by Paya Lebar Approach. All aircraft operating within the area are advised to vacate the channel on receipt of the activation. Such aircraft shall report their intentions to Paya Lebar Approach.

2.2.2 To ensure safety of operation, all aircraft operating within the lateral and vertical limits of the channel shall notify Paya Lebar Approach.

2.3 Dimensions

2.3.1 The co-ordinates for the Channel are:

012714N 1034752E 012442N 1034705E 012438N 1034556E 012650N 1034619E.
(refer to chart ENR 3.5-3).

2.4 Vertical Limits

2.4.1 Ground level to 2,000ft.

3 HORSBURGH LIGHTHOUSE

3.1 Horsburgh Lighthouse (011949N 1042420E) is a visual reference point for VFR flights.

3.2 For the purpose of safe navigation, all VFR traffic in the vicinity of the Horsburgh Lighthouse shall exercise extra caution when approaching the area.

3.3 Vertical Limits: Ground/sea level to 2,000 feet for VFR flights.
Note: Minimum flight altitude on ATS Route G580 above the Horsburgh Lighthouse is 3,000 feet.

3.4 The Singapore QNH shall be used by all aircraft in the vicinity of Horsburgh Lighthouse.

ENR 3.6 ENROUTE HOLDING

HLDG ID/FIX/WPT Coordinates	*INBD TR (˚Mag)*	*Direction of Procedure Turn*	*MAX IAS*	*MNM-MAX HLDG Level*	*Time (min)*	*Controlling Unit and Frequency*
1	2	3	4	5	6	7
BOBAG 38.6 DME VTK R-234.7 24.0 DME SJ R-243.2 010230N 1032954E	083	Right	250kt*	FL 140 6000 FTALT	1	Singapore ACC 124.05 MHz (PRI) 124.6 MHz (SRY)
BOBAG 38.6 DME VTK R-234.7 24.0 DME SJ R-243.2 010230N 1032954E	083	Right	250kt*	FL 180 FL 150	1	Singapore ACC 133.25 MHz (PRI) 135.8 MHz (SRY)
HOSBA (HHA) - Low Level 34 DME SJ R-079 24 DME VTK R-103 011947.8N 1042417.5E	259	Right	230kt*	FL 140 7000 FTALT	1	Singapore ACC 120.3 MHz (PRI) 124.6 MHz (SRY)
HOSBA (HHA) - High Level 34 DME SJ R-079 24 DME VTK R-103 011947.8N 1042417.5E	259	Right	265kt*	FL 250 FL 150	1.5	Singapore ACC 134.4 MHz (PRI) 128.1 MHz (SRY) 255.4 MHz
IKIMA - High Level 67.9 DME VTK R-127.6 70.5 DME SJ R-115.1 004314N 1045500E	291	Right	250kt*	FL 250 FL 150	1.5	Singapore ACC 134.4 MHz (PRI) 128.1 MHz (SRY)
KARTO - High Level 93.5 DME VTK R-098.3 102.6 DME SJ R-091.1 011124N 1053343E	269	Left	280kt*	FL 310 FL 260	1.5	Singapore ACC 134.2 MHz (PRI) 133.35 MHz(SRY)
LAMA - Low Level 7 DME PU R-024 013149.5N 1035850.3E	204	Right	230kt*	FL 140 2500 FT ALT	1	Singapore ACC 120.3 MHz (PRI) 124.6 MHz (SRY)
LAVAX - Low Level 36 DME SJ R-096 010950N 1042714E	269	Left	220kt	FL 140 7000 FT ALT	1	Singapore ACC 120.3 MHz (PRI) 124.6 MHz (SRY)
MABAL - High Level 142.1 DME VTK R-030.1 157.2 DME SJ R-031.2 032826N 1051236E	231	Left	300kt*	FL 350 FL 280	1.5	Singapore ACC 123.7 MHz (PRI) 127.3 MHz (SRY)
NYLON (NHA) - Low Level 13 DME VTK R-023 013656.9N 1040623.8E	203	Left	220kt*	FL 140 3000 FT ALT	1	Singapore ACC 120.3 MHz (PRI) 124.6 MHz(SRY)
NYLON (NHA) - High Level 13 DME VTK R-023 013656.9N 1040623.8E	203	Left	265kt*	FL 250 FL 150	1.5	Singapore ACC 120.3 MHz (PRI) 124.6 MHz (SRY)
REMES- Low Level 30 DME SJ R-168 004342N 1035735E	348	Right	220kt	FL 140 6000 FT ALT	1	Singapore ACC 120.3 MHz (PRI) 124.6 MHz (SRY)
REPOV- High Level 68.2 DME VTK R-178.6 57.9 DME SJ R-168.3 001623N 1040300E	348	Left	250kt*	FL 250 FL 150	1.5	Singapore ACC 134.4 MHz (PRI) 128.1 MHz(SRY)
SAMKO (SHA)- Low Level 8 DME SJ R-168 21 DME VTKR-204 010529.5N 1035254.9E	348	Left	220kt*	FL 140 4000 FT ALT	1	Singapore ACC 120.3 MHz (PRI) 124.6 MHz (SRY)
SAMKO (SHA)- High Level 8 DME SJ R-168 21 DME VTK R-204 010529.5N 1035254.9E	348	Left	265kt*	FL 250 FL 150	1.5	Singapore ACC 120.3 MHz (PRI) 124.6 MHz (SRY)

HLDG ID/FIX/WPT Coordinates	*INBD TR (°Mag)*	*Direction of Procedure Turn*	*MAX IAS*	*MNM-MAX HLDG Level*	*Time (min)*	*Controlling Unit and Frequency*
1	2	3	4	5	6	7
SINJON - Low Level SJ DVOR/DME 011319.28N 1035120.08E	348	Right	230kt*	FL 140 4500 FT ALT	1	Singapore ACC 120.3 MHz (PRI) 124.6 MHz (SRY)
VEPLI - High Level 146.8 DME VTK R-001.7 158.9 DME SJ R-005.2 035223N 1040542E	180	Left	300kt*	FL 350 FL 280	1.5	Singapore ACC 123.7 MHz (PRI) 127.3 MHz (SRY)
VINIL - High Level 90 DME VTK R-003 025500N 1040618E	180	Left	250kt*	FL 260 FL 160	1.5	Singapore ACC 133.8 MHz

* Maximum speed of 280kt in conditions of turbulence subject to ATC clearance.

ENR 4 RADIO NAVIGATION AIDS/SYSTEMS

ENR 4.1 RADIO NAVIGATION AIDS - ENROUTE

Name of station (VOR/VAR)	*Id*	*Frequency (CH)*	*Hours of operation*	*Co-ordinates*	*ELEV DME antenna*	*Remarks*
1	2	3	4	5	6	7
BATAM/ HANG NADIM VOR/DME	BTM	116.0 MHz (CH 107X)	from 00:00 to 12:00	010813N 1040757E	-	Operating Authority: Directorate-General of Civil Aviation, Indonesia. PPR outside OPR HR. EM: A2A (DVOR/DME)
BATAM/ HANG NADIM NDB	BM	370 kHz	from 00:00 to 12:00	010717N 1040638E	-	Operating Authority: Directorate-General of Civil Aviation, Indonesia. PPR outside OPR HR. EM: Non/A2A (NDB)
JAYBEE NDB	JB	400 kHz	H24	013000N 1034242E (Johor Bahru)	-	BRG 298° DIST 19.6km from ARP Seletar. Coverage 50NM. Unusable 270°-060° beyond 20NM. EM:A0/A2
JOHOR BAHRU DVOR/DME	VJB	112.5 MHz (CH 72X)	H24	013950N 1033939E	43.07 M	Operating Authority: Department of Civil Aviation Malaysia
JOHOR BAHRU NDB	JR	245 kHz	H24	014030N 1033936E	-	Operating Authority: Department of Civil Aviation Malaysia EM: A0/A2 (NDB)
KONG KONG NDB	KK	286 kHz	H24	013118N 1035924E	-	BRG 049° DIST 17.7km from ARP Seletar. Coverage 50NM. Unusable 270°-010° beyond 30NM. EM:A0/A2
MERSING DVOR/DME	VMR	116.8 MHz (CH 115X)	H24	022318N 1035218E	-	Operating Authority: Department of Civil Aviation Malaysia. 50w
PAPA UNIFORM DVOR/DME	PU	115.1 MHz (CH 98X)	H24	012524N 1035600E	Antenna HGT: 190 FT AMSL	BRG 020° DIST 9km from THR RWY 02 (Paya Lebar). MAINT Period: Third WED of EV month BTN 0200-0600 Coverage 200NM. EM: F1
PAYA LEBAR TACAN	PLA	(CH 110X)	BTN 2300-1100 SUN/MON to THU/FRI; BTN 2300-0500 FRI/SAT; PPR from RSAF HQ via Paya Lebar OPS at other times.	012224N 1035451E	-	BRG 015° DIST 1.5km from ARP. MAINT Period: Second THU of EV month BTN 0001-1100
SELETAR NDB	SEL	220 kHz	H24	012449N 1035210E	-	BRG 152° DIST 0.44km from ARP. Coverage 50NM. EM: A0/A2
SEMBAWANG NDB	AG	325 kHz	H24	012524N 1034924E	-	BRG 198° DIST 0.54km from ARP. MAINT Period: Second FRI of EV month BTN 0200-0400. Coverage 30NM. EM: A3
← SINJON DVOR/DME	SJ	113.5 MHz (CH 82X)	H24	011319N 1035120E	Antenna HGT: 150 FT AMSL	BRG 201° DIST 14.5km from THR RWY 02 (Paya Lebar Airport). MAINT Period: Third THU of EV month BTN 0200-0600. Coverage 200NM. EM: F1
TANJUNG PINANG NDB	TI	385 kHz	from 00:00 to 14:00	005511N 1043134E	-	Operating Authority: Directorate-General of Civil Aviation, Indonesia. EM: Non/A2A (NDB)
TANJUNG PINANG VOR/DME	TPG	114.8 MHz (CH 95X)	from 00:00 to 14:00	005413N 1043052E	-	Operating Authority: Directorate-General of Civil Aviation, Indonesia. Coverage 40NM.

Name of station (VOR/VAR)	*Id*	*Frequency (CH)*	*Hours of operation*	*Co-ordinates*	*ELEV DME antenna*	*Remarks*
1	2	3	4	5	6	7
TEKONG DVOR/DME	VTK	116.5 MHz (CH 112X)	H24	012455N 1040120E	Antenna HGT: 150 FT AMSL	BRG 023° DIST 6.4km from THR RWY 20C (Singapore Changi Airport). MAINT Period: Third FRI of EV month BTN 0200-0600. Coverage 200NM. EM:F1
TENGAH TACAN	TNG	(CH 86X)	BTN 2300-1100 SUN/MON to THU/FRI; BTN 2300-0500 FRI/SAT; PPR from RSAF HQ via Tengah OPS at other times.	012336N 1034242E	-	BRG 043° DIST 0.55km from ARP. MAINT Period: Second SAT of EV month BTN 0001-0900.

ENR 4.4 NAME-CODE DESIGNATIONS FOR SIGNIFICANT POINTS

Name-code designator	*Co-ordinates*	*ATS route or other route*	*Terminal Area*
1	2	3	4
ABVIP	010008N 1035032E		SID-WSSS
ABVON	012028.18N 1035827.03E		IAC-WSSS
ADMIM	005733N 1033033E		SID-WSSS
ADNIK	011651.19N 1035655.43E		IAC-WSSS
AGOBA	015840N 1083000E	M761	
AGROT	010108N 1035808E		SID-WSSS
AGVAR	014719N 1034145E		SID-WSSS
AKIPO	011356.27N 1035541.59E		IAC-WSSS
AKMET	015355N 1034339E		SID-WSSS
AKMON	081256N 1101308E	L625, M768	
AKOMA	014522N 1035443E	B469, Y339	SID-WSSS, IAC-WSSS
ANBUS	011556N 1032102E	P501	STAR-WSSS
ANITO	001700S 1045200E	B338, B470, P501	SID-WSSS
ANUMA	011053.11N 1035424.35E		IAC-WSSS
APIPA	010618.43N 1035228.35E		IAC-WSSS
ARAMA	013654N 1030712E	A464, P501	STAR-WSSS
AROSO	020846N 1032421E	Y339, Y342	SID-WSSS
ARUPA	003140N 1084846E	N875	
ASISU	055906N 1132046E	M768, M772	
ASUNA	005948N 1030954E	R469	STAR-WSSS
ATETI	012540N 1083000E	G580	
ATKAX	000512N 1065946E		SID-WSSS
ATPOM	002425N 1052114E	M635	
ATRUM	013256N 1040057E		SID-WSSS
BAVAL	004518N 1040242E	B469	
BAVUS	000000N 1090000E	L504	
BETBA	013302N 1035331E		STAR-WSSS
BIDAG	073101N 1135544E	M772	
BIDUS	013554.05N 1035754.86E		IAC-WSSS, STAR-WSSS
BIKTA	024337N 1034308E	B469	STAR-WSSS
BIPOP	013122N 1041018E		IAC-WSSS, STAR-WSSS
BOBAG	010230N 1032954E	R469, M630, N502, P501	HLDG ID, SID-WSSS, STAR-WSSS
BOBOB	022206N 1070558E	M761, M767, N875	
BOKIP	010421N 1034353E		SID-WSSS, STAR-WSSS
BONSU	011928N 1033710E	A576	

Name-code designator	Co-ordinates	ATS route or other route	Terminal Area
1	2	3	4
BUNTO	024008N 1055953E	G334	
BUVAL	033622N 1034341E	L629, Y333	
DAKIX	070854N 1145054E	L649	
← DAMOG	041225N 1050014E	M771, N875	
DIVSA	011105N 1040303E		SID-WSSS
DOGRA	010525N 1041423E		SID-WSSS
DOKTA	012606N 1041040E		SID-WSSS
DOLOX	044841N 1052247E	L629, M771	
DONDI	011252N 1035855E		SID-WSSS
DOSNO	004757N 1041409E		SID-WSSS
DOSPA	011459N 1040441E		SID-WSSS
DOVAN	011938N 1041249E		STAR-WSSS
DOVOL	033047N 1034923E	L635, Y334	
DUBSA	034901N 1044540E	L635, M771	
DUDIS	070000N 1064834E	L644, M771	
← EGOLO	031934N 1040047E	L642	
EGORA	013621.37N 1040607.23E		IAC-WSSS
ELALU	013439.87N 1040524.21E		IAC-WSSS
ELBEB	012844.66N 1040254.38E		IAC-WSSS
ELBEX	013148.96N 1040314.18E		IAC-WSSS
ELGAP	012820.28N 1040146.15E		IAC-WSSS
ELGOR	033014N 1054818E	M758, N875	
ELMIN	012549.68N 1040140.51E		IAC-WSSS
EMTAP	011655.88N 1035657.47E		IAC-WSSS
ENLES	010931.51N 1035349.83E		IAC-WSSS
ENREP	045223N 1041442E	L642, M753, M763, M904, N875, N891	
ENSUN	012602.56N 1040048.10E		IAC-WSSS
ERVOT	011120.09N 1035435.85E		IAC-WSSS
ESBIT	012212.07N 1040008.64E		IAC-WSSS
ESLUX	011844.31N 1035840.44E		IAC-WSSS
ESPIT	020011N 1072624E	M646, N875	
ESPOB	070000N 1053317E	L642	
EXOMO	010425.49N 1040933.17E		IAC-WSSS
HOSBA	011948N 1042418E	G580, W401	HLDG ID
IBIBI	011503N 1035707E		SID-WSSS
IBIVA	011351N 1035637E		SID-WSSS
IBIXU	011621N 1035740E		SID-WSSS

Name-code designator	Co-ordinates	ATS route or other route	Terminal Area
1	2	3	4
IBULA	005036N 1043600E		STAR-WSSS
IDMAS	004900N 1041848E	B338	
IDSEL	032432N 1035544E	M758, Y335	
IDUNA	012305.80N 1035933.58E		IAC-WSSS
IDURO	012639.84N 1040103.94E		IAC-WSSS
IDVAS	012934.66N 1040217.75E		IAC-WSSS
IGARI	065610N 1033506E	R208, M765, N891	
IGNON	010847N 1041257E		STAR-WSSS
IGULA	013232.27N 1040332.66E		IAC-WSSS
IKAGO	003816N 1052931E		STAR-WSSS
IKIMA	004314N 1045500E		HLDG ID, STAR-WSSS
IKUKO	054512N 1031324E	R208	
IKUMI	055338N 1035509E	N891	
IPNAK	013711.93N 1040530.83E		IAC-WSSS
IPRIX	070000N 1040755E	M753	
KADAR	000647S 1074342E	M774	
KAKSA	011702.58N 1035757.92E		IAC-WSSS
KAMIN	023442N 1085536E	G334, M646	
KARTO	011124N 1053343E		HLDG ID, STAR-WSSS,
KASPO	011507.15N 1035709.20E		IAC-WSSS
KETOD	031042N 1040942E	M761, Y336	
KEXAS	011019N 1044818E		STAR-WSSS
KIBOL	025229N 1042805E	G334, N892	
KIKOR	002244S 1070524E	L644	
KILOT	030217N 1044023E	M761, N892	STAR-WSSS
KIMER	011105.74N 1035527.30E		IAC-WSSS
LAGOT	071632N 1113243E	M768, N884	
LAGUS	011915.29N 1035854.00E		IAC-WSSS
LAPOL	012622N 1034435E	G579	
LASIN	011538.25N 1035722.39E		IAC-WSSS
LAVAX	010950N 1042714E		HLDG ID, STAR-WSSS,
LAXOR	094937N 1144829E	L649, M772, N884	
LEBIN	031438N 1060604E	N875, N884	
LEDOX	011642N 1035651E		SID-WSSS
LEGAS	011524N 1035618E		SID-WSSS
LEGOL	012053N 1034723E	G579	
LELIB	012729N 1032450E	A464, W401	SID-WSSS, STAR-WSSS

Name-code designator	Co-ordinates	ATS route or other route	Terminal Area
1	2	3	4
LELON	011243.51N 1035608.62E		IAC-WSSS
LENDA	024124N 1043932E	N884	
LEPNA	010648.29N 1035338.82E		IAC-WSSS
LETGO	011411N 1035548E		SID-WSSS
LIDVA	010505.67N 1035255.38E		IAC-WSSS
LIPRO	025342N 1051128E	M761, N884	
LUSMO	033341N 1065534E	L625, M758, N884	
LUXOL	011802.73N 1035823.38E		IAC-WSSS
MABAL	032826N 1051236E	M758, N892	HLDG ID, STAR-WSSS
MABLI	041717N 1061247E	L635, L644, N892	
← MANIM	031431N 1040553E	N891	
MASBO	020248N 1025251E	A457	SID-WSSS
MASNI	012037N 1033746E	A464	
MELAS	070520N 1080911E	N892	
← MESOG	020103N 1031240E	B466	
← MUMSO	034420N 1053213E	N875, N892	
NIMIX	012452N 1075926E	G580, N875	
← NIVAM	023650N 1040228E	G219	
NODIN	081100N 1161142E	M522	
NOPAT	042313N 1044756E	L629, N875	
NYLON	013656.90N 1040623.80E		HLDG ID, IAC-WSSS, SID-WSSS, STAR-WSSS
OBDAB	031153N 1040538E	N891	
OBDOS	002503N 1065551E	L504, M774	STAR-WSSS
OBGET	012307N 1064531E	G580, L644	
OBLOT	014256N 1064147E	L644, M646	
ODONO	063613.82N 1030129.41E	M904	
OLKIT	045010N 1115118E	M758	
OLSAM	020059N 1063824E	L644	
OMBAP	023116N 1063242E	L644	
OMLIV	025512N 1062812E	L644	
ONAPO	032116N 1062318E	L644	
OPULA	033155N 1062118E	L644	
OTLON	030752N 1042006E	M761, M771	
PADLI	030918N 1033133E	B469, Y332, Y333, Y334, Y335, Y336	
PALGA	011059N 1034759E		STAR-WSSS
PAMSI	010459N 1034845E		STAR-WSSS
PARDI	003400S 1041300E	G579, N502	

Name-code designator	Co-ordinates	ATS route or other route	Terminal Area
1	2	3	4
PASPU	015915N 1040618E		STAR-WSSS,
PEKLA	023437N 1040618E	N892	
PIBAP	023023N 1040618E		STAR-WSSS
PIMOK	012648N 1032008E	A576, W401	SID-WSSS, STAR-WSSS
POSUB	012725N 1040748E		STAR-WSSS,
RAXIM	030318N 1041713E	M771	
REDUK	021957N 1030459E	R325	
REKOP	013306N 1030521E	A576	STAR-WSSS
REMES	004342N 1035735E	G579	HLDG ID, STAR-WSSS
REPOV	001623N 1040300E	G579	HLDG ID, STAR-WSSS
ROBMO	025440N 1035700E	L642	
RUVIK	011422N 1042033E		SID-WSSS, STAR-WSSS
← SABIP	020940N 1075044E	M646, M761	
SABKA	015051N 1031713E	A457	
SAMKO	010529.5N 1035254.9E	R469, W407	HLDG ID, STAR-WSSS,
SANAT	010749N 1035930E		STAR-WSSS,
← SUKRI	012306N 1025904E	M630	
SUMLA	080242N 1160054E	M754	
← SURGA	003657S 1063119E	M635	
SUSAR	035848N 1051547E	L635, N875	
← TAROS	004200N 1021607E	R469	
TAXUL	035035N 1034037E	M763, Y332	
TEGID	085656N 1155143E	M767	
TERIX	041521N 1093456E	L517, M758, M767	
TIDAR	065230.15N 1024959.82E	M904	
TODAM	063138N 1123536E	M767, M768	
TOKIM	012933N 1040315E		SID-WSSS
TOMAN	012147N 1054717E	G580, L625, M646, M767	SID-WSSS, STAR-WSSS
TOPOM	012955N 1040227E		SID-WSSS
TOPOR	014412N 1025330E	W534	
UDONI	004818N 1040806E	B470	
UGPEK	033647N 1040752E	L635, N891	
UPRON	060903.41N 1032039.98E	M904	
URIGO	032505N 1040647E	M758, N891	
VABRI	013114.96N 1040357.78E		IAC-WSSS
VENIX	002156S 1060521E		SID-WSSS
VENLI	062848N 1024900E	M765	

Name-code designator	*Co-ordinates*	*ATS route or other route*	*Terminal Area*
1	2	3	4
VENPA	002141N 1044955E		SID-WSSS
VEPLI	035223N 1040542E	L629, L642	HLDG ID, STAR-WSSS
VERIN	023332N 1062425E	L625	
VILEV	012729.10N 1040222.42E		IAC-WSSS
VINIK	083830N 1161348E	M522, M754	
VINIL	025500N 1040618E		HLDG ID, STAR-WSSS,
VISAT	032620N 1043134E	M758, M771	

2.5 *TERMINAL 3 AIRCRAFT STANDS*

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

Stands	A1	A2	A3	A4	A5	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21
A300		✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
A310		✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
A319		✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
A320		✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
A321		✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
A332	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		✈
A333	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
← **A343**	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈
← **A345**	✈	✈	✈	✈	✈		✈	✈	✈	✈	✈		✈	✈				
A346		✈		✈	✈		✈	✈	✈	✈	✈							
A359	✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈		✈				
A380		✈		✈	✈		✈											
B737			✈			✈		✈	✈	✈	✈		✈	✈	✈	✈		
← **B744**	✈	✈	✈	✈	✈		✈	✈	✈	✈	✈		✈	✈				
B788		✈		✈	✈		✈	✈	✈	✈		✈	✈	✈	✈	✈	✈	✈
B789	✈	✈		✈	✈		✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B757		✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
B767		✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
B772	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B772LR											✈			✈				
B773		✈		✈	✈		✈	✈	✈	✈	✈							
B773ER		✈		✈	✈		✈	✈	✈	✈	✈							

Stands	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
A300		✈	✈	✈	✈	✈	✈	✈	✈	✈
A310		✈	✈	✈	✈	✈	✈	✈	✈	✈
A319		✈	✈	✈	✈	✈	✈	✈	✈	✈
A320		✈	✈	✈	✈	✈	✈	✈	✈	✈
A321		✈	✈	✈	✈	✈	✈	✈	✈	✈
A332	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A333	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A343	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A345	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A359	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A346		✈		✈	✈		✈			
A380		✈		✈	✈		✈			
B707									✈	✈
B737			✈			✈				
B744	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B788	✈	✈	✈	✈	✈		✈	✈	✈	✈
B789	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B757		✈	✈	✈	✈	✈	✈	✈	✈	✈
B767		✈	✈	✈	✈	✈	✈	✈	✈	✈
B772	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B773		✈		✈	✈	✈	✈	✈	✈	✈
B773ER		✈		✈	✈	✈	✈	✈	✈	✈

2.6 REMOTE STANDS

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

Stands	103	104	200	200L	200R	201	202	202L	202R	203	205	206	207	208	209
A300, A310	✈	✈	✈			✈	✈			✈	✈	✈	✈	✈	✈
A319, A320	✈	✈		✈	✈	✈		✈	✈	✈	✈	✈	✈	✈	✈
A321				✈	✈			✈	✈						
A330, A342	✈	✈	✈			✈	✈			✈	✈	✈			
A343, A345	✈	✈	✈			✈	✈			✈	✈	✈			
A359	✈	✈	✈			✈	✈			✈	✈	✈			
A380	✈	✈													
AT72			✈			✈	✈			✈	✈	✈	✈	✈	✈
B707, B727	✈	✈	✈			✈	✈			✈	✈	✈	✈	✈	✈
B737	✈	✈		✈	✈	✈		✈	✈	✈	✈	✈	✈	✈	✈
B747, B74S, B788	✈	✈	✈			✈	✈			✈	✈	✈			
B748	✈	✈													
B757	✈	✈	✈			✈	✈			✈	✈	✈	✈	✈	✈
B767, B772, B773	✈	✈	✈			✈	✈			✈	✈	✈			
B773ER	✈	✈	✈			✈	✈			✈	✈	✈			
B789	✈	✈	✈			✈	✈			✈	✈	✈			
DC8	✈	✈													
DC10	✈	✈	✈			✈	✈			✈	✈	✈			
DHC7													✈	✈	✈
F70	✈	✈	✈			✈	✈			✈	✈	✈	✈	✈	✈
IL62			✈			✈	✈			✈	✈	✈			
L101	✈	✈	✈			✈	✈			✈	✈	✈			
MD11	✈	✈	✈			✈	✈			✈	✈	✈			
MD83						✈				✈	✈	✈	✈	✈	✈

Stands	300	301	302	303	304	305	306	307	308	309	310	400	401	402	403	404
A300, A310	✈	✈	✈	✈	✈	✈	✈			✈	✈	✈	✈	✈		
A319, A320	✈	✈	✈	✈	✈	✈	✈			✈	✈	✈	✈	✈	✈	
A330, A342	✈		✈								✈	✈	✈			
A343, A345	✈		✈								✈	✈	✈			
A359	✈		✈								✈					
AT72				✈	✈	✈	✈									
B707	✈	✈	✈	✈	✈	✈	✈			✈	✈	✈	✈	✈		
B727	✈	✈	✈	✈	✈	✈	✈			✈	✈	✈	✈	✈	✈	
B737 (100-500)	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B737 (600-900)	✈	✈	✈	✈	✈	✈	✈			✈	✈	✈	✈	✈	✈	
B747	✈		✈								✈	✈	✈			
B74S, B788	✈		✈								✈	✈	✈			
B757, B767	✈	✈	✈	✈	✈	✈	✈			✈	✈	✈	✈	✈		
B772, B773	✈		✈								✈	✈	✈			
B773ER	✈		✈								✈	✈	✈			
B789	✈		✈								✈	✈	✈			
DC10	✈		✈				✈				✈	✈	✈			
DC8	✈	✈	✈	✈	✈	✈	✈			✈	✈					
F70	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	
L101	✈		✈				✈				✈	✈	✈			
MD11	✈		✈				✈				✈	✈	✈			
MD83												✈	✈	✈	✈	

APRON/ ACFT STANDS	PUSHBACK PROCEDURES	PHRASEOLOGY USED BY SINGAPORE GROUND
A18	The aircraft (on idle thrust) shall be pushed back onto TWY U4 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 centreline of TWY U4 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
A19	The aircraft (on idle thrust) shall be pushed back onto TWY U4 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 centreline of TWY U4 and the nose of the aircraft is behind the stopbar 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 TWY U4 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 centreline of TWY U4 and the nose of the aircraft is behind the stopbar behind 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 U4 to face East such that the pushback line is always kept midway between the aircraft main gear until its nosewheel is at the “END OF PUSH (for A21 nose gear)” position. The aircraft shall then be towed forward to face West 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 TWY 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 start up is not permitted during standard pushback. Alternate Pushback The aircraft (on idle thrust) shall be pushed back onto Taxilane V6 to face East, followed by TWY WA, such that the alternate pushback line is always kept midway between the aircraft main gear until the nose of the aircraft is behind the stopbar behind aircraft stand A3 or B2. The aircraft may breakaway from there. **This alternate pushback procedure can only be exercised if the auxiliary power unit of aircraft is unserviceable.**	Standard pushback approved Pushback approved, to face North (or South) on TWY WA.
B2	The aircraft (on idle thrust) shall be pushed back onto TWY 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 TWY V6 centreline and the nosewheel stops at the “END OF PUSH (A2, B2)” position. The aircraft shall then be towed forward along TWY V6 centreline 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	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 centreline. The aircraft may breakaway from there.	Pushback approved, to face North (or South).
B4	The aircraft (on idle thrust) shall be pushed back onto TWY WA to face North (or South) such that the pushback line is always kept midway between the aircraft main gear until its nosewheel is at TWY WA centreline. The aircraft may breakaway from there.	Pushback approved, to face North (or South).

APRON/ ACFT STANDS	PUSHBACK PROCEDURES	PHRASEOLOGY USED BY SINGAPORE GROUND
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 • onto TWY U1 to face South such that the pushback line is always kept midway between the aircraft main gear 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.
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. OR • 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.	Pushback approved, to face South. Pushback approved, to face North.
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 centreline. The aircraft may breakaway from there. OR • onto TWY U1 to face North until its nosewheel is at the intersection of the lead-in line and TWY U1 centreline. The aircraft shall then be towed forward until its nosewheel is at the intersection of the aircraft stand B9 lead-in line and TWY U1 centreline. The aircraft may breakaway from there.	Pushback approved, to face South. Pushback approved, to face North.
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 centreline. The aircraft may breakaway from there.	Pushback approved, to face North (or South).
MARS REMOTE		
101, 101R	The aircraft (on idle thrust) shall be pushed back to face East until its nosewheel is at the “END OF PUSH” position. The aircraft shall then be towed forward until its nosewheel is at the “END OF TOW (EOT)” position on TWY L4 centreline. The aircraft may breakaway from there.	Standard pushback approved.
101L	The aircraft (on idle thrust) shall be pushed back onto TWY L4 centreline to face East. The aircraft shall then be towed forward along the centreline of TWY L4 until its nosewheel is at the “END OF TOW (EOT)” position. The aircraft may breakaway from there.	Standard pushback approved.
102, 102R, 102L	The aircraft (on idle thrust) shall be pushed back onto TWY L4 centreline to face East. The aircraft shall then be towed forward along the centreline of TWY L4 until the nose of the aircraft is behind the stopbar behind aircraft stand 102. The aircraft may breakaway from there.	Standard pushback approved.

APRON/ ACFT STANDS	PUSHBACK PROCEDURES	PHRASEOLOGY USED BY SINGAPORE GROUND
EAST REMOTE		
200, 201, 202, 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).
200L	The aircraft (on idle thrust) shall be pushed back: • onto Taxilane C6 centreline to face North until its nosewheel is on the end of push behind aircraft stand 200L. The aircraft may breakaway from there. OR • onto Taxilane C6 centreline to face South.	Pushback approved, to face North. Pushback approved, to face South.
200R, 202L 202R	The aircraft (on idle thrust) shall be pushed back onto Taxilane C6 centreline 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 Taxilane L4 centreline to face East until the nose of the aircraft is behind the stopbar behind aircraft stand 102. The aircraft may breakaway from there.	Standard pushback approved.
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 centreline.	Pushback approved, to face North (or South).
NORTH REMOTE		
300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310	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 NC2 centreline. OR • facing East until its nosewheel is at the intersection of the lead-in line and taxiway NC2 centreline.	Pushback approved, to face West. Pushback approved, to face East.
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 centreline.	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, 509	The aircraft (on idle thrust) shall be pushed back to face North (or South). The aircraft may breakaway from there. There shall be no simultaneous pushback of aircraft unless with two aircraft stands separation.	Pushback approved, to face North (or South).
510	The aircraft (on idle thrust) shall be pushed back to face North (or South) until the nosewheel of the aircraft is at the intersection of the aircraft stand lead-in line and Taxiway WC centreline. The aircraft may breakaway from there. There shall be no simultaneous pushback of aircraft unless with two aircraft stands separation.	Pushback approved, to face North (or South).

APRON/ ACFT STANDS	PUSHBACK PROCEDURES	PHRASEOLOGY USED BY SINGAPORE GROUND
511	The aircraft (on idle thrust) shall be pushed back - onto Twy WC to face North until the nosewheel of the aircraft is at the intersection of the aircraft stand lead-in line and Taxiway WC centreline. The aircraft may breakaway from there. OR - onto TWY WC to face South until the nosewheel of the aircraft is at the intersection of the aircraft stand lead-in line and Taxiway WC centreline. The aircraft shall then be towed forward until the nosewheel is at the "EOT" position behind aircraft stand 510. The aircraft may breakaway from there.	Pushback approved, to face North. Pushback approved, to face South.
512	The aircraft (on idle thrust) shall be pushed back - onto Twy WC to face North until the nose of the aircraft is behind the stop bar behind aircraft stand 511. The aircraft may breakaway from there. OR - onto TWY WC to face South until the nosewheel of the aircraft is at the intersection of the aircraft stand lead-in line and Taxiway WC centreline. The aircraft shall then be towed forward until the nosewheel is at the "EOT" position behind aircraft stand 510. The aircraft may breakaway from there.	Pushback approved, to face North. Pushback approved, to face South.
513	The aircraft (on idle thrust) shall be pushed back - onto Twy WC to face North until the nosewheel of the aircraft is at the intersection of the aircraft stand lead-in line and Taxiway WC centreline. The aircraft may breakaway from there. OR ← - onto TWY WC to face South until the nose of the aircraft is behind the stop bar behind aircraft stand 515 on Taxilane WD. The aircraft may breakaway from there.	Pushback approved, to face North. Pushback approved, to face South.
← 514	The aircraft (on idle thrust) shall be pushed back - onto TWY WC to face North until the nose of the aircraft is behind the stop bar behind aircraft stand 513. The aircraft may breakaway from there. OR ← - onto TWY WC to face South until the nose of the aircraft is behind the stop bar behind aircraft stand 515 on Taxilane WD. The aircraft may breakaway from there.	Pushback approved, to face North. Pushback approved, to face South.
515	The aircraft (on idle thrust) shall be pushed back onto Taxilane WD to face South until the nose of the aircraft is behind the stop bar. The aircraft may breakaway from there.	Standard pushback approved.
516, 517	The aircraft (on idle thrust) shall be pushed back onto Taxilane WD to face South until the nose of the aircraft is at the intersection of the aircraft stand lead-in line and Taxilane WD centreline. The aircraft shall then be towed forward until the nose of the aircraft is behind the stop bar behind aircraft stand 515. The aircraft may breakaway from there.	Standard pushback approved.
516L, 516R, 517L, 517R	The aircraft (on idle thrust) shall be pushed back to face South until its body is aligned with Taxilane WD centreline. The aircraft shall then be towed forward until the nose of the aircraft is behind the stop bar behind aircraft stand 515. The aircraft may breakaway from there.	Standard pushback approved..

APRON/ ACFT STANDS	PUSHBACK PROCEDURES	PHRASEOLOGY USED BY SINGAPORE GROUND
F56	The aircraft (on idle thrust) shall be pushed back to face South until its nosewheel is at the intersection of the aircraft pushback line and taxilane C6.The aircraft shall then be towed forward until its nosewheel is abeam aircraft stand F56.	Standard pushback approved
← F56L, 56R	The aircraft (on idle thrust) shall be pushed back to face South until its nosewheel is at the intersection of the aircraft pushback line and taxilane C6.The aircraft shall then be towed forward until its nosewheel is abeam aircraft stand F56.	Standard pushback approved
← F58	The aircraft (on idle thrust) shall be pushed back to face North (or South), on TWY C6 centreline.	Pushback approved, to face North (or South).
← F59	The aircraft (on idle thrust) shall be pushed back to face North on TWY C6 centreline until its nosewheel is abeam aircraft stand F60. OR The aircraft (on idle thrust) shall be pushed back to face South on TWY C6.	Pushback approved, to face North. Pushback approved, to face South.
F59L, F59R	The aircraft (on idle thrust) shall be pushed back to face North on taxilane C6 centreline until its nosewheel is abeam aircraft stand F60. OR The aircraft (on idle thrust) shall be pushed back to face South on taxilane C6 centreline.	Pushback approved, to face North. Pushback approved, to face South.
F60	The aircraft (on idle thrust) shall be pushed back to face North (or South), on TWY C6 centreline.	Pushback approved, to face North (or South).

APRON/ ACFT STANDS	PUSHBACK PROCEDURES	PHRASEOLOGY USED BY SINGAPORE GROUND
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 • 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 centreline 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.
11, 12, 13	The aircraft (on idle thrust) shall be pushed back onto TWY L5 to face North or South until its nosewheel is at the "END OF PUSH (EOP)" position and the centreline 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.	Pushback approved, to face North or South.
14	The aircraft (on idle thrust) shall be pushed back onto TWY L5 to face North until its nosewheel is at the "END OF PUSH (EOP)" position and the centreline 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.	Pushback approved, to face North.
15, 16, 701, 702	The aircraft (on idle thrust) shall be pushed back onto TWY L5 centreline to face North. The aircraft shall then be towed forward until its nosewheel is at the position between aircraft stands 12 and 13. The aircraft may breakaway from there.	Pushback approved, to face North.
17	The aircraft (on idle thrust) shall be pushed back to face West until its nosewheel is at the "END OF PUSH (EOP)" position. The aircraft shall then be towed forward onto TWY L5 to face North until its nosewheel is at the position between aircraft stands 12 and 13. The aircraft may breakaway from there.	Standard pushback approved.

WSSS AD 2.17 ATS AIRSPACE

1	*Designation and Lateral Limits*	**CHANGI CTR** 013300N 1040149E 013042N 1040654E 012542N 1040448E thence along Kuala Lumpur/Singapore FIR bdry to 012000N 1041218E 010018N 1035524E 011100N 1035134E 013300N 1040149E
2	*Vertical Limits*	SFC to 3,000ft ALT
3	*Airspace Classification*	C
4	*ATS Unit Callsign* *Language(s)*	Singapore Tower English
5	*Transition Altitude*	11000 FT (3,350m)
6	*Remarks*	A helicopter shall not be operated within the Changi CTR unless prior permission has been obtained from the Director-General of Civil Aviation, CAAS. Email to caas_ats_ansp@caas.gov.sg

WSSS AD 2.18 ATS COMMUNICATION FACILITIES

Service Designation	*Call sign*	*Frequency (P-Pri, S-Sec)*	*Hours of operation*	*Remarks*
ACC	Singapore Radar	P123.7 MHz S127.3 MHz	H24	for ATS Routes B469, G219, G334, R208, L625, L629, L635, L642, L644, M751, M753, M758, M761, M763, M771, N884, N891 and N892.
		133.8 MHz	0000-1430	
		P133.25 MHz S135.8 MHz	H24	for ATS Routes A457, A464, A576, B466, R325 (all northbound) and R469.
		P134.2 MHz S133.35 MHz		for ATS Routes , G580, L644, M646 and M767
		P134.4 MHz S128.1 MHz 255.4 MHz		for ATS Routes A464, A576, G579 (all southbound), B470, L644, N875 and in area in the immediate vicinity of Singapore.
		124.05 MHz	0000-1530	Flow control service provided for ARR/DEP ACFT
		MAINT Period: Monthly - EV third SAT 1601-2359		
	Singapore Radio	6556 kHz 11297 kHz	H24	SEA 1, Emission: A3AJ. SSB suppressed carrier, SATCOM service available
		5655 kHz 8942 kHz 11396 kHz		SEA 2, Emission: A3AJ. SSB suppressed carrier, SATCOM service available
		6556 kHz		SEA 3, Emission: A3AJ. SSB suppressed carrier, SATCOM service available
APP	Singapore Approach	P120.3 MHz S124.6 MHz	H24	TAR - Intermediate approach to Singapore Changi AP and other airports in Singapore. DEP from all airports in Singapore.
	Singapore Arrival	119.3 MHz		TAR - Intermediate and final approach to Singapore Changi Airport.
	ASR I MAINT Period: Monthly, EV first SAT 1601-2359 ASR II MAINT Period: Monthly, EV fourth SAT 1601-2359			

Service Designation	*Call sign*	*Frequency (P-Pri, S-Sec)*	*Hours of operation*	*Remarks*
TWR	Singapore Tower	118.6 MHz	H24 0000-1600	for TKOF/LDG. for ACFT OPR on RWY 02L/20R
		118.25 MHz	0000-1600	for ACFT OPR on RWY 02C/20C
	Singapore Ground	124.3 MHz	1600-0000 0000-1600	for start-up / push-back / taxiing of all aircraft for ground movement of aircraft west of Terminal 3
		121.725 MHz	0000-1700 2100-0000	for ground movement of aircraft east of Terminal 2
		121.85 MHz	0000-1800 2300-0000	for ground movement of aircraft north of Terminal 1
		129.95 MHz	H24	for ground emergency
	Singapore Delivery	121.65 MHz	H24	for Pre-flight check/ATC clearance
	Changi Tower / Changi Apron	121.9 MHz	H24	for vehicular movements on taxiways and runways. Towing of all aircraft and requests for engine runs on apron and taxiways, excluding runways, will be regulated by Changi Apron.
D-ATIS	Singapore Changi Airport Information	128.6 MHz	H24	Data Link Service available. AP IDENT WSSS Messages comply with ARINC 623 Standards. Updating of data: H+00 to H+10 and H+30 to H+40

WSSS AD 2.19 RADIO NAVIGATION AND LANDING AIDS

Type of aid and Variation	*Ident*	*Frequency*	*OPR Hr*	*Position of Transmitting Antenna Coordinates*	*DME Transmitting Antenna Elevation / Remarks*
1	2	3	4	5	6 & 7
SINJON DVOR/DME	SJ	113.5 MHz CH82X	H24	011319.28N 1035120.08E	201° MAG 14.5km from THR RWY 02 (Paya Lebar). Antenna HGT: 194ft AMSL. Coverage 200NM. EM: F1. Maintenance period: Third Thursday of every month between 0200-0600
TEKONG DVOR/DME	VTK	116.5 MHz CH112X	H24	012455.36N 1040120.17E	023° MAG 6.4km from THR RWY 20C (Singapore Changi). Antenna HGT: 150ft AMSL. Coverage 200NM. EM: F1 Maintenance Period: Third Friday of every month between 0200-0600
RWY 20C ILS LLZ	ICC	109.7MHz	H24	011932.48N 1035901.20E	Located 368m (1207ft) from THR RWY 02C, along RWY centreline. Course width 3.38°. EM: A0/A2. Maintenance Period: May - October Second Friday of every month between 1600-2300 November - April Second Friday of every month between 0200-0900
RWY 20C ILS GP	-	333.2MHz	H24	012131.73N 1035955.72E	Located 338m (1109ft) from THR RWY 20C on left side of RWY, 120m (394ft) from RWY centreline. GP angle 3°. HGT of ILS reference datum: 17m (56ft) EM: A0/A2
RWY 20C ILS DME	ICC	CH34X	H24	012131.73N 1035955.72E	DME co-located with GP. EM: P9
RWY 20C ILS MM	-	75MHz	H24	012211.94N 1040008.52E	Located 957m (3140ft) from THR RWY 20C along extended centreline of RWY. No back beam.

Type of aid and Variation	*Ident*	*Frequency*	*OPR Hr*	*Position of Transmitting Antenna Coordinates*	*DME Transmitting Antenna Elevation / Remarks*
1	2	3	4	5	6 & 7
RWY 02C ILS LLZ	ICE	108.3MHz	H24	012154.41N 1040001.08E	Located 368m (1207ft) from THR RWY 20C, along RWY centreline. Course width 3.38°. EM: A0/A2. Maintenance Period: May - October Second Friday of every month between 0200-0900 November - April Second Saturday of every month between 0200-0900
RWY 02C ILS GP	-	334.1MHz	H24	011952.11N 1035913.68E	Located 338m (1109ft) from THR RWY 02C on left side of RWY, 120m (394ft) from RWY centreline. GP angle 3°. HGT of ILS reference datum: 18m (58ft) EM: A0/A2
RWY 02C ILS DME	ICE	CH20X	H24	011952.11N 1035913.68E	DME co-located with GP. EM: P9
RWY 02C ILS MM	-	75MHz	H24	011915.04N 1035853.83E	Located 945m (3100ft) from THR RWY 02C along extended centreline of RWY. No back beam.
RWY 20R ILS LLZ	ICH	108.9MHz	H24	012045.23N 1035834.17E	Located 368m (1207ft) from THR RWY 02L, along centreline of the RWY. Course width 3.38°. EM: A0/A2. Maintenance Period: May - October First Saturday of every month between 0200-0900 November - April First Friday of every month between 0200-0900
RWY 20R ILS GP	-	329.3MHz	H24	012225.54N 1035912.29E	Located 330m (1083ft) from displaced THR RWY 20R on right side of the RWY, 120m (394ft) from RWY centreline. GP angle 3° . HGT of ILS REF datum: 17m (56ft) EM: A0/A2
RWY 20R ILS DME	ICH	CH26X	H24	012225.54N 1035912.29E	DME co-located with GP. Rwy 20R ILS DME not available beyond 15 degrees west of RWY 20R centreline below 2500ft. EM: P9
RWY 20R ILS MM	-	75MHz	H24	012307.50N 1035934.23E	Located 1122m (3681ft) from displaced THR RWY 20R, along centreline of the RWY.
RWY 02L ILS LLZ	ICW	110.9MHz	H24	012307.03N 1035934.03E	Located 1105m (3625ft) from displaced THR RWY 20R, along centreline of RWY. Course width 2.81° EM:A0/A2 Maintenance Period: May - October First Friday of every month between 0200-0900 November - April First Saturday of every month between 0200-0900
RWY 02L ILS GP	-	330.8MHz	H24	012108.34N 1035838.94E	Located 343m (1125ft) from THR RWY 02L on left side of RWY, 143m (469ft) from RWY centreline. GP angle 3° HGT of ILS Reference datum: 18m (58ft) EM:A0/A2
RWY 02L ILS DME	ICW	CH46X	H24	012108.34N 1035838.94E	DME co-located with GP EM:P9
RWY 02L ILS MM	-	75MHz	H24	012027.53N 1035826.70E	Located 957m (3140ft) from THR RWY 02L along extended centreline of RWY. No back beam.

WSSS AD 2.20 LOCAL TRAFFIC REGULATIONS

1 DESIGNATION OF PAYA LEBAR AIRPORT AS AN ALTERNATE AERODROME FOR SINGAPORE CHANGI AIRPORT

Please refer to pages WSAP AD 2-5 to WSAP AD 2-7 for details.

2 WRONG APPROACHES AND LANDINGS OF AIRCRAFT BOUND FOR SINGAPORE CHANGI AND PAYA LEBAR AIRPORTS

2.1 INTRODUCTION

2.1.1 The attention of all pilots is drawn to the existence of Paya Lebar Airport close to Singapore Changi Airport. The runway at Singapore Changi Airport is orientated in the same true bearing as the runway at Paya Lebar Airport i.e. 023°/203°. Due to the close proximity of these two runways, pilots are cautioned against mistaking Paya Lebar Airport for the runway of Singapore Changi Airport and thus making an inadvertent visual landing or approach to land at Paya Lebar.

2.1.2 Erroneous approaches or landings usually occurred during the hours of darkness. In almost every instance, the weather prevailing at the time of the incident was generally good or fair.

2.1.3 There is intensive local flying at Paya Lebar and Seletar during the day and night. Thus, the risk of collision is very great if a wrong approach is made to any of the above two airports. Likewise, wrong approaches into Singapore Changi Airport can also be disastrous.

2.2 POINTS TO BEAR IN MIND WHEN APPROACHING SINGAPORE CHANGI AIRPORT OR PAYA LEBAR

2.2.1 The following points are highlighted to serve as a guide to assist pilots in making a correct approach into Singapore Changi Airport or Paya Lebar Airport and should be remembered and followed:

a. The runways at Singapore Changi Airport and Paya Lebar Airport are identically aligned on 02/ 20. Therefore exercise extreme vigilance when leaving NYLON or SAMKO Holding Areas inbound and maintain correct tracks to the respective runways as listed below.

b. Adhere strictly to IFR procedures even in VMC which calls for a procedure turn over NYLON Holding Area or SAMKO Holding Area as prescribed.

c. Make full use of all available navigational and landing aids available and positively identify every aid used.

d. Switch to the correct ILS localizer frequency at Singapore Changi Airport under all conditions.

2.3 AERODROME CHARACTERISTICS OF SINGAPORE CHANGI AND PAYA LEBAR AIRPORTS

2.3.1 Tabulated below are details of aerodrome characteristics of Singapore Changi Airport and Paya Lebar Airport which indicate the similarities and significant differences for ease of identification by pilots operating into these two airports.

Aeronautical Service	PAYA LEBAR Airport	SINGAPORE CHANGI Airport	Significant Differences and Remarks
Magnetic heading of RWY	02/20	02L/20R 02C/20C	Exercise caution due to similar RWY alignment
Approach Lights	RWY 02 Modified Calvert High INTST with centreline and 3 crossbars. High INTST white LGT with brilliancy control and sequenced flashing lights.	RWY 02L Precision APCH LGT CAT II. Extended centreline with red side row barettes, 2 crossbars, 2 APCH beacons and sequenced flashing lights.	
	RWY 20 Modified Calvert High INTST with centreline and 3 crossbars. High INTST white LGT with brilliancy control and sequenced flashing lights.	RWY 20R Precision APCH LGT CAT I. Centreline barettes flashing white, 2 APCH beacons and sequenced flashing lights. (refer to chart AD-2-WSSS-ADC-2)	

ATS Route	Transition	Transition Route	RNAV STAR
B469 (southbound to Singapore) L642 N892	BIKTA VEPLI MABAL	BIKTA-PIBAP-PASPU VEPLI-VINIL-PIBAP-PASPU MABAL-KILOT-VINIL-PIBAP-PASPU	PASPU ARRIVAL
A464 (southbound to Singapore) A576 (southbound to Singapore) R469	ARAMA REKOP no transition	ARAMA-BOBAG REKOP-BOBAG no transition	BOBAG ARRIVAL
G579	no transition	no transition	REMES ARRIVAL
L504 M635 M774	OBDOS SURGA OBDOS	OBDOS-IKAGO-IKIMA-IBULA-LAVAX SURGA-IKAGO-IKIMA-IBULA-LAVAX OBDOS-IKAGO-IKIMA-IBULA-LAVAX	LAVAX ARRIVAL
M767 / G580 M646 / G580 G580	TOMAN	TOMAN-KARTO-KEXAS-LAVAX	
Note: Aircraft landing at Singapore Changi Airport operating on N891, M753 and L642 shall flight plan only on L642 after ENREP			

14.2.4 Additional elements on the STAR chart include the following:

a. *Vertical restrictions*, designed to contain aircraft in controlled airspace and to separate aircraft from obstacles and to avoid, to the degree possible, conflict with departing traffic.
b. *Speed restrictions*, designed for flow control purposes.
c. *Minimum safe altitude (MSA)* within 25NM of VTK and SJ DVOR/DME. The MSA provides a minimum of 1000ft vertical clearance within 5NM of any obstacle.

14.2.5 Arrivals to Singapore Changi Airport can expect radar vectors to intercept the localizer for an ILS approach after the initial approach fix on the RNAV STARs.

14.2.6 STARs shall be issued by ATC in the following order:

a. ARRIVAL identifier;
b. TRANSITION identifier;
c. Runway-in-use;
d. An assigned level

Example:

<Callsign>cleared to Singapore via PASPU 1A ARRIVAL, VEPLI TRANSITION, Runway 02, maintain / descend to flight level one five zero.

14.3 DEPARTURES

14.3.1 All departing aircraft will be cleared on the appropriate $RNAV_{(GNSS)}$ SID and shall climb initially to 3,000ft.

14.3.2 Operators are to note that $RNAV_{(GNSS)}$SIDs VENPA 1A and 1B will be assigned to departures from Singapore Changi Airport that flight plan to destinations south of Singapore on L504, M635 and M774.

There will be 3 Transitions as shown below:

ATS Route	Transition	Transition Route	RNAV SID
L504	BAVUS	VENPA-ATKAX-BAVUS	VENPA DEPARTURE
M635	SURGA	VENPA-VENIX-SURGA	
M774	KADAR	VENPA-ATKAX-KADAR	

14.3.3 A Transition will be issued by ATC in conjunction with the $RNAV_{(GNSS)}$SID, for example a departure from Singapore to Brisbane via airway M774 will read as follows:

Example:

<Callsign> cleared to Brisbane via VENPA 1A departure Transition KADAR, airway M774, flight plan route, maintain FL330, squawk alfa 2234 on departure.

14.4 TRANSITION

14.4.1 Aircraft may be radar vectored off a Transition / RNAV SID / RNAV STAR. Such aircraft will subsequently be given an instruction to intercept the appropriate Transition / RNAV SID / RNAV STAR.

14.5 VERTICAL AND SPEED RESTRICTIONS

14.5.1 Pilots shall comply with an ATC assigned level. Pilots shall also adhere to the vertical and speed restrictions depicted on the cleared Transition and $RNAV_{(GNSS)}$SIDs / STARs. ATC clearance will take precedence when the ATC clearance does not allow the pilots to adhere to the vertical and speed restrictions depicted on the Transition and $RNAV_{(GNSS)}$SIDs / STARs.

14.6 OPERATORS' PROCEDURES

14.6.1 The operator shall ensure that in-flight procedures, crew manuals and training programmes are established in accordance with RNAV requirements.

14.6.2 Pilots shall inform ATC when on-board equipment does not meet the requirements of RNAV. Pilots can then expect radar vector from ATC.

15 COORDINATES OF SID/STAR WAYPOINTS (WGS84 DATUM)

Name	Latitude	Longitude	Radius/Distance from VTK	Radius/DIstance from SJ
ABVIP	010008N	1035032E	VTK R-203.5 / D27.0	SJ R-183.5 / D13.2
ADMIM	005733N	1033033E	VTK R-228.4 / D41.2	SJ R-232.8 / D26.1

	Name	Latitude	Longitude	Radius/Distance from VTK	Radius/DIstance from SJ
	AGROT	010108N	1035808E	VTK R-187.7 / D24.0	SJ R-150.8 / D14.0
	AGVAR	014719N	1034145E	VTK R-318.8 / D29.8	SJ R-344.3 / D35.3
	AKMET	015355N	1034339E	VTK R-328.6 / D34.0	SJ R-349.3 / D41.3
	AKOMA	014522N	1035443E	VTK R-342.0 / D21.4	SJ R-006.2 / D32.0
	ALFA	013033N	1034942E	VTK R-295.7 / D12.9	SJ R-354.8 / D 17.2
	ANITO	001700S	1045200E	VTK R-153.4 / D113.4	SJ R-146.0 / D108.6
	ARAMA	013654N	1030712E	VTK R-282.4 / D55.5	SJ R-298.0 / D50.0
	AROSO	020846N	1032421E	VTK R-319.9 / D57.4	SJ R-334.0/ D61.7
	ASUNA	005948N	1030954E	VTK R-244.1 / D57.3	SJ R-252.0 / D43.6
	ATKAX	000512N	1065946E	VTK R-113.9 /D 195.5	SJ R-109.7 / D200.6
	ATRUM	013256N	1040057E	VTK R-357.3 / D8.0	SJ R-026.1 / D21.8
	BAVUS	000000N	1090000E	VTK R-105.9 / D310.5	SJ R-103.4 / D317.3
	BETBA	013302N	1035331E	VTK R-316.1 / D11.3	SJ R-006.3 / D19.8
←	BIDUS	013554N	1035755E	VTK R-326.0 / D13.2	SJ R-006.9 / D22.6
	BIKTA	024337N	1034308E	VTK R-346.9 / D80.4	SJ R-355.0 / D90.2
	BIPOP	013122N	1041018E	VTK R-054.5 / D11.0	SJ R-046.8 / D26.2
	BOBAG	010230N	1032954E	VTK R-234.7 / D38.6	SJ R-243.2 / D24.0
	BOKIP	010421N	1034353E	VTK R-220.5 / D27.0	SJ R-219.5 / D11.6
	BTM	010813N	1040758E	VTK R-158.2 / D17.9	SJ R-107.0 / D17.5
	DIVSA	011105N	1040303E	VTK R-172.9 / D13.9	SJ R-100.8 / D11.9
	DOGRA	010525N	1041423E	VTK R-146.2 / D23.5	SJ R-108.9 / D24.4
	DOKTA	012606N	1041040E	VTK R-083.0 / D9.4	SJ R-057.0 / D23.2
	DONDI	011252N	1035855E	VTK R-191.3/ D12.3	SJ R-093.4 / D7.6
	DOSNO	004757N	1041409E	VTK R-160.8 / D39.0	SJ R-137.8 / D34.1
	DOSPA	011459N	1040441E	VTK R-161.4 / D10.5	SJ R-082.9 / D13.5
	DOVAN	011938N	1041249E	VTK R-114.6 / D12.7	SJ R-073.9 / D22.5
	HOSBA	011948N	1042418E	VTK R-102.5 / D23.6	SJ R-079.0 / D33.7
	IBIBI	011503N	1035707E	VTK R-203.1 / D10.7	SJ R-073.4 / D6.0
	IBIVA	011351N	1035637E	VTK R-203.1/ D12.0	SJ R-084.3 / D5.3
	IBIXU	011621N	1035740E	VTK R-203.2 / D9.3	SJ R-064.4 / D7.0
	IBULA	005036N	1043600E	VTK R-134.5 / D48.7	SJ R-116.8 / D50.2
	IGNON	010847N	1041257E	VTK R-144.1 / D19.8	SJ R-101.8 / D22.2
	IKAGO	003816N	1052931E	VTK R-117.7 / D99.8	SJ R-109.5 / D104.4
	IKIMA	004314N	1045500E	VTK R-127.6 / D67.9	SJ R-115.1 / D70.5
	JB (JAYBEE)	013000N	1034242E	VTK R-285.1 / D19.3	SJ R-332.6 / D18.6
	KADAR	000647S	1074342E	VTK R-112.4 / D240.5	SJ R-109.0 / D245.8
	KARTO	011124N	1053343E	VTK R-098.3 / D93.5	SJ R-091.1 / D102.6
	KEXAS	011019N	1044818E	VTK R-107.2 / D49.2	SJ R-093.0 / D57.2
←	KILOT	030217N	1044023E	VTK R-022.0 / D104.5	SJ R-024.4 / D119.0
←	LAVAX	010950N	1042714E	VTK R-120.1 / D30.0	SJ R-095.5 / D36.2
	LEDOX	011642N	1035651E	VTK R-208.6 / D9.4	SJ R-058.5 / D6.5
	LEGAS	011524N	1035618E	VTK R-207.9 / D10.8	SJ R-067.3 / D5.4
	LELIB	012729N	1032450E	VTK R-274.0 / D36.6	SJ R-298.0 / D30.0
	LETGO	011411N	1035548E	VTK R-207.3 / D12.1	SJ R-079.1 / D4.6
	MABAL	032826N	1051236E	VTK R-030.1 / D142.1	SJ R-031.2 / D157.2
	MASBO	020248N	1025251E	VTK R-299.0 / D78.3	SJ R-310.2 / D76.6
	NYLON	013657N	1040624E	VTK R-023.0 / D13.0	SJ R-032.9 / D30.0
	OBDOS	002503N	1065551E	VTK R-108.9 / D184.5	SJ R-104.7 / D190.7
	PALGA	011059N	1034759E	VTK R-223.8 / D19.3	SJ R-235.1 / D4.1
	PAMSI	010459N	1034845E	VTK R-212.3 / D23.6	SJ R-197.2 / D8.7
	PASPU	015915N	1040618E	VTK R-008.3 / D34.5	SJ R-018.3 / D48.1
	PIBAP	023023N	1040618E	VTK R-004.4 / D65.3	SJ R-011.1 / D78.1
←	POSUB	012725N	1040748E	VTK R-069.0 / D6.9	SJ R-049.8 / D21.7
	PU	012524N	1035600E	VTK R-275.2 / D5.4	SJ R-021.1 / D13.0
←	REMES	004342N	1035735E	VTK R-185.2 / D41.2	SJ R-167.9 / D30.2
	REPOV	001623N	1040300E	VTK R-178.6 / D68.2	SJ R-168.3 / D57.9

Name	Latitude	Longitude	Radius/Distance from VTK	Radius/DIstance from SJ
RUVIK	011422N	1042033E	VTK R-118.8 / D21.9	SJ R-088.0 / D29.2
RWY 02C DER	012152N	1040000E	VTK R-203.5 / D3.3	SJ R-046.0 / D12.2
RWY 02L DER	012305N	1035933E	VTK R-224.1 / D2.5	SJ R-040.6 / D12.8
RWY 20C DER	011935N	1035902E	VTK R-203.3 / D5.8	SJ R-051.5 / D10.0
RWY 20R DER	012047N	1035835E	VTK R-213.7 / D4.9	SJ R-044.8 / D10.4
SABKA	015051N	1031713E	VTK R-300.4 / D51.2	SJ R-317.7 / D50.7
← SAMKO	010530N	1035255E	VTK R-203.5 / D21.1	SJ R-168.0 / D8.0
SANAT	010749N	1035930E	VTK R-186.1 / D17.1	SJ R-123.7 / D9.9
← SJ (SINJON)	011319N	1035120E	-	-
SURGA	003657S	1063119E	VTK R-129.1 / D193.3	SJ R-124.6 / D194.3
← TOKIM	012933N	1040315E	VTK R-022.7 / D5.0	SJ R-036.7 / D20.1
TOMAN	012147N	1054717E	VTK R-091.7 / D106.2	SJ R-085.9 / D116.5
TOPOM	012955N	1040227E	VTK R-012.8 / D5.1	SJ R-034.2 / D20.0
← VENIX	002156S	1060521E	VTK R-130.6 / D163.5	SJ R-125.3 / D164.3
VENPA	002141N	1044955E	VTK R-142.3 / D79.6	SJ R-131.2 / D78.1
VEPLI	035223N	1040542E	VTK R-001.7 / D146.8	SJ R-005.2 / D158.9
VINIL	025500N	1040618E	VTK R-003.2 / D89.8	SJ R-008.5 / D102.3
← VMR	022318N	1035218E	VTK R-351.2 / D58.8	SJ R-000.9 / D69.6
← VTK (TEKONG)	012455N	1040120E	-	-

16 ARRIVING AIRCRAFT

16.1 The pilot-in-command of an arriving aircraft shall contact the appropriate Approach Control Unit 10 minutes before entering the CTR or ATZ.

17 LIGHT AIRCRAFT OPERATIONS

17.1 Light aircraft operations into and out of Singapore Changi Airport may be approved subject to the following conditions:

a. Prior permission has been granted;
b. Aircraft is suitably equipped;
c. Pilot is appropriately rated;
d. Subject to ATC.

17.2 Flight notification shall be given by filing a flight plan.

17.3 All such operations will be regulated in accordance with IFR procedures.

WSSS AD 2.23 ADDITIONAL INFORMATION

1 BIRD CONCENTRATION IN THE VICINITY OF THE AIRPORT

1.1 A number of varieties of birds are found in Singapore throughout the year. The larger birds commonly found in Singapore Changi Airport include the following:

- cattle egrets (weighing approximately 300g each)
- grey herons (weighing approximately 500g each)
- brahminy kites (weighing approximately 600g each)

1.2 There could be an increase in bird activities during the migratory months of September to April. During this period, migratory birds may use the airport as their feeding ground. Handheld laser device, long range acoustic device and alternating amplified bird cries of distress are used for bird dispersal within Singapore Changi Airport.

AERODROME CHART - ICAO

01° 21' 33"N
103°59' 22"E

AERODROME ELEVATION 6.66m

TWR	118.6 / 118.25
GND	124.3 / 121.85 / 121.725
DELIVERY	121.65

SINGAPORE/SINGAPORE CHANGI

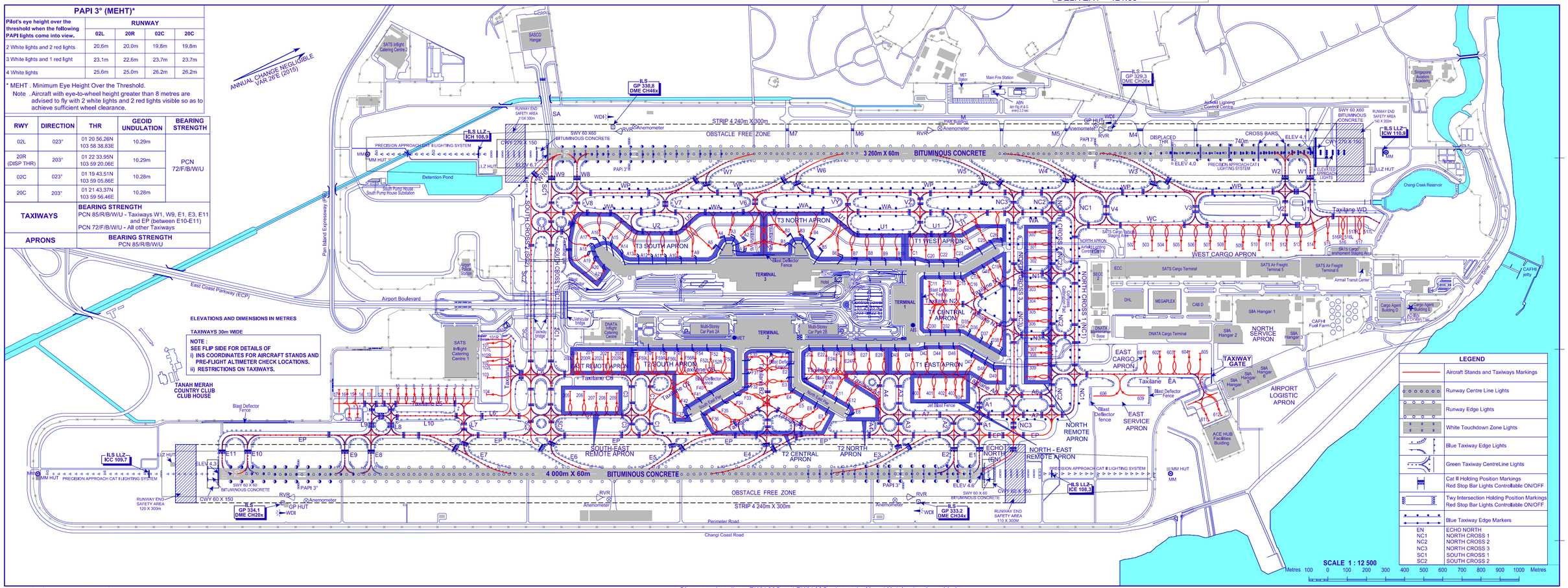
PAPI 3° (MEHT)*

Pilot's eye height over the threshold when the following PAPI lights come into view.	RUNWAY			
	02L	20R	02C	20C
2 White lights and 2 red lights	20.6m	20.0m	19.8m	19.8m
3 White lights and 1 red light	23.1m	22.6m	23.7m	23.7m
4 White lights	25.6m	25.0m	26.2m	26.2m

* MEHT . Minimum Eye Height Over the Threshold.
Note . Aircraft with eye-to-wheel height greater than 8 metres are advised to fly with 2 white lights and 2 red lights visible so as to achieve sufficient wheel clearance.

RWY	DIRECTION	THR	GEOID UNDULATION	BEARING STRENGTH
02L	023°	01 20 56.26N 103 58 38.83E	10.29m	PCN 72/F/B/W/U
20R (DISP THR)	203°	01 22 33.95N 103 59 20.06E	10.29m	
02C	023°	01 19 43.51N 103 59 05.86E	10.28m	
20C	203°	01 21 43.37N 103 59 56.46E	10.28m	

TAXIWAYS	BEARING STRENGTH PCN 85/R/B/W/U - Taxiways W1, W9, E1, E3, E11 and EP (between E10-E11) PCN 72/F/B/W/U - All other Taxiways
APRONS	BEARING STRENGTH PCN 85/R/B/W/U



Changes : Localisers RWY 20C and RWY 02C relocated. Airport Hotel extension added.
Taxiways N1, N2, N3 and WD redesignated as Taxilanes N1, N2, N3 and WD.

INS COORDINATES FOR AIRCRAFT STANDS AND PRE-FLIGHT ALTIMETER CHECK LOCATIONS

LOCATION	STAND NR	NORTH LAT	EAST LONG	ELEVATION
T3 SOUTH APRON	A1	01 21 21.52	103 59 06.25	4.75m (15.58ft)
	A2	01 21 21.75	103 59 04.00	4.65m (15.26ft)
	A3	01 21 19.86	103 59 02.79	4.66m (15.29ft)
	A4	01 21 17.61	103 59 02.54	4.79m (15.72ft)
	A5	01 21 15.50	103 59 03.62	4.86m (15.94ft)
	A9	01 21 12.56	103 59 03.65	5.02m (16.47ft)
	A10	01 21 10.34	103 59 02.40	5.04m (16.54ft)
	A11	01 21 07.93	103 59 01.41	5.25m (17.22ft)
	A12	01 21 05.76	103 59 00.49	5.38m (17.65ft)
	A13	01 21 03.59	103 58 59.58	5.48m (17.98ft)
	A14	01 21 01.66	103 58 57.59	5.57m (18.27ft)
	A15	01 21 00.77	103 58 55.41	5.46m (17.91ft)
	A16	01 20 59.27	103 58 54.20	5.51m (18.08ft)
	A17	01 20 57.25	103 58 54.06	5.23m (17.16ft)
	A18	01 20 55.87	103 58 55.25	5.37m (17.62ft)
	A19	01 20 55.26	103 58 57.13	5.40m (17.72ft)
	A20	01 20 56.09	103 58 58.83	5.45m (17.88ft)
	A21	01 20 57.10	103 59 00.80	5.49m (18.01ft)
T3 NORTH APRON	B1	01 21 26.86	103 59 08.37	4.82m (15.81ft)
	B2	01 21 28.18	103 59 06.82	4.68m (15.35ft)
	B3	01 21 30.33	103 59 07.30	4.65m (15.26ft)
	B4	01 21 32.03	103 59 08.60	4.75m (15.58ft)
	B5	01 21 32.98	103 59 10.89	4.80m (15.75ft)
	B6	01 21 35.15	103 59 13.16	4.96m (16.27ft)
	B7	01 21 37.65	103 59 13.93	4.97m (16.31ft)
	B8	01 21 39.94	103 59 15.20	5.09m (16.70ft)
	B9	01 21 42.19	103 59 16.16	5.13m (16.83ft)
	B10	01 21 44.47	103 59 17.12	5.10m (16.73ft)
T1 WEST APRON	C1	01 21 46.75	103 59 18.08	5.09m (16.70ft)
	C20	01 21 48.83	103 59 19.23	5.08m (16.67ft)
	C22	01 21 51.00	103 59 20.13	5.15m (16.90ft)
	C23	01 21 53.56	103 59 20.77	5.08m (16.67ft)
	C24	01 21 56.54	103 59 20.97	4.89m (16.04ft)
	C25	01 21 59.12	103 59 20.59	4.99m (16.37ft)
	C26	01 22 01.48	103 59 20.76	5.01m (16.44ft)
T1 CENTRAL APRON	C11	01 21 47.42	103 59 23.82	5.07m (16.63ft)
	C13	01 21 49.64	103 59 24.75	5.05m (16.57ft)
	C15	01 21 51.90	103 59 25.71	5.05m (16.57ft)
	C16	01 21 53.63	103 59 26.42	4.91m (16.11ft)
	C17	01 21 55.63	103 59 26.07	5.03m (16.50ft)
	C18	01 21 57.86	103 59 25.75	4.99m (16.37ft)
	C19	01 21 59.79	103 59 25.63	4.95m (16.24ft)
	D30	01 21 44.54	103 59 30.14	5.09m (16.70ft)
	D32	01 21 46.73	103 59 31.07	5.08m (16.67ft)
	D34	01 21 49.03	103 59 32.04	5.07m (16.63ft)
	D35	01 21 50.87	103 59 32.82	5.02m (16.47ft)
	D36	01 21 51.98	103 59 34.52	5.06m (16.60ft)
	D37	01 21 53.37	103 59 36.28	4.97m (16.31ft)
	D38	01 21 54.58	103 59 37.77	4.99m (16.37ft)
T1 EAST APRON	D40	01 21 38.13	103 59 32.89	5.07m (16.63ft)
	D41	01 21 40.30	103 59 33.81	5.07m (16.63ft)
	D42	01 21 42.70	103 59 34.48	5.11m (16.77ft)
	D44	01 21 44.97	103 59 35.44	5.14m (16.86ft)
	D46	01 21 47.40	103 59 36.72	5.08m (16.67ft)
	D47	01 21 49.19	103 59 38.89	4.93m (16.17ft)
	D48	01 21 50.60	103 59 40.77	4.97m (16.31ft)
	D49	01 21 52.23	103 59 42.35	4.98m (16.34ft)
T2 NORTH APRON	E8	01 21 27.99	103 59 38.45	4.68m (15.35ft)
	E10	01 21 24.15	103 59 32.67	4.71m (15.45ft)
	E11	01 21 25.57	103 59 34.37	4.78m (15.68ft)
	E12	01 21 27.20	103 59 36.42	4.75m (15.58ft)
	E20	01 21 24.36	103 59 27.08	5.04m (16.54ft)
	E22	01 21 26.64	103 59 28.04	5.07m (16.63ft)
	E24	01 21 29.01	103 59 29.06	5.09m (16.70ft)
	E24L	01 21 28.32	103 59 28.77	5.10m (16.73ft)
	E24R	01 21 29.53	103 59 29.28	5.08m (16.67ft)
	E26	01 21 31.19	103 59 29.96	5.08m (16.67ft)
	E27	01 21 33.46	103 59 30.93	5.03m (16.50ft)
	E28	01 21 35.74	103 59 31.89	5.08m (16.67ft)
T2 CENTRAL APRON	E1	01 21 20.02	103 59 25.58	4.91m (16.11ft)
	E2	01 21 19.28	103 59 27.30	4.90m (16.08ft)
	E3	01 21 18.44	103 59 29.27	4.82m (15.81ft)
	E4	01 21 18.10	103 59 31.70	4.80m (15.75ft)
	E5	01 21 19.56	103 59 33.72	4.90m (16.08ft)
	E6	01 21 21.22	103 59 35.93	4.84m (15.88ft)
	E7	01 21 22.48	103 59 37.46	4.73m (15.52ft)
	F30	01 21 14.71	103 59 23.33	4.92m (16.14ft)
	F31	01 21 13.87	103 59 25.30	4.91m(16.11ft)
	F32	01 21 13.03	103 59 27.26	4.85m (15.91ft)
	F33	01 21 11.30	103 59 28.54	4.91m (16.11ft)
	F34	01 21 08.98	103 59 28.96	4.92m (16.14ft)
	F35	01 21 06.28	103 59 29.29	4.90m (16.08ft)
	F36	01 21 04.34	103 59 29.67	4.82m (15.81ft)

INS COORDINATES FOR AIRCRAFT STANDS AND PRE-FLIGHT ALTIMETER CHECK LOCATIONS

LOCATION	STAND NR	NORTH LAT	EAST LONG	ELEVATION
T2 SOUTH APRON	F37	01 20 59.83	103 59 27.87	4.75m (15.58ft)
	F40	01 21 05.62	103 59 25.34	4.85m (15.91ft)
	F41	01 21 03.19	103 59 25.58	4.82m (15.81ft)
	F42	01 21 00.61	103 59 25.96	4.72m (15.49ft)
	F50	01 21 10.69	103 59 21.32	5.03m (16.50ft)
	F52	01 21 08.51	103 59 20.40	5.11m (16.77ft)
	F52L	01 21 07.82	103 59 20.11	5.16m (16.93ft)
	F52R	01 21 09.04	103 59 20.62	5.08m (16.67ft)
	F54	01 21 06.14	103 59 19.40	5.22m (17.13ft)
	F56	01 21 03.96	103 59 18.48	5.30m (17.39ft)
	F56L	01 21 03.27	103 59 18.18	5.42m (17.78ft)
	F56R	01 21 04.49	103 59 18.70	5.34m (17.52ft)
	F58	01 21 01.58	103 59 17.47	5.49m (18.01ft)
	F59	01 20 59.41	103 59 16.55	5.64m (18.50ft)
	F59L	01 20 58.72	103 59 16.26	5.67m (18.60ft)
	F59R	01 20 59.93	103 59 16.78	5.60m (18.37ft)
	F60	01 20 56.91	103 59 15.50	5.77m (18.93ft)
EAST REMOTE APRON	200	01 20 47.83	103 59 11.67	6.23m (20.44ft)
	200L	01 20 46.91	103 59 11.92	6.29m (20.64ft)
	200R	01 20 48.35	103 59 11.89	6.18m (20.28ft)
	201	01 20 49.99	103 59 12.62	5.96m (19.55ft)
	202	01 20 52.34	103 59 13.57	5.94m (19.49ft)
	202L	01 20 51.65	103 59 13.28	5.76m (18.90ft)
	202R	01 20 52.87	103 59 13.79	5.73m (18.80ft)
	203	01 20 54.52	103 59 14.47	5.92m (19.42ft)
SOUTH-EAST REMOTE APRON	101	01 20 34.88	103 59 04.05	4.49m (14.73ft)
	101L	01 20 34.60	103 59 04.70	4.60m (15.09ft)
	101R	01 20 35.11	103 59 03.50	4.53m (14.86ft)
	102	01 20 33.76	103 59 06.65	4.48m (14.73ft)
	102L	01 20 33.53	103 59 07.33	4.62m (15.16ft)
	102R	01 20 34.00	103 59 06.10	4.60m (15.09ft)
	103	01 20 32.88	103 59 09.35	4.67m (15.32ft)
	104	01 20 31.77	103 59 11.96	4.39m (14.40ft)
	205	01 20 43.91	103 59 17.06	4.77m (15.65ft)
	206	01 20 46.08	103 59 17.98	4.76m (15.62ft)
	207	01 20 47.91	103 59 18.88	4.74m (15.55ft)
	208	01 20 49.48	103 59 19.54	4.74m (15.55ft)
	209	01 20 51.06	103 59 20.21	4.75m (15.58ft)
NORTH REMOTE APRON	300	01 22 06.95	103 59 22.67	4.53m (14.86ft)
	301	01 22 06.41	103 59 24.69	4.93m (16.17ft)
	302	01 22 05.21	103 59 26.75	4.97m (16.31ft)
	303	01 22 03.55	103 59 31.40	5.32m (17.45ft)
	304	01 22 02.84	103 59 33.06	5.35m (17.55ft)
	305	01 22 02.14	103 59 34.71	5.30m (17.39ft)
	306	01 22 01.41	103 59 36.42	5.16m (16.93ft)
	307	01 21 59.39	103 59 40.36	5.16m (16.93ft)
	308	01 21 58.96	103 59 41.35	5.10m (16.73ft)
	309	01 21 58.52	103 59 43.17	5.06m (16.60ft)
	310	01 21 57.42	103 59 44.96	4.74m (15.55ft)
NORTH-EAST REMOTE APRON	400	01 21 38.71	103 59 40.14	4.31m (14.14ft)
	401	01 21 40.98	103 59 41.10	4.31m (14.14ft)
	402	01 21 42.85	103 59 41.89	4.30m (14.11ft)
	403	01 21 44.37	103 59 42.53	4.29m (14.07ft)
	404	01 21 45.45	103 59 42.98	4.20m (13.78ft)
WEST CARGO APRON	502	01 22 22.23	103 59 31.62	4.35m (14.27ft)
	503	01 22 24.98	103 59 32.78	4.29m (14.07ft)
	504	01 22 27.26	103 59 33.74	4.29m (14.07ft)
	505	01 22 29.54	103 59 34.70	4.32m (14.17ft)
	506	01 22 31.81	103 59 35.66	4.38m (14.37ft)
	507	01 22 34.11	103 59 36.64	4.36m (14.30ft)
	508	01 22 36.41	103 59 37.61	4.29m (14.07ft)
	509	01 22 39.12	103 59 38.76	4.09m (13.42ft)
	510	01 22 41.37	103 59 40.18	4.19m (13.75ft)
	511	01 22 43.54	103 59 41.09	4.22m (13.85ft)
	512	01 22 45.71	103 59 42.01	4.24m (13.91ft)
	513	01 22 47.89	103 59 42.92	4.26m (13.98ft)
	514	01 22 50.19	103 59 43.54	4.36m (14.30ft)
	515	01 22 52.90	103 59 43.20	4.09m (13.43ft)
	516	01 22 55.39	103 59 43.97	4.04m (13.26ft)
	516L	01 22 56.24	103 59 43.80	3.96m (12.98ft)
	516R	01 22 54.93	103 59 43.25	3.95m (12.97ft)
	517	01 22 58.02	103 59 45.08	4.05m (13.27ft)
	517L	01 22 58.83	103 59 44.99	3.98m (13.05ft)
	517R	01 22 57.55	103 59 44.35	3.96m (12.98ft)
EAST CARGO APRON	601	01 22 16.52	103 59 49.27	4.27m (14.01ft)
	602	01 22 18.80	103 59 50.23	4.30m (14.11ft)
	603	01 22 21.15	103 59 51.02	4.29m (14.07ft)
	604	01 22 23.46	103 59 51.99	4.31m (14.14ft)
→	605	01 22 25.19	103 59 52.75	4.27m (14.01ft)
EAST SERVICE APRON	606	01 22 09.09	103 59 53.22	2.70m (8.86ft)
	609	01 22 12.19	103 59 54.57	3.01m (9.88ft)
ACEHUB	611	01 22 22.14	104 00 02.87	4.01m (13.16ft)
	612	01 22 24.50	104 00 02.87	3.91m (12.83ft)

INS COORDINATES FOR AIRCRAFT STANDS AND PRE-FLIGHT ALTIMETER CHECK LOCATIONS

LOCATION	STAND NR	NORTH LAT	EAST LONG	ELEVATION
BUDGET TERMINAL APRON	1	01 20 28.69	103 59 10.05	3.97m (13.02ft)
	2	01 20 27.39	103 59 09.51	4.04m (13.25ft)
	3	01 20 26.09	103 59 08.96	3.90m (12.80ft)
	4	01 20 24.80	103 59 08.41	3.86m (12.66ft)
	5	01 20 23.50	103 59 07.86	3.85m (12.63ft)
	6	01 20 22.20	103 59 07.32	3.88m (12.66ft)
	7	01 20 20.90	103 59 06.77	3.83m (12.57ft)
	8	01 20 19.60	103 59 06.22	3.84m (12.60ft)
	9	01 20 18.31	103 59 05.67	3.83m (12.57ft)
	10	01 20 17.03	103 59 05.07	3.85m (12.63ft)
	11	01 20 15.77	103 59 04.43	3.90m (12.80ft)
	12	01 20 14.50	103 59 03.89	3.94m (12.93ft)
	13	01 20 12.78	103 59 03.16	3.99m (13.09ft)
	14	01 20 11.48	103 59 02.62	4.01m (13.16ft)
	15	01 20 10.33	103 59 01.72	4.60m (15.09ft)
	16	01 20 09.03	103 59 01.17	4.60m (15.09ft)
	17	01 20 07.74	103 59 00.62	4.60m (15.09ft)
	701	01 20 07.51	103 59 05.69	5.03m (16.50ft)
	702	01 20 08.81	103 59 06.24	5.03m (16.50ft)

RESTRICTIONS ON TAXIWAYS

1) Pilots are advised to apply minimum thrust when
   i) turning into TWY A1, A3, A4 and Taxilane A5 while taxiing either northwards or southwards on Taxilane A6, and
   ii) thereafter when taxiing along TWY A1 up to and including the TWY A7/A1 junction.
   This is in view of apron activities at aircraft stands D40, D41, D47, D48, D49, E22, E24, E27 and E28.

2) TWY SA can only be used by aircraft with maximum wingspan 65m. TWY SA is a one-way live TWY for aircraft taxiing into SASCO hangar via RWY 02L. Only tow-out operation is allowed from SASCO hangar into TWY SA and RWY 02L.

3) TWY NC3 (between TWY WA and TWY A6) is a TWY with reduced minimum separation distances between the TWY centreline and object. Due to the reduced minimum separation distances, pilots are advised to adhere strictly to the TWY centreline and to slow down the taxi speed accordingly. TWY NC3 (between TWY WA and TWY A6) can only be used by aircraft with maximum wingspan 65m.

4) Taxiway centreline along TWY EP between TWY B1 and B3 offset eastward by 2.5m away from aircraft stands E7 and F36.

5) Pilots are advised to apply minimum thrust when turning into taxiway WA from taxilane V6.

6) Taxilane U4 (behind aircraft stands A18 to A21) can only be used by aircraft with maximum wingspan 61m.

→ 7) Taxilane N1 (behind aircraft stands C16 to C19 and between TWY NC2 and TWY NC3), Taxilane N2 and Taxilane N3 (behind aircraft stands D35 to D38 and between TWY NC2 and TWY NC3) can only be used by aircraft with maximum wingspan 65m.

8) Taxilane A6 (behind aircraft stands E20 to E24) and Taxilane C6 (behind aircraft stands F50 to F54) can only be used by aircraft with maximum wingspan 65m (towing and pushback exempted).

9) Taxilane L5 can only be used by aircraft with maximum wingspan 36m.

10) TWY L8, L9 and L10 can only be used by aircraft with maximum wingspan 65m.

11) Pilots are advised to exercise caution when taxiing near Taxilane L5, L8, L9 and L10.

12) Pilots are advised to apply speed limit of 20 knots when taxiing along TWY SOUTH CROSS 1 and SOUTH CROSS 2.

13) Pilots turning aircraft into aircraft stand A2 or aircraft stand B2 are advised to wait for any aircraft holding at Taxilane V6, at the inner cul-de-sac portion of the terminal building to vacate this portion before turning into aircraft stand A2 or aircraft stand B2.

14) TWY M, M4, M5, M6 and M7 are solely for use by Republic of Singapore Air Force (RSAF) aircraft.

15) TWY located western side of RWY 02L/20R, between TWY M5 and TWY M6 is solely for use by Republic of Singapore Air Force (RSAF) aircraft.

RADIO ALTIMETER OPERATIONS AREA

A radio altimeter operating area is established in the pre-threshold area of Runway 02L/20R and Runway 02C/20C.
The size of the radio altimeter operating area is 300m length and 120m width.

AIRCRAFT STANDS WITH SAFEGATE AIRCRAFT DOCKING GUIDANCE SYSTEM.

TOTAL AIRCRAFT PARKING POSITIONS : 180

STANDARD DEPARTURE CHART RNAV (GNSS) - INSTRUMENT (SID)

TWR 118.6 / 118.25
APP 120.3
ACC 134.4

TRANSITION ALTITUDE
11 000ft

D-ATIS AP ID-WSSS
128.6

SINGAPORE/Singapore Changi
RWY 02L/20R
ANITO DEPARTURES
ANITO 6E (R02L)
ANITO 6F (R20R)

ELEV, ALT IN FEET
BEARINGS, TRACKS AND RADIALS ARE MAGNETIC
VAR 26'E (2015)

DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTORING, IF NECESSARY

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR
- FORMAL AND TABULAR DESCRIPTIONS
- RADIO COM FAILURE PROCEDURES

GENERAL INFORMATION

INITIAL CLIMB
3000FT OR AS DIRECTED BY ATC

ON INITIAL CONTACT WHEN REQUESTING ATC, INFORM ATC OF THE FLIGHT LEVEL AIRCRAFT CAN CROSS ANITO

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

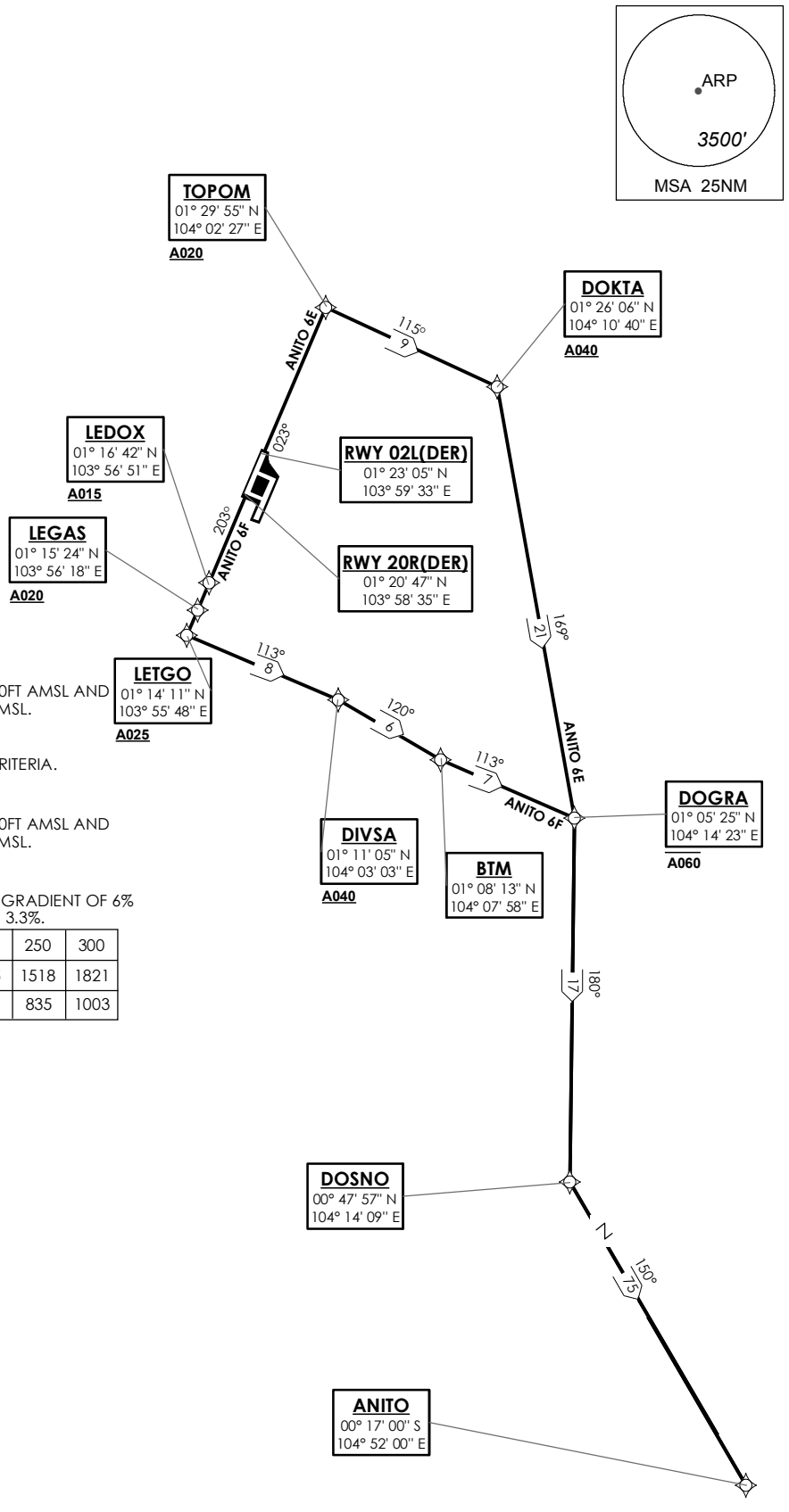
RWY 02L

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
SEE (ENR 1.5-4) FOR MINIMUM CLIMB GRADIENT CRITERIA.

RWY 20R

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
DEPARTURES SHALL BE ON A MINIMUM NET CLIMB GRADIENT OF 6% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
6% V/V (fpm)	456	608	911	1215	1518	1821
3.3% V/V (fpm)	251	334	501	668	835	1003



NOT TO SCALE

CHANGES : New climb gradient for RWY 20R.

ANITO 6E (SID) RNAV GNSS RWY 02L - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOPOM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To ANITO.	TOPOM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	ANITO	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOPOM	-	023(022.5)	-0.5	R	A020+	-	RNAV1
TF	DOKTA	-	115(114.5)	-0.5	R	A040+	-	RNAV1
TF	DOGRA	-	169(168.5)	-0.5	R	A060-	-	RNAV1
TF	DOSNO	-	180(179.5)	-0.5	L	-	-	RNAV1
TF	ANITO	-	150(149.5)	-0.5	-	-	-	RNAV1

ANITO 6F (SID) RNAV GNSS RWY 20R - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To LEDOX on course 203° at or above 1500ft. To LEGAS at or above 2000ft. To LETGO at or above 2500ft, turn left. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To ANITO.	LEDOX [M203; A015+] -	CF	N
	LEGAS [A020+] -	TF	N
	LETGO [A025+; L] -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	ANITO	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	LEDOX	-	203(202.5)	-0.5	-	A015+	-	RNAV1
TF	LEGAS	-	203(202.5)	-0.5	-	A020+	-	RNAV1
TF	LETGO	-	203(202.5)	-0.5	L	A025+	-	RNAV1
TF	DIVSA	-	113(112.5)	-0.5	R	A040+	-	RNAV1
TF	BTM	-	120(119.5)	-0.5	L	-	-	RNAV1
TF	DOGRA	-	113(112.5)	-0.5	R	A060-	-	RNAV1
TF	DOSNO	-	180(179.5)	-0.5	L	-	-	RNAV1
TF	ANITO	-	150(149.5)	-0.5	-	-	-	RNAV1

RADIO COMMUNICATIONS FAILURE PROCEDURE

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 AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE. **RWY 20R -** PROCEED STRAIGHT AHEAD TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART RNAV (GNSS) - INSTRUMENT (SID)

TWR 118.6 / 118.25
APP 120.3
ACC 134.4

TRANSITION ALTITUDE
11 000ft

D-ATIS AP ID-WSSS
128.6

SINGAPORE/Singapore Changi
RWY 02C/20C
ANITO DEPARTURES
ANITO 6A (R02C)
ANITO 6B (R20C)

ELEV, ALT IN FEET
BEARINGS, TRACKS AND RADIALS ARE MAGNETIC
VAR 26'E (2015)

DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTORING, IF NECESSARY

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR
- FORMAL AND TABULAR DESCRIPTIONS
- RADIO COM FAILURE PROCEDURES

GENERAL INFORMATION

INITIAL CLIMB
3000FT OR AS DIRECTED BY ATC

ON INITIAL CONTACT WHEN REQUESTING ATC, INFORM ATC OF THE FLIGHT LEVEL AIRCRAFT CAN CROSS ANITO

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

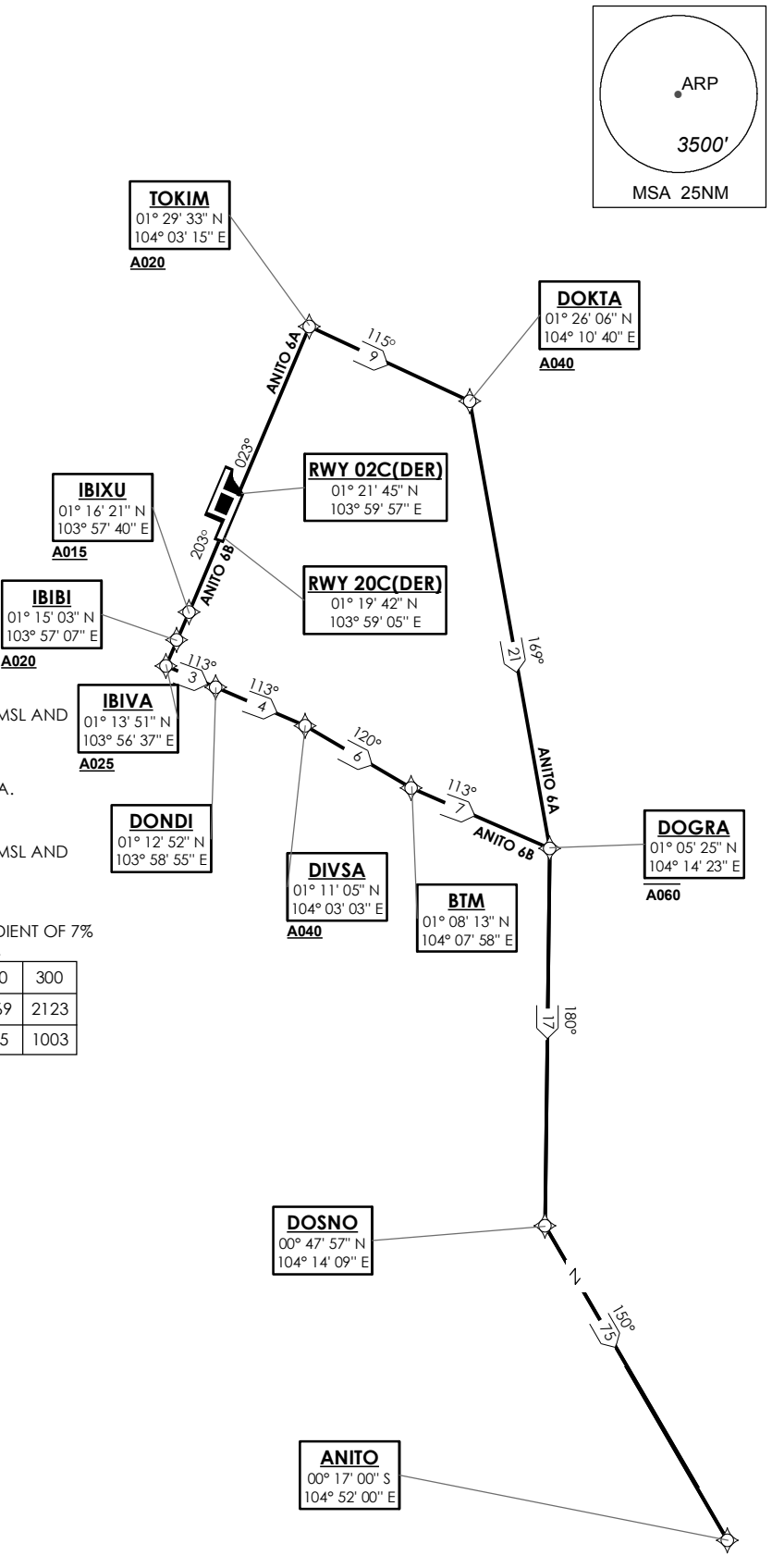
RWY 02C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
SEE (ENR 1.5-4) FOR MINIMUM CLIMB GRADIENT CRITERIA.

RWY 20C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
DEPARTURES SHALL BE ON A MINIMUM NET CLIMB GRADIENT OF 7% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
7% V/V (fpm)	532	709	1062	1416	1769	2123
3.3% V/V (fpm)	251	334	501	668	835	1003



CHANGES : New climb gradient for RWY 20C.

ANITO 6A (SID) RNAV GNSS RWY 02C - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOKIM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To ANITO.	TOKIM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	ANITO	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOKIM	-	023(022.5)	-0.5	R	A020+	-	RNAV1
TF	DOKTA	-	115(114.5)	-0.5	R	A040+	-	RNAV1
TF	DOGRA	-	169(168.5)	-0.5	R	A060-	-	RNAV1
TF	DOSNO	-	180(179.5)	-0.5	L	-	-	RNAV1
TF	ANITO	-	150(149.5)	-0.5	-	-	-	RNAV1

ANITO 6B (SID) RNAV GNSS RWY 20C - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To IBIXU on course 203° at or above 1500ft. To IBIBI at or above 2000ft. To IBIVA at or above 2500ft, turn left. To DONDI. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To ANITO.	IBIXU [M203; A015+] -	CF	N
	IBIBI [A020+] -	TF	N
	IBIVA [A025+; L] -	TF	N
	DONDI -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	ANITO	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	IBIXU	-	203(202.5)	-0.5	-	A015+	-	RNAV1
TF	IBIBI	-	203(202.5)	-0.5	-	A020+	-	RNAV1
TF	IBIVA	-	203(202.5)	-0.5	L	A025+	-	RNAV1
TF	DONDI	-	113(112.5)	-0.5	-	-	-	RNAV1
TF	DIVSA	-	113(112.5)	-0.5	R	A040+	-	RNAV1
TF	BTM	-	120(119.5)	-0.5	L	-	-	RNAV1
TF	DOGRA	-	113(112.5)	-0.5	R	A060-	-	RNAV1
TF	DOSNO	-	180(179.5)	-0.5	L	-	-	RNAV1
TF	ANITO	-	150(149.5)	-0.5	-	-	-	RNAV1

RADIO COMMUNICATIONS FAILURE PROCEDURE

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 AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE. **RWY 20C -** PROCEED STRAIGHT AHEAD TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART RNAV (GNSS) - INSTRUMENT (SID)

TWR 118.6 / 118.25
APP 120.3
ACC 133.25

TRANSITION ALTITUDE
11 000ft

D-ATIS AP ID-WSSS
128.6

SINGAPORE/Singapore Changi
RWY 02L/20R
ADMIM DEPARTURES
ADMIM 1E (R02L)
ADMIM 2F (R20R)

ELEV, ALT IN FEET
BEARINGS, TRACKS AND
RADIALS ARE MAGNETIC
VAR 26'E (2015)

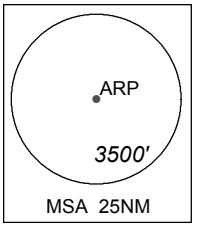
DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTORING, IF NECESSARY

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR
- FORMAL AND TABULAR DESCRIPTIONS
- RADIO COM FAILURE PROCEDURES



GENERAL INFORMATION

INITIAL CLIMB
3000FT OR AS DIRECTED BY ATC

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

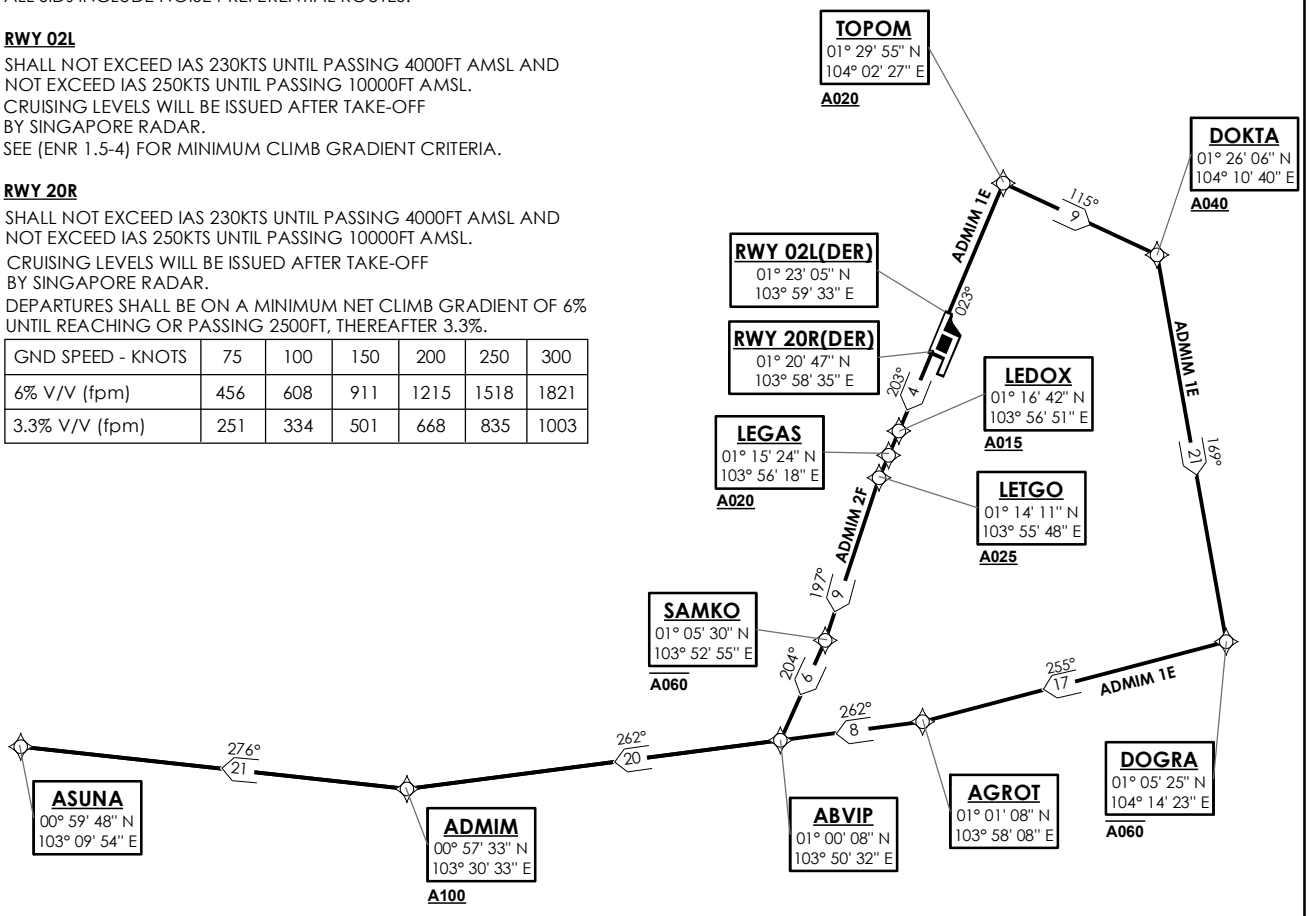
RWY 02L

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
SEE (ENR 1.5-4) FOR MINIMUM CLIMB GRADIENT CRITERIA.

RWY 20R

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
DEPARTURES SHALL BE ON A MINIMUM NET CLIMB GRADIENT OF 6% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
6% V/V (fpm)	456	608	911	1215	1518	1821
3.3% V/V (fpm)	251	334	501	668	835	1003



NOT TO SCALE

CHANGES : New climb gradient for RWY 20R.

ADMIM 1E (SID) RNAV GNSS RWY 02L - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOPOM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To AGROT, turn right. To ABVIP. To ADMIM at or above 10000ft, turn right. To ASUNA.	TOPOM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	AGROT [R] -	TF	N
	ABVIP -	TF	N
	ADMIM [A100+; R] -	TF	N
	ASUNA	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOPOM	-	023(022.5)	-0.5	R	A020+	-	RNAV1
TF	DOKTA	-	115(114.5)	-0.5	R	A040+	-	RNAV1
TF	DOGRA	-	169(168.5)	-0.5	R	A060-	-	RNAV1
TF	AGROT	-	255(254.5)	-0.5	R	-	-	RNAV1
TF	ABVIP	-	262(261.5)	-0.5	-	-	-	RNAV1
TF	ADMIM	-	262(261.5)	-0.5	R	A100+	-	RNAV1
TF	ASUNA	-	276(275.5)	-0.5	-	-	-	RNAV1

ADMIM 2F (SID) RNAV GNSS RWY 20R - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To LEDOX on course 203° at or above 1500ft. To LEGAS at or above 2000ft. To LETGO at or above 2500ft, turn left. To SAMKO at or below 6000ft, turn right. To ABVIP, turn right. To ADMIM at or above 10000ft, turn right. To ASUNA.	LEDOX [M203; A015+] -	CF	N
	LEGAS [A020+] -	TF	N
	LETGO [A025+; L] -	TF	N
	SAMKO [A060-; R] -	TF	N
	ABVIP [R] -	TF	N
	ADMIM [A100+; R] -	TF	N
	ASUNA	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	LEDOX	-	203(202.5)	-0.5	-	A015+	-	RNAV1
TF	LEGAS	-	203(202.5)	-0.5	-	A020+	-	RNAV1
TF	LETGO	-	203(202.5)	-0.5	L	A025+	-	RNAV1
TF	SAMKO	-	197(197.5)	-0.5	R	A060-	-	RNAV1
TF	ABVIP	-	204(203.5)	-0.5	R	-	-	RNAV1
TF	ADMIM	-	262(261.5)	-0.5	R	A100+	-	RNAV1
TF	ASUNA	-	276(275.5)	-0.5	-	-	-	RNAV1

RADIO COMMUNICATIONS FAILURE PROCEDURE

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 AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE. **RWY 20R -** PROCEED STRAIGHT AHEAD TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART RNAV (GNSS) - INSTRUMENT (SID)

TWR 118.6 / 118.25
APP 120.3
ACC 133.25

TRANSITION ALTITUDE
11 000ft

D-ATIS AP ID-WSSS
128.6

SINGAPORE/Singapore Changi
RWY 02C/20C
ADMIM DEPARTURES
ADMIM 1A (R02C)
ADMIM 2B (R20C)

ELEV, ALT IN FEET
BEARINGS, TRACKS AND
RADIALS ARE MAGNETIC
VAR 26'E (2015)

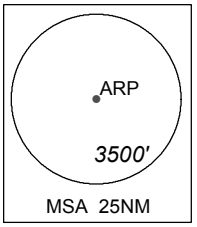
DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTORING, IF NECESSARY

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR
- FORMAL AND TABULAR DESCRIPTIONS
- RADIO COM FAILURE PROCEDURES



GENERAL INFORMATION

INITIAL CLIMB
3000FT OR AS DIRECTED BY ATC

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

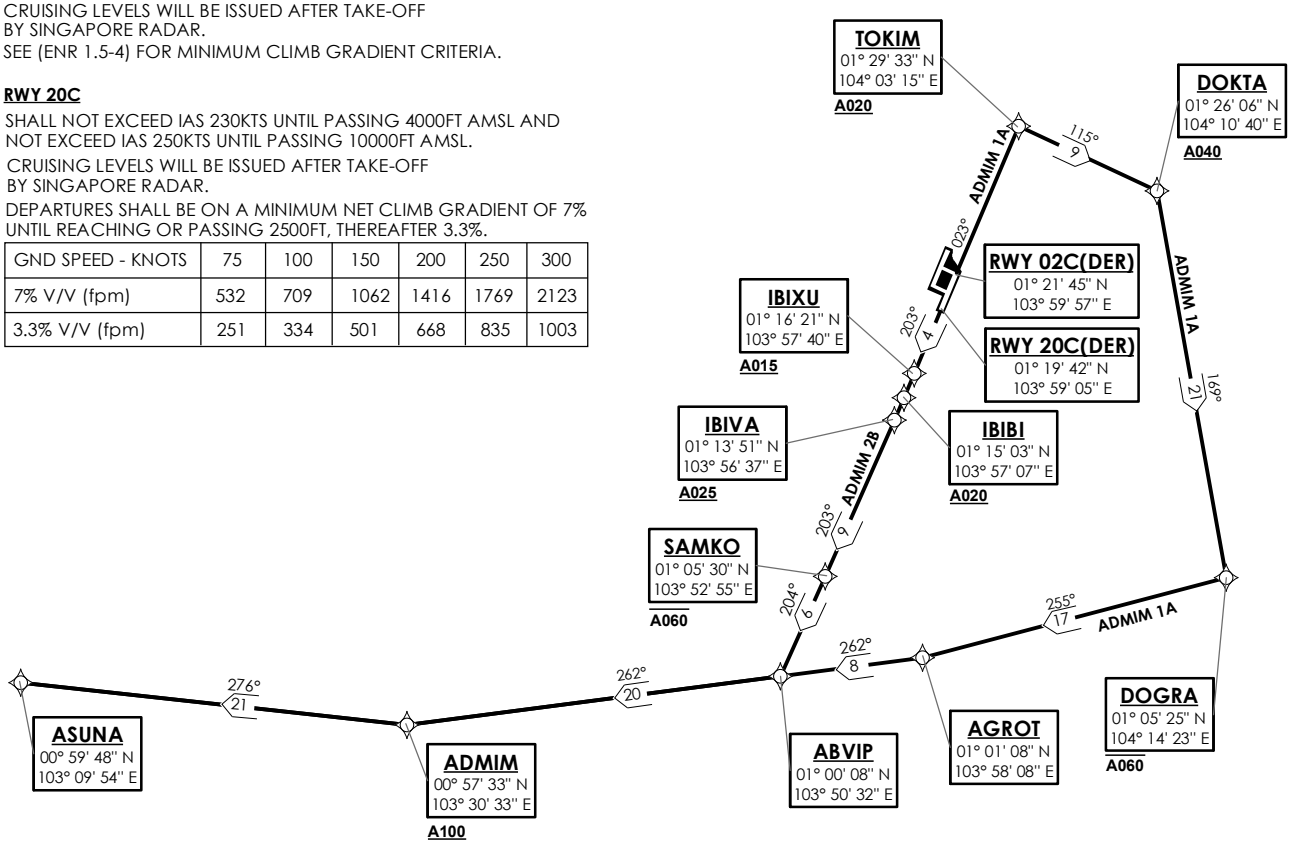
RWY 02C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
SEE (ENR 1.5-4) FOR MINIMUM CLIMB GRADIENT CRITERIA.

RWY 20C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
DEPARTURES SHALL BE ON A MINIMUM NET CLIMB GRADIENT OF 7% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
7% V/V (fpm)	532	709	1062	1416	1769	2123
3.3% V/V (fpm)	251	334	501	668	835	1003



NOT TO SCALE

CHANGES : New climb gradient for RWY 20C.

ADMIM 1A (SID) RNAV GNSS RWY 02C - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOKIM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To AGROT, turn right. To ABVIP. To ADMIM at or above 10000ft, turn right. To ASUNA.	TOKIM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	AGROT [R] -	TF	N
	ABVIP -	TF	N
	ADMIM [A100+; R] -	TF	N
	ASUNA	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOKIM	-	023(022.5)	-0.5	R	A020+	-	RNAV1
TF	DOKTA	-	115(114.5)	-0.5	R	A040+	-	RNAV1
TF	DOGRA	-	169(168.5)	-0.5	R	A060-	-	RNAV1
TF	AGROT	-	255(254.5)	-0.5	R	-	-	RNAV1
TF	ABVIP	-	262(261.5)	-0.5	-	-	-	RNAV1
TF	ADMIM	-	262(261.5)	-0.5	R	A100+	-	RNAV1
TF	ASUNA	-	276(275.5)	-0.5	-	-	-	RNAV1

ADMIM 2B (SID) RNAV GNSS RWY 20C - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To IBIXU on course 203° at or above 1500ft. To IBIBI at or above 2000ft. To IBIVA at or above 2500ft. To SAMKO at or below 6000ft, turn right. To ABVIP, turn right. To ADMIM at or above 10000ft, turn right. To ASUNA.	IBIXU [M203; A015+] -	CF	N
	IBIBI [A020+] -	TF	N
	IBIVA [A025+] -	TF	N
	SAMKO [A060-; R] -	TF	N
	ABVIP [R] -	TF	N
	ADMIM [A100+; R] -	TF	N
	ASUNA	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	IBIXU	-	203(202.5)	-0.5	-	A015+	-	RNAV1
TF	IBIBI	-	203(202.5)	-0.5	-	A020+	-	RNAV1
TF	IBIVA	-	203(202.5)	-0.5	-	A025+	-	RNAV1
TF	SAMKO	-	203(202.5)	-0.5	R	A060-	-	RNAV1
TF	ABVIP	-	204(203.5)	-0.5	R	-	-	RNAV1
TF	ADMIM	-	262(261.5)	-0.5	R	A100+	-	RNAV1
TF	ASUNA	-	276(275.5)	-0.5	-	-	-	RNAV1

RADIO COMMUNICATIONS FAILURE PROCEDURE

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 AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE. **RWY 20C -** PROCEED STRAIGHT AHEAD TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART RNAV (GNSS) - INSTRUMENT (SID)

TWR 118.6 / 118.25
APP 120.3
ACC 134.2

TRANSITION ALTITUDE
11 000ft

D-ATIS AP ID-WSSS
128.6

SINGAPORE/Singapore Changi
RWY 02L/20R
TOMAN DEPARTURES
TOMAN 2E (R02L)
TOMAN 3F (R20R)

ELEV, ALT IN FEET
BEARINGS, TRACKS AND RADIALS ARE MAGNETIC
VAR 26'E (2015)

DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTORING, IF NECESSARY

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR
- FORMAL AND TABULAR DESCRIPTIONS
- RADIO COM FAILURE PROCEDURES

GENERAL INFORMATION

INITIAL CLIMB
3000FT OR AS DIRECTED BY ATC

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

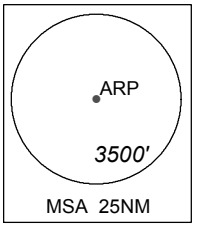
RWY 02L

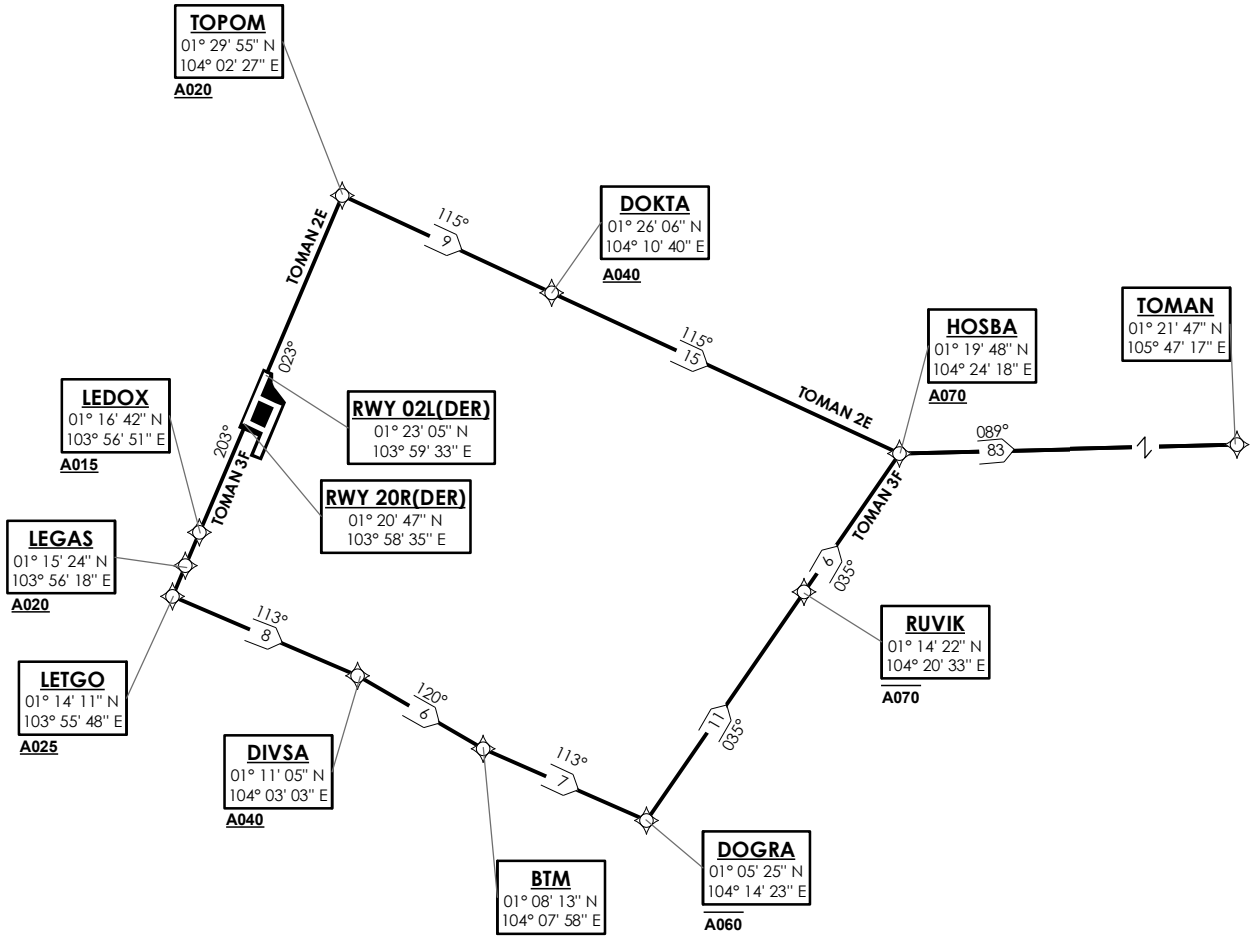
SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
SEE (ENR 1.5-4) FOR MINIMUM CLIMB GRADIENT CRITERIA.

RWY 20R

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
DEPARTURES SHALL BE ON A MINIMUM NET CLIMB GRADIENT OF 6% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
6% V/V (fpm)	456	608	911	1215	1518	1821
3.3% V/V (fpm)	251	334	501	668	835	1003





NOT TO SCALE

CHANGES : New climb gradient for RWY 20R.

TOMAN 2E (SID) RNAV GNSS RWY 02L - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOPOM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft. To HOSBA at or above 7000ft, turn left. To TOMAN.	TOPOM [M023; A020+; R] -	CF	N
	DOKTA [A040+] -	TF	N
	HOSBA [A070+; L] -	TF	N
	TOMAN	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOPOM	-	023(022.5)	-0.5	R	A020+	-	RNAV1
TF	DOKTA	-	115(114.5)	-0.5	-	A040+	-	RNAV1
TF	HOSBA	-	115(114.5)	-0.5	L	A070+	-	RNAV1
TF	TOMAN	-	089(088.5)	-0.5	-	-	-	RNAV1

TOMAN 3F (SID) RNAV GNSS RWY 20R - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To LEDOX on course 203° at or above 1500ft. To LEGAS at or above 2000ft. To LETGO at or above 2500ft, turn left. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn left. To RUVIK at or below 7000ft. To HOSBA at or above 7000ft, turn right. To TOMAN.	LEDOX [M203; A015+] -	CF	N
	LEGAS [A020+] -	TF	N
	LETGO [A025+; L] -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; L] -	TF	N
	RUVIK [A070-] -	TF	N
	HOSBA [A070+; R] -	TF	N
	TOMAN	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	LEDOX	-	203(202.5)	-0.5	-	A015+	-	RNAV1
TF	LEGAS	-	203(202.5)	-0.5	-	A020+	-	RNAV1
TF	LETGO	-	203(202.5)	-0.5	L	A025+	-	RNAV1
TF	DIVSA	-	113(112.5)	-0.5	R	A040+	-	RNAV1
TF	BTM	-	120(119.5)	-0.5	L	-	-	RNAV1
TF	DOGRA	-	113(112.5)	-0.5	L	A060-	-	RNAV1
TF	RUVIK	-	035(034.5)	-0.5	-	A070-	-	RNAV1
TF	HOSBA	-	035(034.5)	-0.5	R	A070+	-	RNAV1
TF	TOMAN	-	089(088.5)	-0.5	-	-	-	RNAV1

RADIO COMMUNICATIONS FAILURE PROCEDURE

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 AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE. **RWY 20R -** PROCEED STRAIGHT AHEAD TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART RNAV (GNSS) - INSTRUMENT (SID)

TWR 118.6 / 118.25
APP 120.3
ACC 134.2

TRANSITION ALTITUDE
11 000ft

D-ATIS AP ID-WSSS
128.6

SINGAPORE/Singapore Changi
RWY 02C/20C
TOMAN DEPARTURES
TOMAN 2A (R02C)
TOMAN 3B (R20C)

ELEV, ALT IN FEET
BEARINGS, TRACKS AND RADIALS ARE MAGNETIC
VAR 26'E (2015)

DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTORING, IF NECESSARY

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR
- FORMAL AND TABULAR DESCRIPTIONS
- RADIO COM FAILURE PROCEDURES

GENERAL INFORMATION

INITIAL CLIMB
3000FT OR AS DIRECTED BY ATC

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

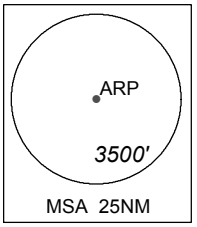
RWY 02C

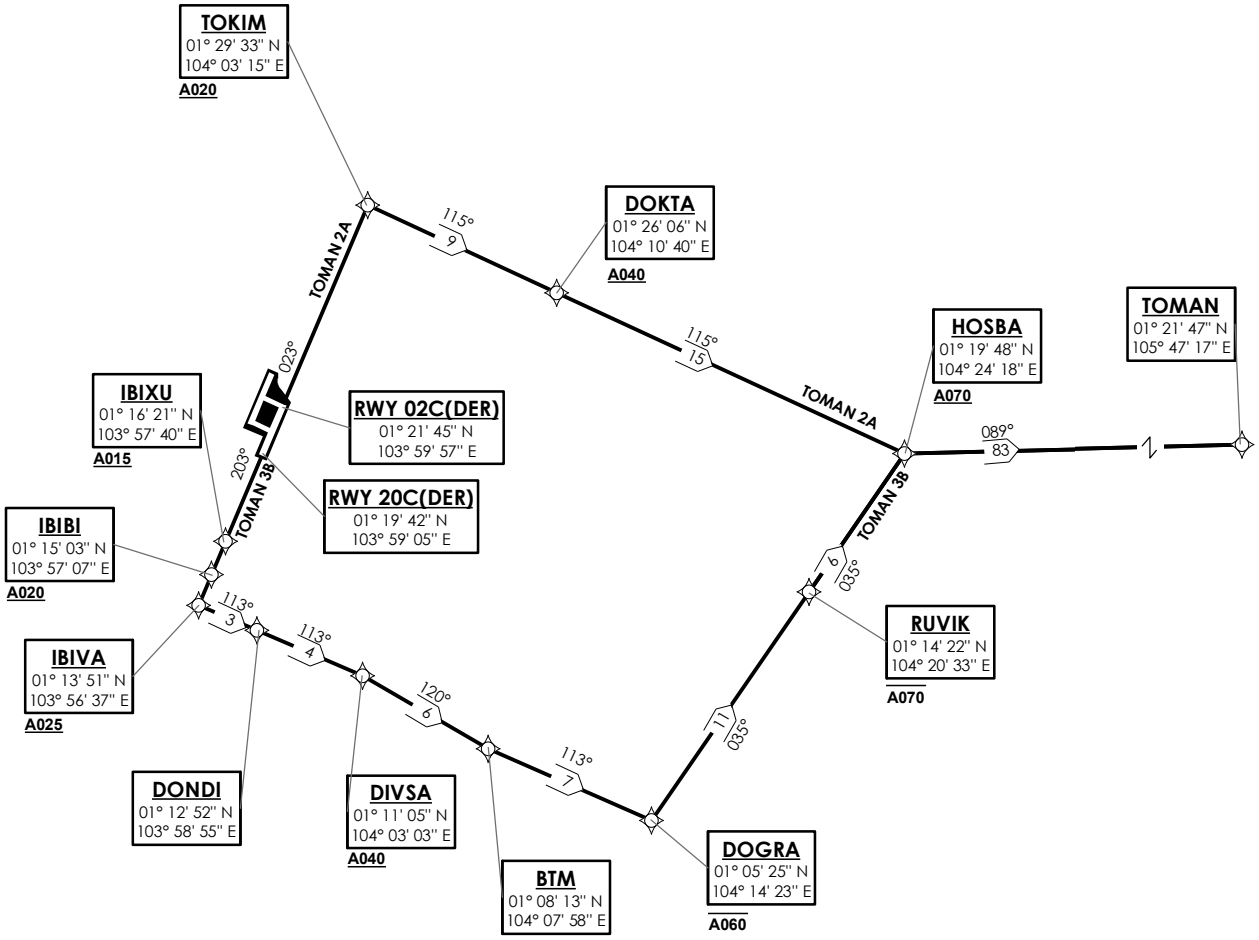
SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
SEE (ENR 1.5-4) FOR MINIMUM CLIMB GRADIENT CRITERIA.

RWY 20C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
DEPARTURES SHALL BE ON A MINIMUM NET CLIMB GRADIENT OF 7% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
7% V/V (fpm)	532	709	1062	1416	1769	2123
3.3% V/V (fpm)	251	334	501	668	835	1003





NOT TO SCALE

CHANGES : New climb gradient for RWY 20C.

TOMAN 2A (SID) RNAV GNSS RWY 02C - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOKIM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft. To HOSBA at or above 7000ft, turn left. To TOMAN.	TOKIM [M023; A020+; R] -	CF	N
	DOKTA [A040+] -	TF	N
	HOSBA [A070+; L] -	TF	N
	TOMAN	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOKIM	-	023(022.5)	-0.5	R	A020+	-	RNAV1
TF	DOKTA	-	115(114.5)	-0.5	-	A040+	-	RNAV1
TF	HOSBA	-	115(114.5)	-0.5	L	A070+	-	RNAV1
TF	TOMAN	-	089(088.5)	-0.5	-	-	-	RNAV1

TOMAN 3B (SID) RNAV GNSS RWY 20C - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To IBIXU on course 203° at or above 1500ft. To IBIBI at or above 2000ft. To IBIVA at or above 2500ft, turn left. To DONDI. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn left. To RUVIK at or below 7000ft. To HOSBA at or above 7000ft, turn right. To TOMAN.	IBIXU [M203; A015+] -	CF	N
	IBIBI [A020+] -	TF	N
	IBIVA [A025+; L] -	TF	N
	DONDI -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; L] -	TF	N
	RUVIK [A070-] -	TF	N
	HOSBA [A070+; R] -	TF	N
	TOMAN	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	IBIXU	-	203(202.5)	-0.5	-	A015+	-	RNAV1
TF	IBIBI	-	203(202.5)	-0.5	-	A020+	-	RNAV1
TF	IBIVA	-	203(202.5)	-0.5	L	A025+	-	RNAV1
TF	DONDI	-	113(112.5)	-0.5	-	-	-	RNAV1
TF	DIVSA	-	113(112.5)	-0.5	R	A040+	-	RNAV1
TF	BTM	-	120(119.5)	-0.5	L	-	-	RNAV1
TF	DOGRA	-	113(112.5)	-0.5	L	A060-	-	RNAV1
TF	RUVIK	-	035(034.5)	-0.5	-	A070-	-	RNAV1
TF	HOSBA	-	035(034.5)	-0.5	R	A070+	-	RNAV1
TF	TOMAN	-	089(088.5)	-0.5	-	-	-	RNAV1

RADIO COMMUNICATIONS FAILURE PROCEDURE

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 AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE. **RWY 20C -** PROCEED STRAIGHT AHEAD TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART RNAV (GNSS) - INSTRUMENT (SID)

TWR	118.6 / 118.25
APP	120.3
ACC	134.4

TRANSITION ALTITUDE
11 000ft

D-ATIS AP ID-WSSS
128.6

SINGAPORE/Singapore Changi
RWY 02L/20R
BAVUS DEPARTURES
BAVUS 1E (R02L)
BAVUS 2F (R20R)

ELEV, ALT IN FEET
BEARINGS, TRACKS AND RADIALS ARE MAGNETIC
VAR 26'E (2015)

DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTORING, IF NECESSARY

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR
- FORMAL AND TABULAR DESCRIPTIONS
- RADIO COM FAILURE PROCEDURES

GENERAL INFORMATION

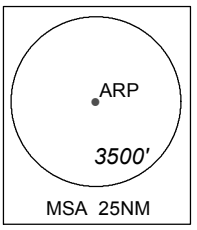
INITIAL CLIMB
3000FT OR AS DIRECTED BY ATC

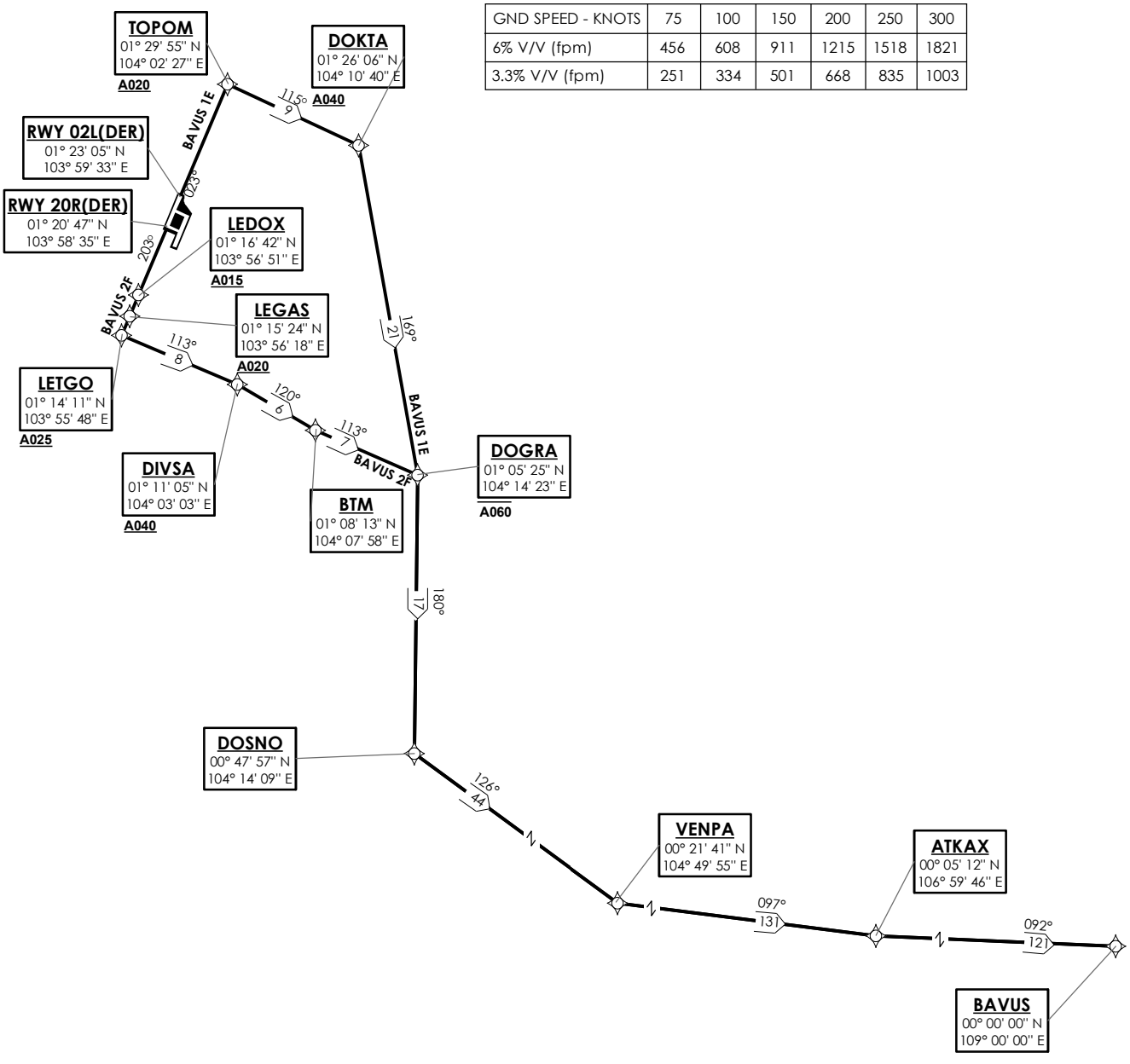
ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

RWY 02L
SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
SEE (ENR 1.5-4) FOR MINIMUM CLIMB GRADIENT CRITERIA.

RWY 20R
SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
DEPARTURES SHALL BE ON A MINIMUM NET CLIMB GRADIENT OF 6% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
6% V/V (fpm)	456	608	911	1215	1518	1821
3.3% V/V (fpm)	251	334	501	668	835	1003





NOT TO SCALE

CHANGES : New climb gradient for RWY 20R.

BAVUS 1E (SID) RNAV GNSS RWY 02L - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOPOM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To ATKAX, turn left. To BAVUS.	TOPOM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	ATKAX [L] -	TF	N
	BAVUS	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOPOM	-	023(022.5)	-0.5	R	A020+	-	RNAV1
TF	DOKTA	-	115(114.5)	-0.5	R	A040+	-	RNAV1
TF	DOGRA	-	169(168.5)	-0.5	R	A060-	-	RNAV1
TF	DOSNO	-	180(179.5)	-0.5	L	-	-	RNAV1
TF	VENPA	-	126(125.5)	-0.5	L	-	-	RNAV1
TF	ATKAX	-	097(096.5)	-0.5	L	-	-	RNAV1
TF	BAVUS	-	092(091.5)	-0.5	-	-	-	RNAV1

BAVUS 2F (SID) RNAV GNSS RWY 20R - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To LEDOX on course 203° at or above 1500ft. To LEGAS at or above 2000ft. To LETGO at or above 2500ft, turn left. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To ATKAX, turn left. To BAVUS.	LEDOX [M203; A015+] -	CF	N
	LEGAS [A020+] -	TF	N
	LETGO [A025+; L] -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	ATKAX [L] -	TF	N
	BAVUS	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	LEDOX	-	203(202.5)	-0.5	-	A015+	-	RNAV1
TF	LEGAS	-	203(202.5)	-0.5	-	A020+	-	RNAV1
TF	LETGO	-	203(202.5)	-0.5	L	A025+	-	RNAV1
TF	DIVSA	-	113(112.5)	-0.5	R	A040+	-	RNAV1
TF	BTM	-	120(119.5)	-0.5	L	-	-	RNAV1
TF	DOGRA	-	113(112.5)	-0.5	R	A060-	-	RNAV1
TF	DOSNO	-	180(179.5)	-0.5	L	-	-	RNAV1
TF	VENPA	-	126(125.5)	-0.5	L	-	-	RNAV1
TF	ATKAX	-	097(096.5)	-0.5	L	-	-	RNAV1
TF	BAVUS	-	092(091.5)	-0.5	-	-	-	RNAV1

RADIO COMMUNICATIONS FAILURE PROCEDURE

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 AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE. **RWY 20R -** PROCEED STRAIGHT AHEAD TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART RNAV (GNSS) - INSTRUMENT (SID)

TWR 118.6 / 118.25
APP 120.3
ACC 134.4

TRANSITION ALTITUDE
11 000ft

D-ATIS AP ID-WSSS
128.6

SINGAPORE/Singapore Changi
RWY 02C/20C
BAVUS DEPARTURES
BAVUS 1A (R02C)
BAVUS 2B (R20C)

ELEV, ALT IN FEET
BEARINGS, TRACKS AND RADIALS ARE MAGNETIC
VAR 26'E (2015)

DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTORING, IF NECESSARY

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR
- FORMAL AND TABULAR DESCRIPTIONS
- RADIO COM FAILURE PROCEDURES

GENERAL INFORMATION

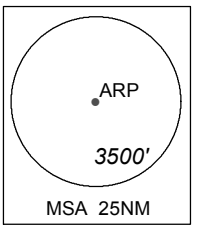
INITIAL CLIMB
3000FT OR AS DIRECTED BY ATC

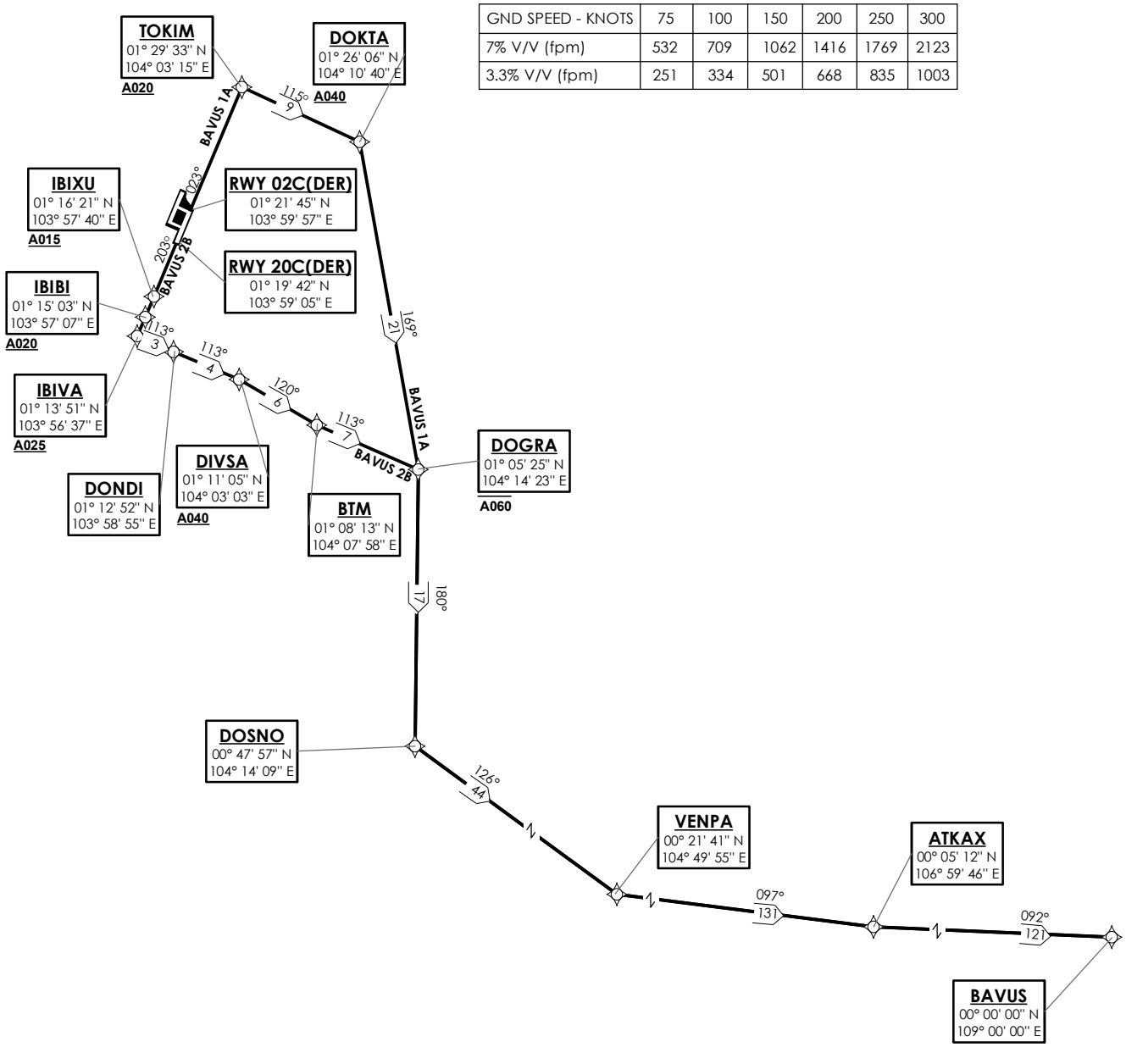
ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

RWY 02C
SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
SEE (ENR 1.5-4) FOR MINIMUM CLIMB GRADIENT CRITERIA.

RWY 20C
SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
DEPARTURES SHALL BE ON A MINIMUM NET CLIMB GRADIENT OF 7% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
7% V/V (fpm)	532	709	1062	1416	1769	2123
3.3% V/V (fpm)	251	334	501	668	835	1003





NOT TO SCALE

CHANGES : New climb gradient for RWY 20C.

BAVUS 1A (SID) RNAV GNSS RWY 02C - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOKIM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To ATKAX, turn left. To BAVUS.	TOKIM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	ATKAX [L] -	TF	N
	BAVUS	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOKIM	-	023(022.5)	-0.5	R	A020+	-	RNAV1
TF	DOKTA	-	115(114.5)	-0.5	R	A040+	-	RNAV1
TF	DOGRA	-	169(168.5)	-0.5	R	A060-	-	RNAV1
TF	DOSNO	-	180(179.5)	-0.5	L	-	-	RNAV1
TF	VENPA	-	126(125.5)	-0.5	L	-	-	RNAV1
TF	ATKAX	-	097(096.5)	-0.5	L	-	-	RNAV1
TF	BAVUS	-	092(091.5)	-0.5	-	-	-	RNAV1

BAVUS 2B (SID) RNAV GNSS RWY 20C - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To IBIXU on course 203° at or above 1500ft. To IBIBI at or above 2000ft. To IBIVA at or above 2500ft, turn left. To DONDI. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To ATKAX, turn left. To BAVUS.	IBIXU [M203; A015+] -	CF	N
	IBIBI [A020+] -	TF	N
	IBIVA [A025+; L] -	TF	N
	DONDI -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	ATKAX [L] -	TF	N
	BAVUS	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	IBIXU	-	203(202.5)	-0.5	-	A015+	-	RNAV1
TF	IBIBI	-	203(202.5)	-0.5	-	A020+	-	RNAV1
TF	IBIVA	-	203(202.5)	-0.5	L	A025+	-	RNAV1
TF	DONDI	-	113(112.5)	-0.5	-	-	-	RNAV1
TF	DIVSA	-	113(112.5)	-0.5	R	A040+	-	RNAV1
TF	BTM	-	120(119.5)	-0.5	L	-	-	RNAV1
TF	DOGRA	-	113(112.5)	-0.5	R	A060-	-	RNAV1
TF	DOSNO	-	180(179.5)	-0.5	L	-	-	RNAV1
TF	VENPA	-	126(125.5)	-0.5	L	-	-	RNAV1
TF	ATKAX	-	097(096.5)	-0.5	L	-	-	RNAV1
TF	BAVUS	-	092(091.5)	-0.5	-	-	-	RNAV1

RADIO COMMUNICATIONS FAILURE PROCEDURE

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 AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE. **RWY 20C -** PROCEED STRAIGHT AHEAD TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

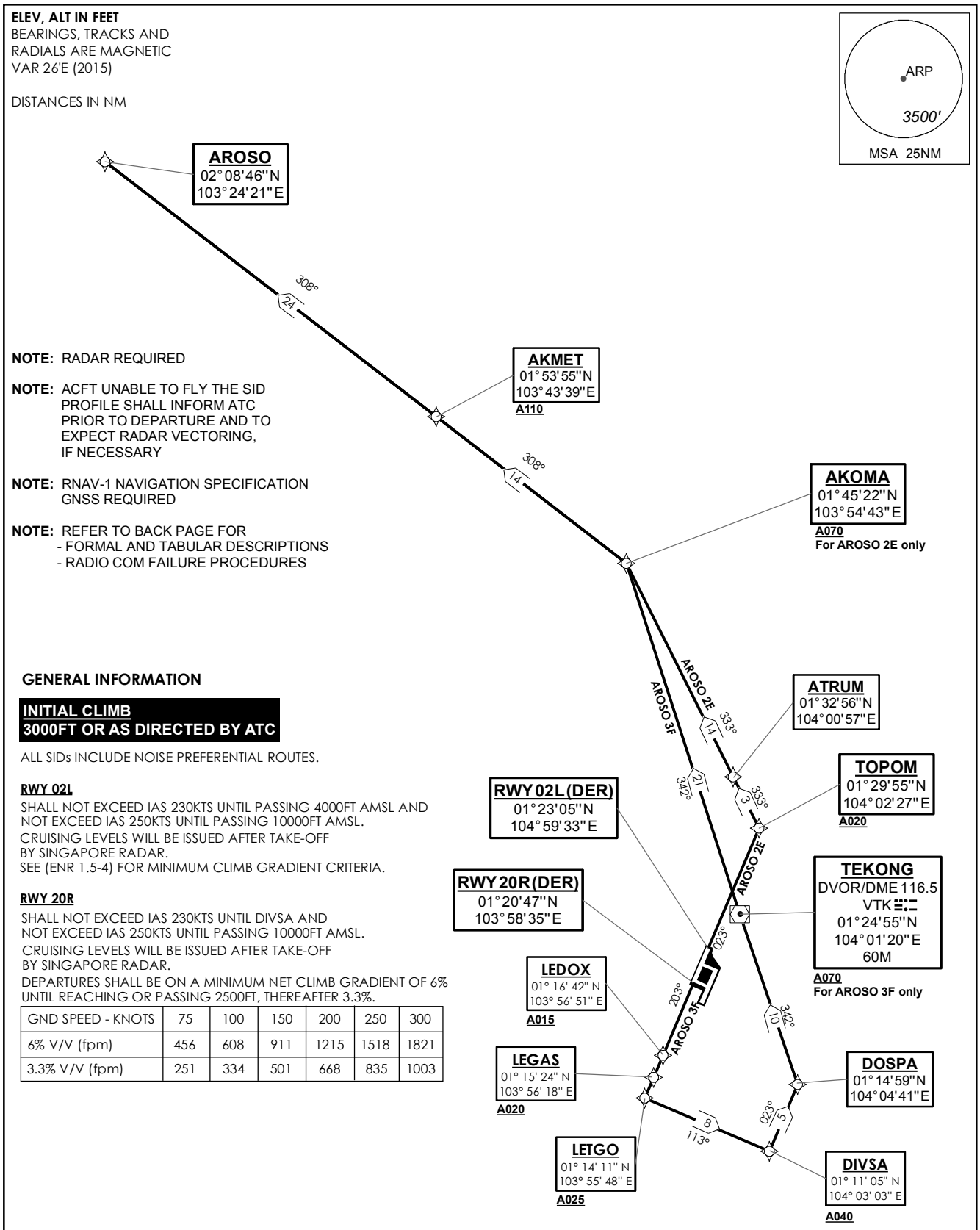
STANDARD DEPARTURE CHART RNAV (GNSS) - INSTRUMENT (SID)

TWR 118.6 / 118.25
APP 120.3
ACC 133.25

TRANSITION ALTITUDE
11 000ft

D-ATIS AP ID-WSSS
128.6

SINGAPORE/Singapore Changi
RWY 02L/20R
AROSO DEPARTURES
AROSO 2E (R02L)
AROSO 3F (R20R)



GENERAL INFORMATION

INITIAL CLIMB
3000FT OR AS DIRECTED BY ATC

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

RWY 02L

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
SEE (ENR 1.5-4) FOR MINIMUM CLIMB GRADIENT CRITERIA.

RWY 20R

SHALL NOT EXCEED IAS 230KTS UNTIL DIVSA AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
DEPARTURES SHALL BE ON A MINIMUM NET CLIMB GRADIENT OF 6% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
6% V/V (fpm)	456	608	911	1215	1518	1821
3.3% V/V (fpm)	251	334	501	668	835	1003

NOT TO SCALE

CHANGES : New climb gradient for RWY 20R.

AROSO 2E (SID) RNAV GNSS RWY 02L - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOPOM on course 023° at or above 2000ft, turn left. To ATRUM. To AKOMA at or above 7000ft, turn left. To AKMET at or above 11000ft. To AROSO.	TOPOM [M023; A020+; L] -	CF	N
	ATRUM -	TF	N
	AKOMA [A070+; L] -	TF	N
	AKMET [A110+] -	TF	N
	AROSO	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOPOM	-	023(022.5)	-0.5	L	A020+	-	RNAV1
TF	ATRUM	-	333(332.5)	-0.5	-	-	-	RNAV1
TF	AKOMA	-	333(332.5)	-0.5	L	A070+	-	RNAV1
TF	AKMET	-	308(307.5)	-0.5	-	A110+	-	RNAV1
TF	AROSO	-	308(307.5)	-0.5	-	-	-	RNAV1

AROSO 3F (SID) RNAV GNSS RWY 20R - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To LEDOX on course 203° at or above 1500ft. To LEGAS at or above 2000ft. To LETGO at or above 2500ft, turn left. To DIVSA at or above 4000ft, speed 230kts, turn left. To DOSPA, turn left. To VTK at or above 7000ft. To AKOMA, turn left. To AKMET at or above 11000ft. To AROSO.	LEDOX [M203; A015+] -	CF	N
	LEGAS [A020+] -	TF	N
	LETGO [A025+; L] -	TF	N
	DIVSA [A040+; K230; L] -	TF	N
	DOSPA [L] -	TF	N
	VTK [A070+] -	TF	N
	AKOMA [L] -	TF	N
	AKMET [A110+] -	TF	N
	AROSO	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	LEDOX	-	203(202.5)	-0.5	-	A015+	-	RNAV1
TF	LEGAS		203(202.5)	-0.5	-	A020+	-	RNAV1
TF	LETGO	-	203(202.5)	-0.5	L	A025+	-	RNAV1
TF	DIVSA	-	113(112.5)	-0.5	L	A040+	K230	RNAV1
TF	DOSPA	-	023(022.5)	-0.5	L	-	-	RNAV1
TF	VTK	-	342(341.5)	-0.5	-	A070+	-	RNAV1
TF	AKOMA	-	342(341.5)	-0.5	L	-	-	RNAV1
TF	AKMET	-	308(307.5)	-0.5	-	A110+	-	RNAV1
TF	AROSO	-	308(307.5)	-0.5	-	-	-	RNAV1

RADIO COMMUNICATIONS FAILURE PROCEDURE

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 AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE. **RWY 20R -** PROCEED STRAIGHT AHEAD TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART RNAV (GNSS) - INSTRUMENT (SID)

TWR 118.6 / 118.25
APP 120.3
ACC 133.25

TRANSITION ALTITUDE
11 000ft

D-ATIS AP ID-WSSS
128.6

SINGAPORE/Singapore Changi
RWY 02L/20R
MASBO DEPARTURES
MASBO 2E (R02L)
MASBO 3F (R20R)

ELEV, ALT IN FEET
BEARINGS, TRACKS AND RADIALS ARE MAGNETIC
VAR 26'E (2015)

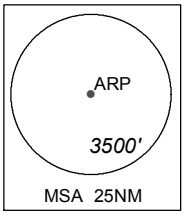
DISTANCES IN NM

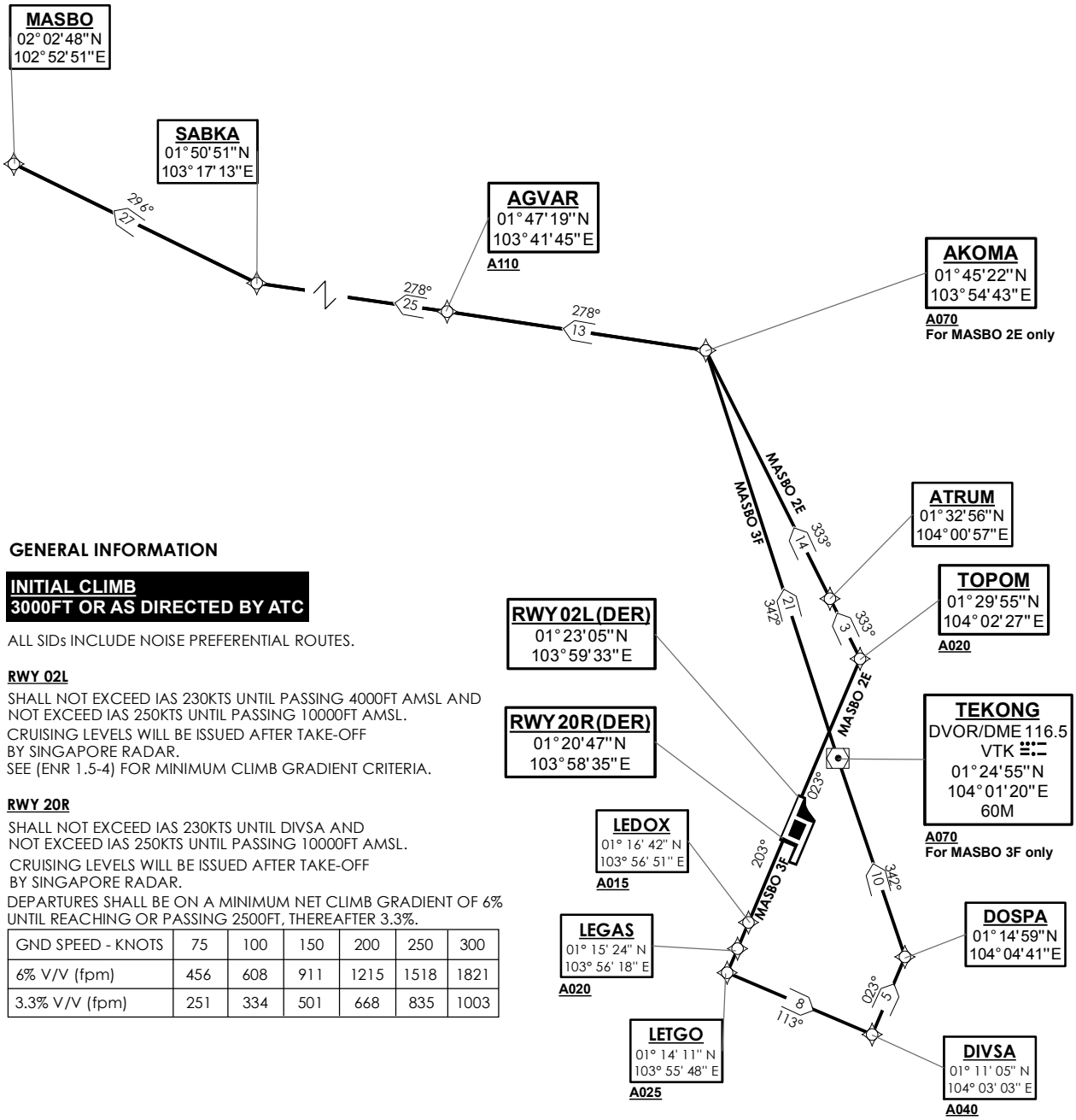
NOTE: RADAR REQUIRED

NOTE: ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTORING, IF NECESSARY

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR
- FORMAL AND TABULAR DESCRIPTIONS
- RADIO COM FAILURE PROCEDURES





GENERAL INFORMATION

INITIAL CLIMB
3000FT OR AS DIRECTED BY ATC

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

RWY 02L

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
SEE (ENR 1.5-4) FOR MINIMUM CLIMB GRADIENT CRITERIA.

RWY 20R

SHALL NOT EXCEED IAS 230KTS UNTIL DIVSA AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
DEPARTURES SHALL BE ON A MINIMUM NET CLIMB GRADIENT OF 6% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
6% V/V (fpm)	456	608	911	1215	1518	1821
3.3% V/V (fpm)	251	334	501	668	835	1003

NOT TO SCALE

CHANGES : New climb gradient for RWY 20R.

MASBO 2E (SID) RNAV GNSS RWY 02L - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOPOM on course 023° at or above 2000ft, turn left. To ATRUM. To AKOMA at or above 7000ft, turn left. To AGVAR at or above 11000ft. To SABKA, turn right. To MASBO.	TOPOM [M023; A020+; L] -	CF	N
	ATRUM -	TF	N
	AKOMA [A070+; L] -	TF	N
	AGVAR [A110+] -	TF	N
	SABKA [R] -	TF	N
	MASBO	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOPOM	-	023(022.5)	-0.5	L	A020+	-	RNAV1
TF	ATRUM	-	333(332.5)	-0.5	-	-	-	RNAV1
TF	AKOMA	-	333(332.5)	-0.5	L	A070+	-	RNAV1
TF	AGVAR	-	278(277.5)	-0.5	-	A110+	-	RNAV1
TF	SABKA	-	278(277.5)	-0.5	R	-	-	RNAV1
TF	MASBO	-	296(295.5)	-0.5	-	-	-	RNAV1

MASBO 3F (SID) RNAV GNSS RWY 20R - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To LEDOX on course 203° at or above 1500ft. To LEGAS at or above 2000ft. To LETGO at or above 2500ft, turn left. To DIVSA at or above 4000ft, speed 230kts, turn left. To DOSPA, turn left. To VTK at or above 7000ft. To AKOMA, turn left. To AGVAR at or above 11000ft. To SABKA, turn right. To MASBO.	LEDOX [M203; A015+] -	CF	N
	LEGAS [A020+] -	TF	N
	LETGO [A025+; L] -	TF	N
	DIVSA [A040+; K230; L] -	TF	N
	DOSPA [L] -	TF	N
	VTK [A070+] -	TF	N
	AKOMA [L] -	TF	N
	AGVAR [A110+] -	TF	N
	SABKA [R] -	TF	N
	MASBO	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	LEDOX	-	203(202.5)	-0.5	-	A015+	-	RNAV1
TF	LEGAS	-	203(202.5)	-0.5	-	A020+	-	RNAV1
TF	LETGO	-	203(202.5)	-0.5	L	A025+	-	RNAV1
TF	DIVSA	-	113(112.5)	-0.5	L	A040+	K230	RNAV1
TF	DOSPA	-	023(022.5)	-0.5	L	-	-	RNAV1
TF	VTK	-	342(341.5)	-0.5	-	A070+	-	RNAV1
TF	AKOMA	-	342(341.5)	-0.5	L	-	-	RNAV1
TF	AGVAR	-	278(277.5)	-0.5	-	A110+	-	RNAV1
TF	SABKA	-	278(277.5)	-0.5	R	-	-	RNAV1
TF	MASBO	-	296(295.5)	-0.5	-	-	-	RNAV1

RADIO COMMUNICATIONS FAILURE PROCEDURE

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 AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE. **RWY 20R -** PROCEED STRAIGHT AHEAD TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART RNAV (GNSS) - INSTRUMENT (SID)

TWR 118.6 / 118.25
APP 120.3
ACC 133.25

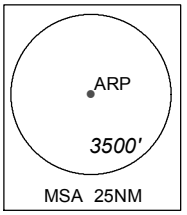
TRANSITION ALTITUDE
11 000ft

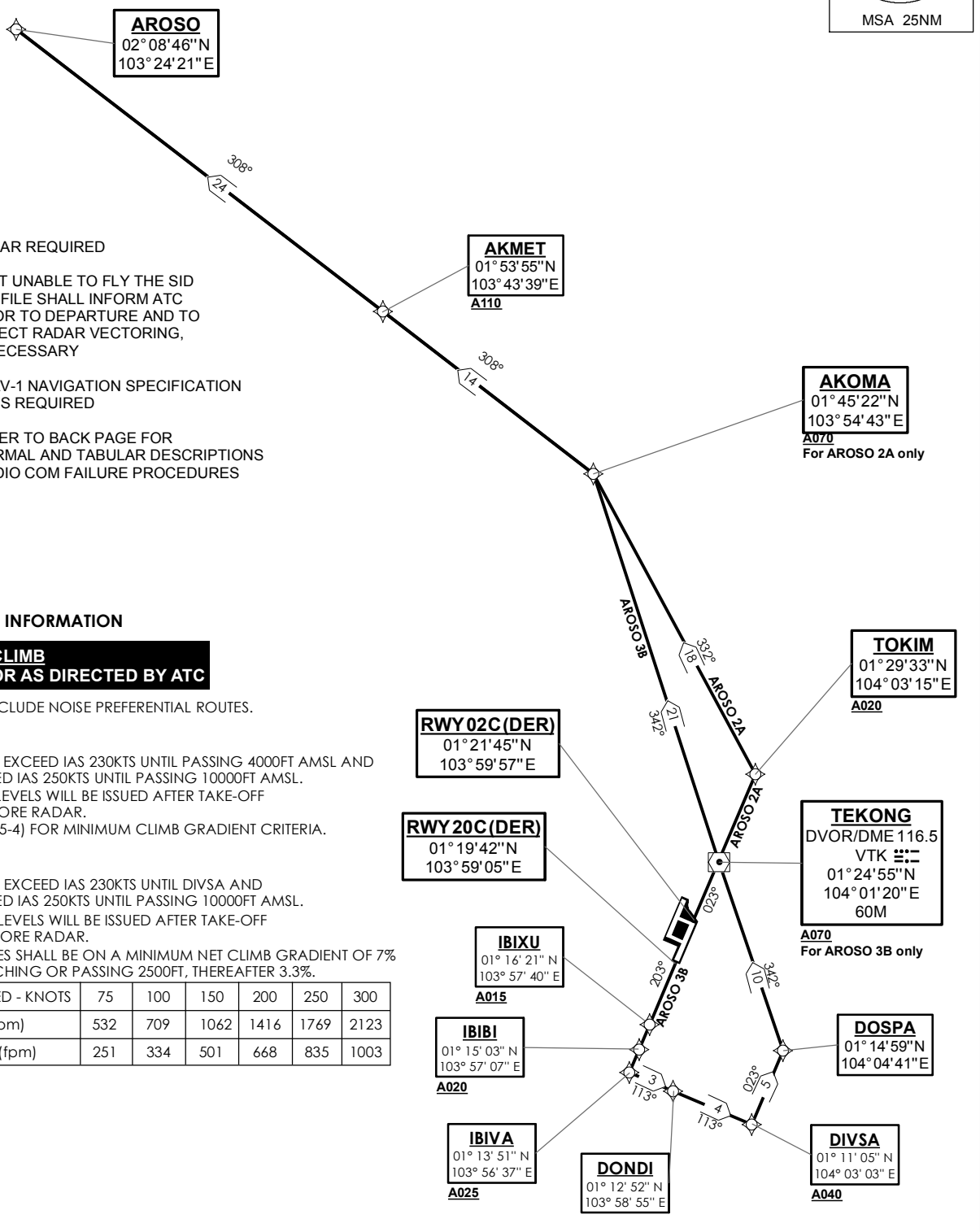
D-ATIS AP ID-WSSS
128.6

SINGAPORE/Singapore Changi
RWY 02C/20C
AROSO DEPARTURES
AROSO 2A (R02C)
AROSO 3B (R20C)

ELEV, ALT IN FEET
BEARINGS, TRACKS AND RADIALS ARE MAGNETIC
VAR 26'E (2015)

DISTANCES IN NM





NOTE: RADAR REQUIRED

NOTE: ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTORING, IF NECESSARY

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR
- FORMAL AND TABULAR DESCRIPTIONS
- RADIO COM FAILURE PROCEDURES

GENERAL INFORMATION

INITIAL CLIMB
3000FT OR AS DIRECTED BY ATC

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

RWY 02C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
SEE (ENR 1.5-4) FOR MINIMUM CLIMB GRADIENT CRITERIA.

RWY 20C

SHALL NOT EXCEED IAS 230KTS UNTIL DIVSA AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
DEPARTURES SHALL BE ON A MINIMUM NET CLIMB GRADIENT OF 7% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
7% V/V (fpm)	532	709	1062	1416	1769	2123
3.3% V/V (fpm)	251	334	501	668	835	1003

NOT TO SCALE

CHANGES : New climb gradient for RWY 20C.

AROSO 2A (SID) RNAV GNSS RWY 02C - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOKIM on course 023° at or above 2000ft, turn left. To AKOMA at or above 7000ft, turn left. To AKMET at or above 11000ft. To AROSO.	TOKIM [M023; A020+; L] - AKOMA [A070+; L] - AKMET [A110+] - AROSO	CF TF TF TF	N N N N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOKIM	-	023(022.5)	-0.5	L	A020+	-	RNAV1
TF	AKOMA	-	332(331.5)	-0.5	L	A070+	-	RNAV1
TF	AKMET	-	308(307.5)	-0.5	-	A110+	-	RNAV1
TF	AROSO	-	308(307.5)	-0.5	-	-	-	RNAV1

AROSO 3B (SID) RNAV GNSS RWY 20C - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To IBIXU on course 203° at or above 1500ft. To IBIBI at or above 2000ft. To IBIVA at or above 2500ft, turn left. To DONDI. To DIVSA at or above 4000ft, speed 230kts, turn left. To DOSPA, turn left. To VTK at or above 7000ft. To AKOMA, turn left. To AKMET at or above 11000ft. To AROSO.	IBIXU [M203; A015+] - IBIBI [A020+] - IBIVA [A025+; L] - DONDI - DIVSA [A040+; K230; L] - DOSPA [L] - VTK [A070+] - AKOMA [L] - AKMET [A110+] - AROSO	CF TF TF TF TF TF TF TF TF TF	N N N N N N N N N N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	IBIXU	-	203(202.5)	-0.5	-	A015+	-	RNAV1
TF	IBIBI	-	203(202.5)	-0.5	-	A020+	-	RNAV1
TF	IBIVA	-	203(202.5)	-0.5	L	A025+	-	RNAV1
TF	DONDI	-	113(113.3)	-0.5	-	-	-	RNAV1
TF	DIVSA	-	113(113.3)	-0.5	L	A040+	K230	RNAV1
TF	DOSPA	-	023(023.6)	-0.5	L	-	-	RNAV1
TF	VTK	-	342(341.5)	-0.5	-	A070+	-	RNAV1
TF	AKOMA	-	342(341.5)	-0.5	L	-	-	RNAV1
TF	AKMET	-	308(307.5)	-0.5	-	A110+	-	RNAV1
TF	AROSO	-	308(307.5)	-0.5	-	-	-	RNAV1

RADIO COMMUNICATIONS FAILURE PROCEDURE

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 AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE. **RWY 20C -** PROCEED STRAIGHT AHEAD TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART RNAV (GNSS) - INSTRUMENT (SID)

TWR 118.6 / 118.25
APP 120.3
ACC 133.25

TRANSITION ALTITUDE
11 000ft

D-ATIS AP ID-WSSS
128.6

SINGAPORE/Singapore Changi
RWY 02C/20C
MASBO DEPARTURES
MASBO 2A (R02C)
MASBO 3B (R20C)

ELEV, ALT IN FEET
BEARINGS, TRACKS AND RADIALS ARE MAGNETIC
VAR 26'E (2015)

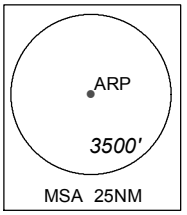
DISTANCES IN NM

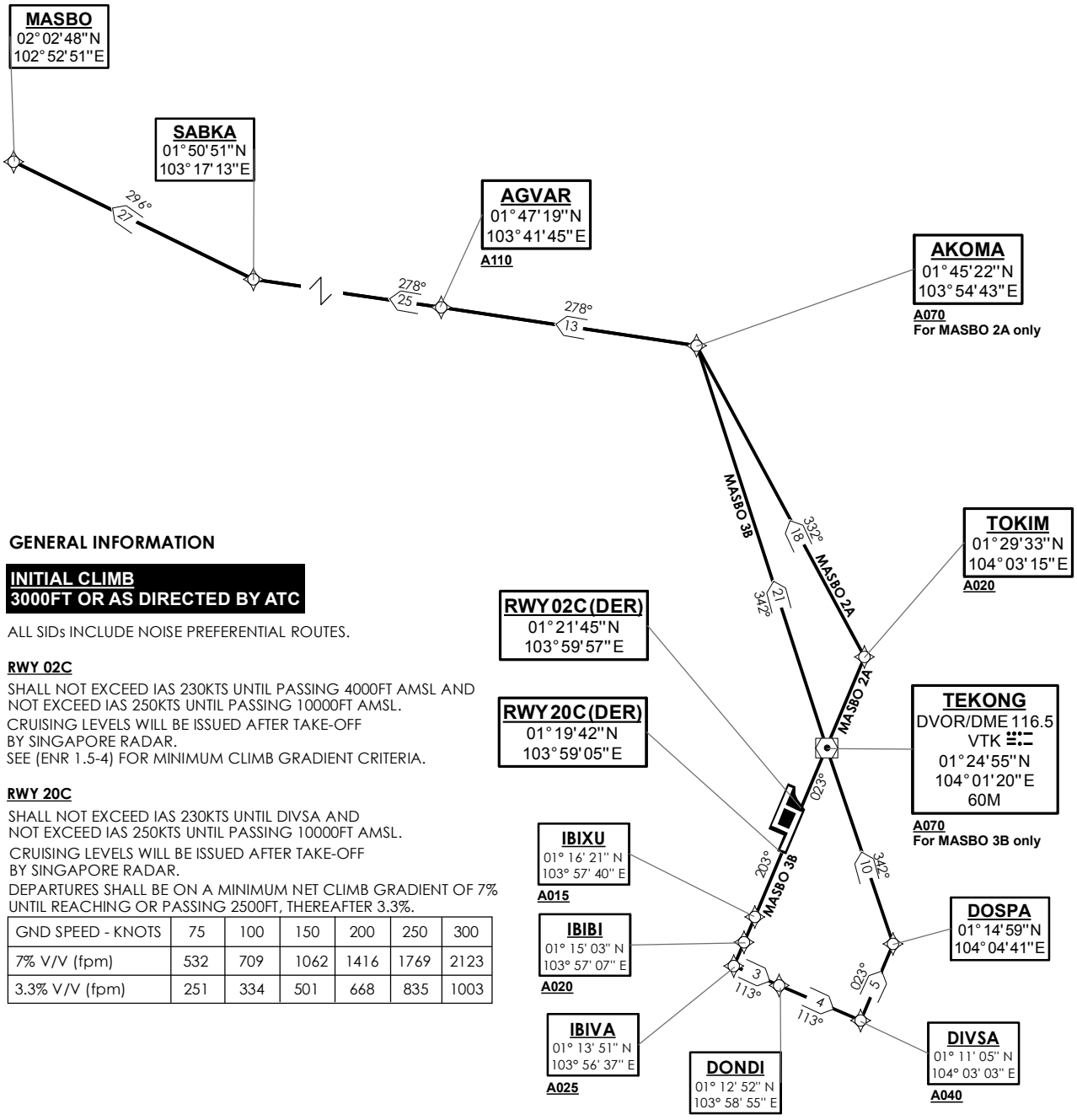
NOTE: RADAR REQUIRED

NOTE: ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTORING, IF NECESSARY

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR
- FORMAL AND TABULAR DESCRIPTIONS
- RADIO COM FAILURE PROCEDURES





GENERAL INFORMATION

INITIAL CLIMB
3000FT OR AS DIRECTED BY ATC

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

RWY 02C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
SEE (ENR 1.5-4) FOR MINIMUM CLIMB GRADIENT CRITERIA.

RWY 20C

SHALL NOT EXCEED IAS 230KTS UNTIL DIVSA AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
DEPARTURES SHALL BE ON A MINIMUM NET CLIMB GRADIENT OF 7% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
7% V/V (fpm)	532	709	1062	1416	1769	2123
3.3% V/V (fpm)	251	334	501	668	835	1003

NOT TO SCALE

CHANGES : New climb gradient for RWY 20C.

MASBO 2A (SID) RNAV GNSS RWY 02C - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOKIM on course 023° at or above 2000ft, turn left. To AKOMA at or above 7000ft, turn left. To AGVAR at or above 11000ft. To SABKA, turn right. To MASBO.	TOKIM [M023; A020+; L] -	CF	N
	AKOMA [A070+; L] -	TF	N
	AGVAR [A110+] -	TF	N
	SABKA [R] -	TF	N
	MASBO	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOKIM	-	023(022.5)	-0.5	L	A020+	-	RNAV1
TF	AKOMA	-	332(331.5)	-0.5	L	A070+	-	RNAV1
TF	AGVAR	-	278(277.5)	-0.5	-	A110+	-	RNAV1
TF	SABKA	-	278(277.5)	-0.5	R	-	-	RNAV1
TF	MASBO	-	296(295.5)	-0.5	-	-	-	RNAV1

MASBO 3B (SID) RNAV GNSS RWY 20C - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To IBIXU on course 203° at or above 1500ft. To IBIBI at or above 2000ft. To IBIVA at or above 2500ft, turn left. To DONDI. To DIVSA at or above 4000ft, speed 230kts, turn left. To DOSPA, turn left. To VTK at or above 7000ft. To AKOMA, turn left. To AGVAR at or above 11000ft. To SABKA, turn right. To MASBO.	IBIXU [M203; A015+] -	CF	N
	IBIBI [A020+] -	TF	N
	IBIVA [A025+; L] -	TF	N
	DONDI -	TF	N
	DIVSA [A040+; K230; L] -	TF	N
	DOSPA [L] -	TF	N
	VTK [A070+] -	TF	N
	AKOMA [L] -	TF	N
	AGVAR [A110+] -	TF	N
	SABKA [R] -	TF	N
	MASBO	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	IBIXU	-	203(202.5)	-0.5	-	A015+	-	RNAV1
TF	IBIBI	-	203(202.5)	-0.5	-	A020+	-	RNAV1
TF	IBIVA	-	203(202.5)	-0.5	L	A025+	-	RNAV1
TF	DONDI	-	113(112.5)	-0.5	-	-	-	RNAV1
TF	DIVSA	-	113(112.5)	-0.5	L	A040+	K230	RNAV1
TF	DOSPA	-	023(022.5)	-0.5	L	-	-	RNAV1
TF	VTK	-	342(341.5)	-0.5	-	A070+	-	RNAV1
TF	AKOMA	-	342(341.5)	-0.5	L	-	-	RNAV1
TF	AGVAR	-	278(277.5)	-0.5	-	A110+	-	RNAV1
TF	SABKA	-	278(277.5)	-0.5	R	-	-	RNAV1
TF	MASBO	-	296(295.5)	-0.5	-	-	-	RNAV1

RADIO COMMUNICATIONS FAILURE PROCEDURE

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 AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE. **RWY 20C -** PROCEED STRAIGHT AHEAD TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART RNAV (GNSS) - INSTRUMENT (SID)

TWR 118.6 / 118.25
APP 120.3
ACC 133.8

TRANSITION ALTITUDE
11 000ft

D-ATIS AP ID-WSSS
128.6

SINGAPORE/Singapore Changi
RWY 02L/20R
MERSING DEPARTURES
VMR 5E (R02L)
VMR 7F (R20R)

ELEV, ALT IN FEET
BEARINGS, TRACKS AND RADIALS ARE MAGNETIC
VAR 26'E (2015)

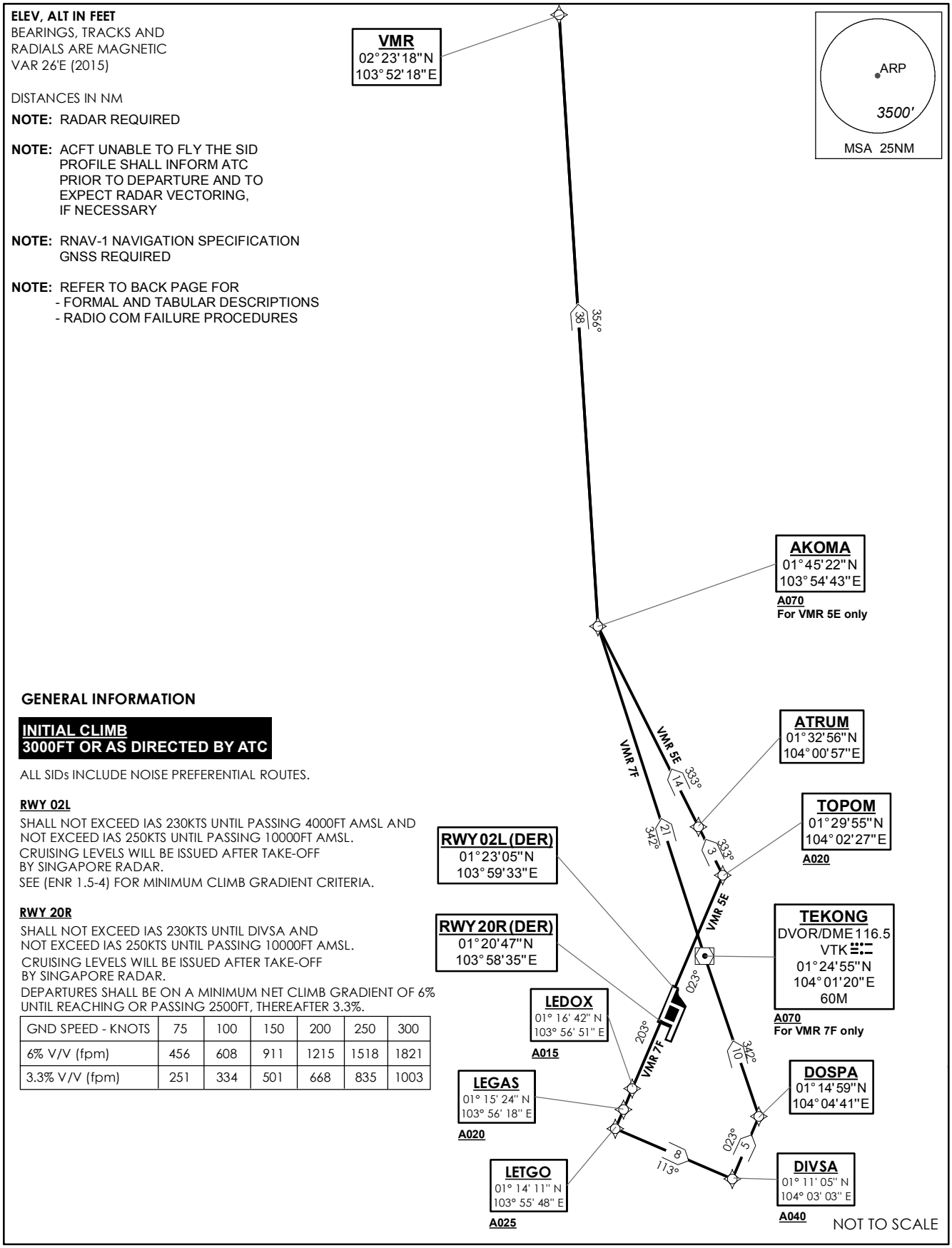
DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTORING, IF NECESSARY

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR
- FORMAL AND TABULAR DESCRIPTIONS
- RADIO COM FAILURE PROCEDURES



GENERAL INFORMATION

INITIAL CLIMB
3000FT OR AS DIRECTED BY ATC

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

RWY 02L

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
SEE (ENR 1.5-4) FOR MINIMUM CLIMB GRADIENT CRITERIA.

RWY 20R

SHALL NOT EXCEED IAS 230KTS UNTIL DIVSA AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
DEPARTURES SHALL BE ON A MINIMUM NET CLIMB GRADIENT OF 6% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
6% V/V (fpm)	456	608	911	1215	1518	1821
3.3% V/V (fpm)	251	334	501	668	835	1003

CHANGES : New climb gradient for RWY 20R.

VMR 5E (SID) RNAV GNSS RWY 02L - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOPOM on course 023° at or above 2000ft, turn left. To ATRUM. To AKOMA at or above 7000ft, turn right. To VMR.	TOPOM [M023; A020+; L] -	CF	N
	ATRUM -	TF	N
	AKOMA [A070+; R] -	TF	N
	VMR	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOPOM	-	023(022.5)	-0.5	L	A020+	-	RNAV1
TF	ATRUM	-	333(332.5)	-0.5	-	-	-	RNAV1
TF	AKOMA	-	333(332.5)	-0.5	R	A070+	-	RNAV1
TF	VMR	-	356(355.5)	-0.5	-	-	-	RNAV1

VMR 7F (SID) RNAV GNSS RWY 20R - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To LEDOX on course 203° at or above 1500ft. To LEGAS at or above 2000ft. To LETGO at or above 2500ft, turn left. To DIVSA at or above 4000ft, speed 230kts, turn left. To DOSPA, turn left. To VTK at or above 7000ft. To AKOMA, turn right. To VMR.	LEDOX [M203; A015+] -	CF	N
	LEGAS [A020+] -	TF	N
	LETGO [A025+; L] -	TF	N
	DIVSA [A040+; K230; L] -	TF	N
	DOSPA [L] -	TF	N
	VTK [A070+] -	TF	N
	AKOMA [R] -	TF	N
	VMR	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	LEDOX	-	203(202.5)	-0.5	-	A015+	-	RNAV1
TF	LEGAS	-	203(202.5)	-0.5	-	A020+	-	RNAV1
TF	LETGO	-	203(202.5)	-0.5	L	A025+	-	RNAV1
TF	DIVSA	-	113(112.5)	-0.5	L	A040+	K230	RNAV1
TF	DOSPA	-	023(022.5)	-0.5	L	-	-	RNAV1
TF	VTK	-	342(341.5)	-0.5	-	A070+	-	RNAV1
TF	AKOMA	-	342(341.5)	-0.5	R	-	-	RNAV1
TF	VMR	-	356(355.5)	-0.5	-	-	-	RNAV1

RADIO COMMUNICATIONS FAILURE PROCEDURE

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 AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE. **RWY 20R -** PROCEED STRAIGHT AHEAD TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART RNAV (GNSS) - INSTRUMENT (SID)

TWR 118.6 / 118.25
APP 120.3
ACC 133.8

TRANSITION ALTITUDE
11 000ft

D-ATIS AP ID-WSSS
128.6

SINGAPORE/Singapore Changi
RWY 02C/20C
MERSING DEPARTURES
VMR 5A (R02C)
VMR 7B (R20C)

ELEV, ALT IN FEET
BEARINGS, TRACKS AND RADIALS ARE MAGNETIC
VAR 26'E (2015)

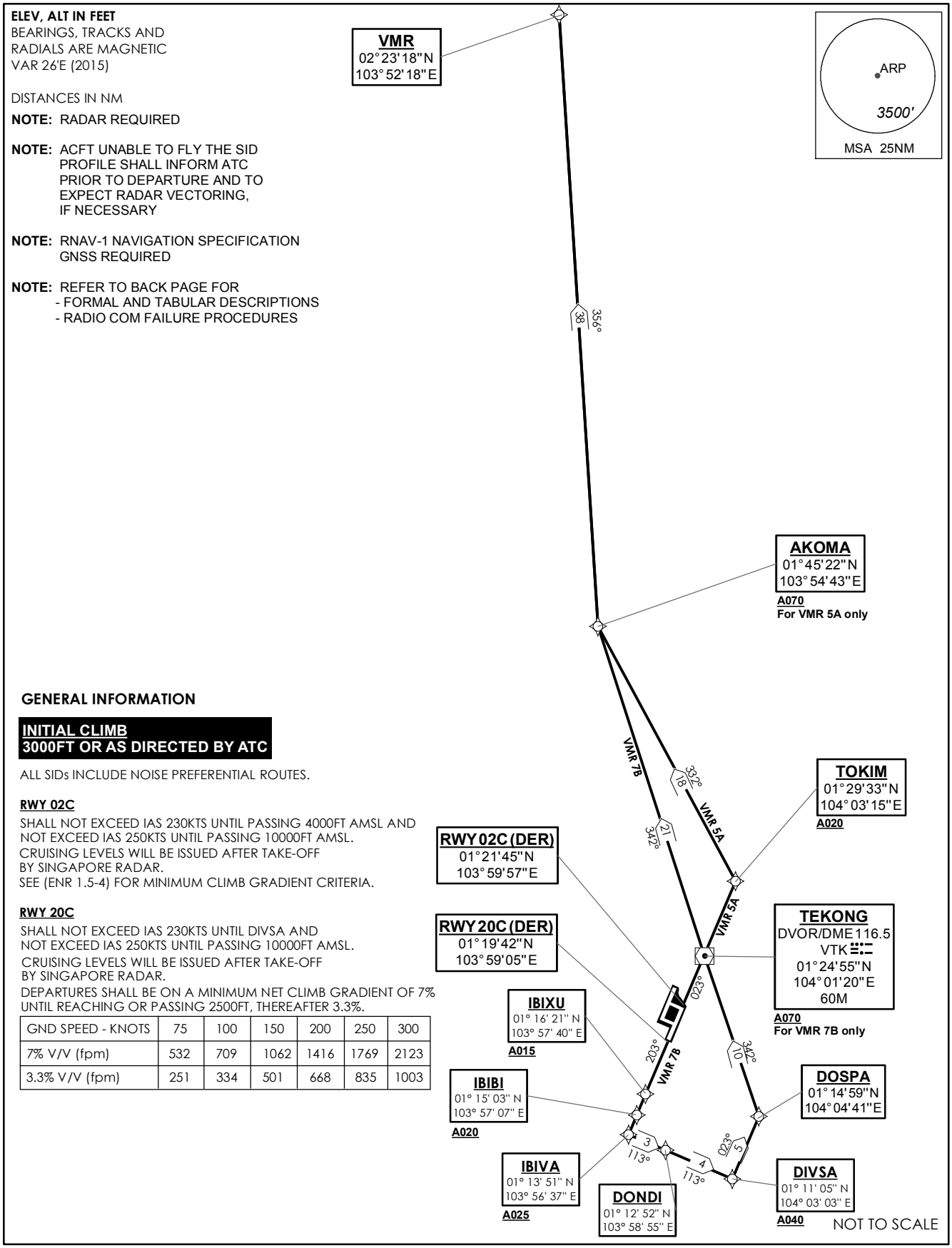
DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTORING, IF NECESSARY

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR
- FORMAL AND TABULAR DESCRIPTIONS
- RADIO COM FAILURE PROCEDURES



GENERAL INFORMATION

INITIAL CLIMB
3000FT OR AS DIRECTED BY ATC

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

RWY 02C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
SEE (ENR 1.5-4) FOR MINIMUM CLIMB GRADIENT CRITERIA.

RWY 20C

SHALL NOT EXCEED IAS 230KTS UNTIL DIVSA AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
DEPARTURES SHALL BE ON A MINIMUM NET CLIMB GRADIENT OF 7% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
7% V/V (fpm)	532	709	1062	1416	1769	2123
3.3% V/V (fpm)	251	334	501	668	835	1003

CHANGES : New climb gradient for RWY 20C.

VMR 5A (SID) RNAV GNSS RWY 02C - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOKIM on course 023° at or above 2000ft, turn left. To AKOMA at or above 7000ft, turn right. To VMR.	TOKIM [M023; A020+; L] - AKOMA [A070+; R] - VMR	CF TF TF	N N N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOKIM	-	023(022.5)	-0.5	L	A020+	-	RNAV1
TF	AKOMA	-	332(331.5)	-0.5	R	A070+	-	RNAV1
TF	VMR	-	356(355.5)	-0.5	-	-	-	RNAV1

VMR 7B (SID) RNAV GNSS RWY 20C - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To IBIXU on course 203° at or above 1500ft. To IBIBI at or above 2000ft. To IBIVA at or above 2500ft, turn left. To DONDI. To DIVSA at or above 4000ft, speed 230kts, turn left. To DOSPA, turn left. To VTK at or above 7000ft. To AKOMA, turn right. To VMR.	IBIXU [M203; A015+] - IBIBI [A020+] - IBIVA [A025+; L] - DONDI - DIVSA [A040+; K230; L] - DOSPA [L] - VTK [A070+] - AKOMA [R] - VMR	CF TF TF TF TF TF TF TF TF	N N N N N N N N N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	IBIXU	-	203(202.5)	-0.5	-	A015+	-	RNAV1
TF	IBIBI	-	203(202.5)	-0.5	-	A020+	-	RNAV1
TF	IBIVA	-	203(202.5)	-0.5	L	A025+	-	RNAV1
TF	DONDI	-	113(112.5)	-0.5	-	-	-	RNAV1
TF	DIVSA	-	113(112.5)	-0.5	L	A040+	K230	RNAV1
TF	DOSPA	-	023(022.5)	-0.5	L	-	-	RNAV1
TF	VTK	-	342(341.5)	-0.5	-	A070+	-	RNAV1
TF	AKOMA	-	342(341.5)	-0.5	R	-	-	RNAV1
TF	VMR	-	356(355.5)	-0.5	-	-	-	RNAV1

RADIO COMMUNICATIONS FAILURE PROCEDURE

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 AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE. **RWY 20C -** PROCEED STRAIGHT AHEAD TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART RNAV (GNSS) - INSTRUMENT (SID)

TWR 118.6 / 118.25
APP 120.3
ACC 134.4

TRANSITION ALTITUDE
11 000ft

D-ATIS AP ID-WSSS
128.6

SINGAPORE/Singapore Changi
RWY 02C/20C
VENIX DEPARTURES
VENIX 1A (R02C)
VENIX 2B (R20C)

ELEV, ALT IN FEET
BEARINGS, TRACKS AND RADIALS ARE MAGNETIC
VAR 26'E (2015)

DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTORING, IF NECESSARY

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR
- FORMAL AND TABULAR DESCRIPTIONS
- RADIO COM FAILURE PROCEDURES

GENERAL INFORMATION

INITIAL CLIMB
3000FT OR AS DIRECTED BY ATC

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

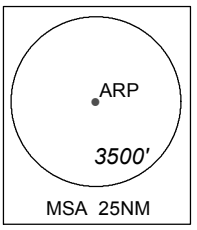
RWY 02C

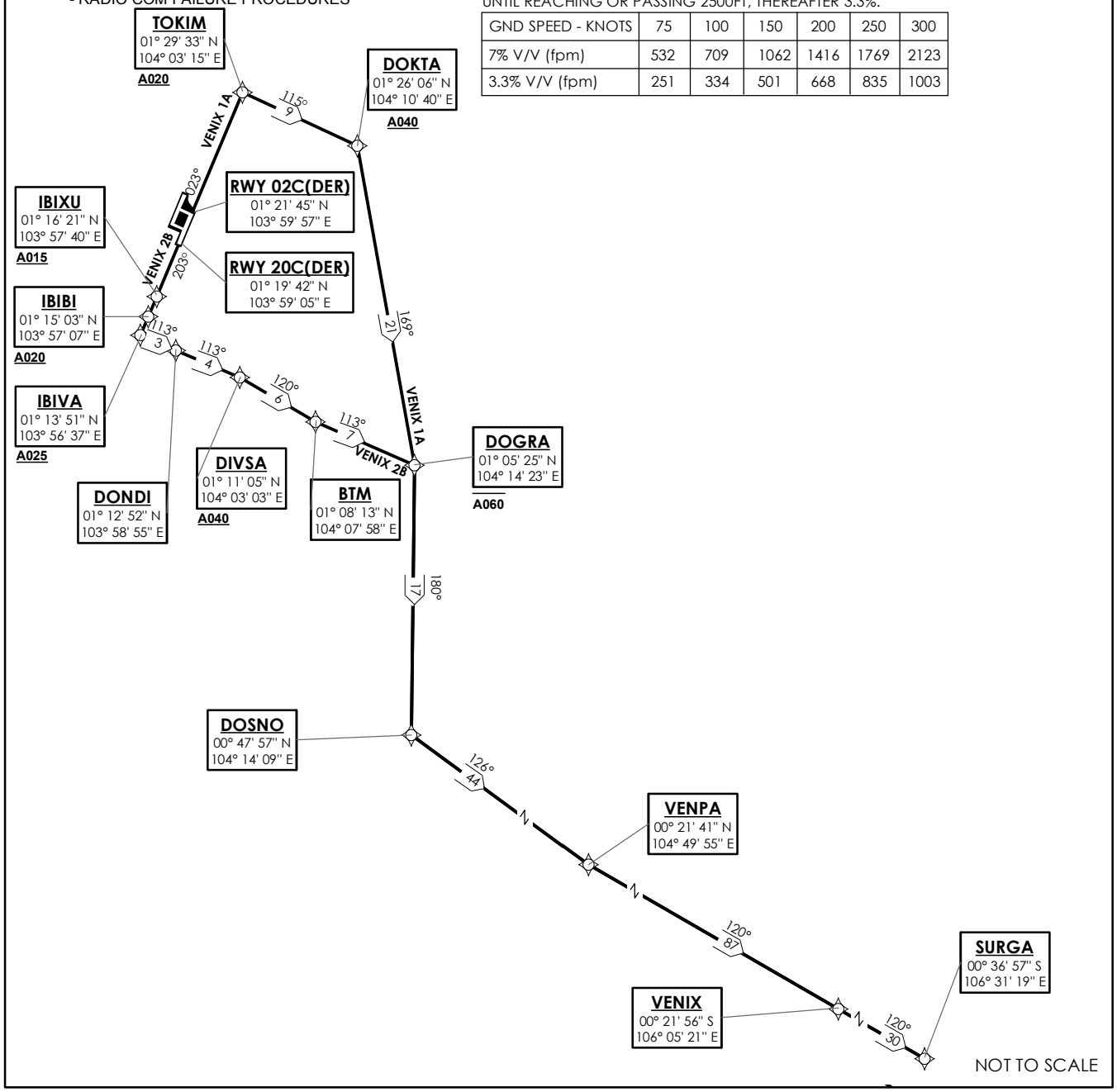
SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
SEE (ENR 1.5-4) FOR MINIMUM CLIMB GRADIENT CRITERIA.

RWY 20C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
DEPARTURES SHALL BE ON A MINIMUM NET CLIMB GRADIENT OF 7% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
7% V/V (fpm)	532	709	1062	1416	1769	2123
3.3% V/V (fpm)	251	334	501	668	835	1003





CHANGES : New climb gradient for RWY 20C.

VENIX 1A (SID) RNAV GNSS RWY 02C - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOKIM on course 023° at or above 2000ft,, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To VENIX. To SURGA.	TOKIM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	VENIX -	TF	N
	SURGA	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOKIM	-	023(022.5)	-0.5	R	A020+	-	RNAV1
TF	DOKTA	-	115(114.5)	-0.5	R	A040+	-	RNAV1
TF	DOGRA	-	169(168.5)	-0.5	R	A060-	-	RNAV1
TF	DOSNO	-	180(179.5)	-0.5	L	-	-	RNAV1
TF	VENPA	-	126(125.5)	-0.5	L	-	-	RNAV1
TF	VENIX	-	120(199.5)	-0.5	-	-	-	RNAV1
TF	SURGA	-	120(199.5)	-0.5	-	-	-	RNAV1

VENIX 2B (SID) RNAV GNSS RWY 20C - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To IBIXU on course 203° at or above 1500ft. To IBIBI at or above 2000ft. To IBIVA at or above 2500ft, turn left. To DONDI. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To VENIX. To SURGA.	IBIXU [M203; A015+] -	CF	N
	IBIBI [A020+] -	TF	N
	IBIVA [A025+; L] -	TF	N
	DONDI -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	VENIX -	TF	N
	SURGA	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	IBIXU	-	203(202.5)	-0.5	-	A015+	-	RNAV1
TF	IBIBI	-	203(202.5)	-0.5	-	A020+	-	RNAV1
TF	IBIVA	-	203(202.5)	-0.5	L	A025+	-	RNAV1
TF	DONDI	-	113(112.5)	-0.5	-	-	-	RNAV1
TF	DIVSA	-	113(112.5)	-0.5	R	A040+	-	RNAV1
TF	BTM	-	120(119.5)	-0.5	L	-	-	RNAV1
TF	DOGRA	-	113(112.5)	-0.5	R	A060-	-	RNAV1
TF	DOSNO	-	180(179.5)	-0.5	L	-	-	RNAV1
TF	VENPA	-	126(125.5)	-0.5	L	-	-	RNAV1
TF	VENIX	-	120(199.5)	-0.5	-	-	-	RNAV1
TF	SURGA	-	120(199.5)	-0.5	-	-	-	RNAV1

RADIO COMMUNICATIONS FAILURE PROCEDURE

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 AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE. **RWY 20C -** PROCEED STRAIGHT AHEAD TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART RNAV (GNSS) - INSTRUMENT (SID)

TWR 118.6 / 118.25
APP 120.3
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TRANSITION ALTITUDE
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D-ATIS AP ID-WSSS
128.6

SINGAPORE/Singapore Changi
RWY 02L/20R
VENIX DEPARTURES
VENIX 1E (R02L)
VENIX 2F (R20R)

ELEV, ALT IN FEET
BEARINGS, TRACKS AND RADIALS ARE MAGNETIC
VAR 26'E (2015)

DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTORING, IF NECESSARY

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR
- FORMAL AND TABULAR DESCRIPTIONS
- RADIO COM FAILURE PROCEDURES

GENERAL INFORMATION

INITIAL CLIMB
3000FT OR AS DIRECTED BY ATC

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

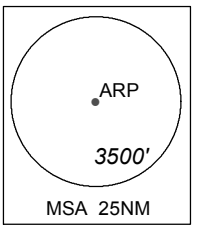
RWY 02L

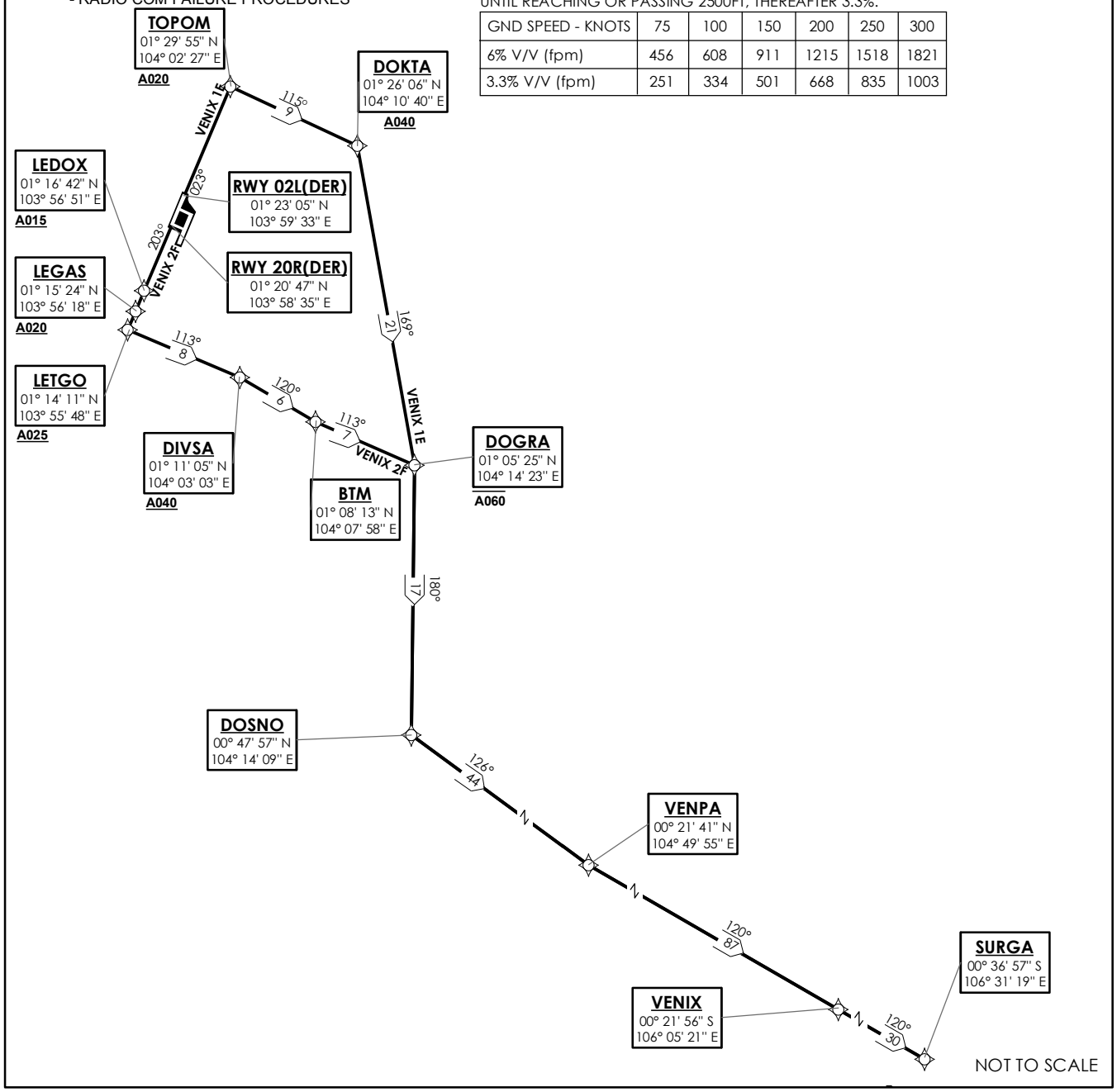
SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
SEE (ENR 1.5-4) FOR MINIMUM CLIMB GRADIENT CRITERIA.

RWY 20R

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
DEPARTURES SHALL BE ON A MINIMUM NET CLIMB GRADIENT OF 6% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
6% V/V (fpm)	456	608	911	1215	1518	1821
3.3% V/V (fpm)	251	334	501	668	835	1003





CHANGES : New climb gradient for RWY 20R.

VENIX 1E (SID) RNAV GNSS RWY 02L - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOPOM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To VENIX. To SURGA.	TOPOM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	VENIX -	TF	N
	SURGA	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOPOM	-	023(022.5)	-0.5	R	A020+	-	RNAV1
TF	DOKTA	-	115(114.5)	-0.5	R	A040+	-	RNAV1
TF	DOGRA	-	169(168.5)	-0.5	R	A060-	-	RNAV1
TF	DOSNO	-	180(179.5)	-0.5	L	-	-	RNAV1
TF	VENPA	-	126(125.5)	-0.5	L	-	-	RNAV1
TF	VENIX	-	120(199.5)	-0.5	-	-	-	RNAV1
TF	SURGA	-	120(199.5)	-0.5	-	-	-	RNAV1

VENIX 2F (SID) RNAV GNSS RWY 20R - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To LEDOX on course 203° at or above 1500ft. To LEGAS at or above 2000ft. To LETGO at or above 2500ft, turn left. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To VENIX. To SURGA.	LEDOX [M203; A015+] -	CF	N
	LEGAS [A020+] -	TF	N
	LETGO [A025+; L] -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	VENIX -	TF	N
	SURGA	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	LEDOX	-	203(202.5)	-0.5	-	A015+	-	RNAV1
TF	LEGAS	-	203(202.5)	-0.5	-	A020+	-	RNAV1
TF	LETGO	-	203(202.5)	-0.5	L	A025+	-	RNAV1
TF	DIVSA	-	113(112.5)	-0.5	R	A040+	-	RNAV1
TF	BTM	-	120(119.5)	-0.5	L	-	-	RNAV1
TF	DOGRA	-	113(112.5)	-0.5	R	A060-	-	RNAV1
TF	DOSNO	-	180(179.5)	-0.5	L	-	-	RNAV1
TF	VENPA	-	126(125.5)	-0.5	L	-	-	RNAV1
TF	VENIX	-	120(199.5)	-0.5	-	-	-	RNAV1
TF	SURGA	-	120(199.5)	-0.5	-	-	-	RNAV1

RADIO COMMUNICATIONS FAILURE PROCEDURE

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 AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE. **RWY 20R -** PROCEED STRAIGHT AHEAD TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART RNAV (GNSS) - INSTRUMENT (SID)

TWR 118.6 / 118.25
APP 120.3
ACC 134.4

TRANSITION ALTITUDE
11 000ft

D-ATIS AP ID-WSSS
128.6

SINGAPORE/Singapore Changi
RWY 02C/20C
KADAR DEPARTURES
KADAR 1A (R02C)
KADAR 2B (R20C)

ELEV, ALT IN FEET
BEARINGS, TRACKS AND RADIALS ARE MAGNETIC
VAR 26'E (2015)

DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTORING, IF NECESSARY

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR
- FORMAL AND TABULAR DESCRIPTIONS
- RADIO COM FAILURE PROCEDURES

GENERAL INFORMATION

INITIAL CLIMB
3000FT OR AS DIRECTED BY ATC

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

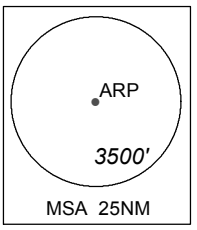
RWY 02C

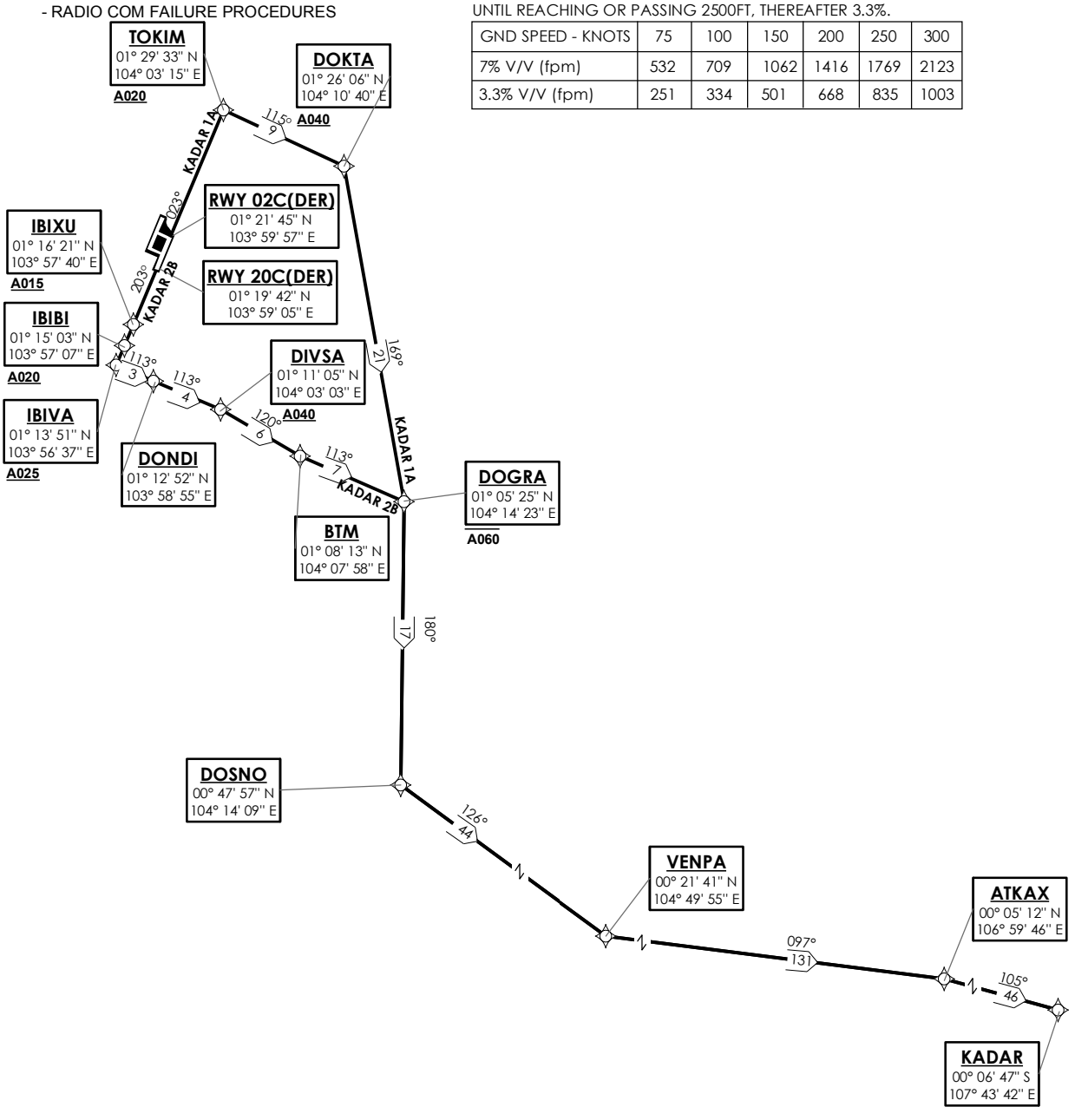
SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
SEE (ENR 1.5-4) FOR MINIMUM CLIMB GRADIENT CRITERIA.

RWY 20C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
DEPARTURES SHALL BE ON A MINIMUM NET CLIMB GRADIENT OF 7% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
7% V/V (fpm)	532	709	1062	1416	1769	2123
3.3% V/V (fpm)	251	334	501	668	835	1003





NOT TO SCALE

CHANGES : New climb gradient for RWY 20C.

KADAR 1A (SID) RNAV GNSS RWY 02C - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOKIM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To ATKAX, turn right. To KADAR.	TOKIM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	ATKAX [R] -	TF	N
	KADAR	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOKIM	-	023(022.5)	-0.5	R	A020+	-	RNAV1
TF	DOKTA	-	115(114.5)	-0.5	R	A040+	-	RNAV1
TF	DOGRA	-	169(168.5)	-0.5	R	A060-	-	RNAV1
TF	DOSNO	-	180(179.5)	-0.5	L	-	-	RNAV1
TF	VENPA	-	126(125.5)	-0.5	L	-	-	RNAV1
TF	ATKAX	-	097(096.5)	-0.5	R	-	-	RNAV1
TF	KADAR	-	105(104.5)	-0.5	-	-	-	RNAV1

KADAR 2B (SID) RNAV GNSS RWY 20C - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To IBIXU on course 203° at or above 1500ft. To IBIBI at or above 2000ft. To IBIVA at or above 2500ft, turn left. To DONDI. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To ATKAX, turn right. To KADAR.	IBIXU [M203; A015+] -	CF	N
	IBIBI [A020+] -	TF	N
	IBIVA [A025+; L] -	TF	N
	DONDI -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	ATKAX [R] -	TF	N
	KADAR	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	IBIXU	-	203(202.5)	-0.5	-	A015+	-	RNAV1
TF	IBIBI	-	203(202.5)	-0.5	-	A020+	-	RNAV1
TF	IBIVA	-	203(202.5)	-0.5	L	A025+	-	RNAV1
TF	DONDI	-	113(112.5)	-0.5	-	-	-	RNAV1
TF	DIVSA	-	113(112.5)	-0.5	R	A040+	-	RNAV1
TF	BTM	-	120(119.5)	-0.5	L	-	-	RNAV1
TF	DOGRA	-	113(112.5)	-0.5	R	A060-	-	RNAV1
TF	DOSNO	-	180(179.5)	-0.5	L	-	-	RNAV1
TF	VENPA	-	126(125.5)	-0.5	L	-	-	RNAV1
TF	ATKAX	-	097(096.5)	-0.5	R	-	-	RNAV1
TF	KADAR	-	105(104.5)	-0.5	-	-	-	RNAV1

RADIO COMMUNICATIONS FAILURE PROCEDURE

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 AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE. **RWY 20C -** PROCEED STRAIGHT AHEAD TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART RNAV (GNSS) - INSTRUMENT (SID)

TWR 118.6 / 118.25
APP 120.3
ACC 134.4

TRANSITION ALTITUDE
11 000ft

D-ATIS AP ID-WSSS
128.6

SINGAPORE/Singapore Changi
RWY 02L/20R
KADAR DEPARTURES
KADAR 1E (R02L)
KADAR 2F (R20R)

ELEV, ALT IN FEET
BEARINGS, TRACKS AND RADIALS ARE MAGNETIC
VAR 26'E (2015)

DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTORING, IF NECESSARY

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR
- FORMAL AND TABULAR DESCRIPTIONS
- RADIO COM FAILURE PROCEDURES

GENERAL INFORMATION

INITIAL CLIMB
3000FT OR AS DIRECTED BY ATC

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

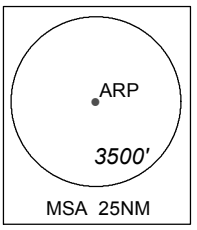
RWY 02L

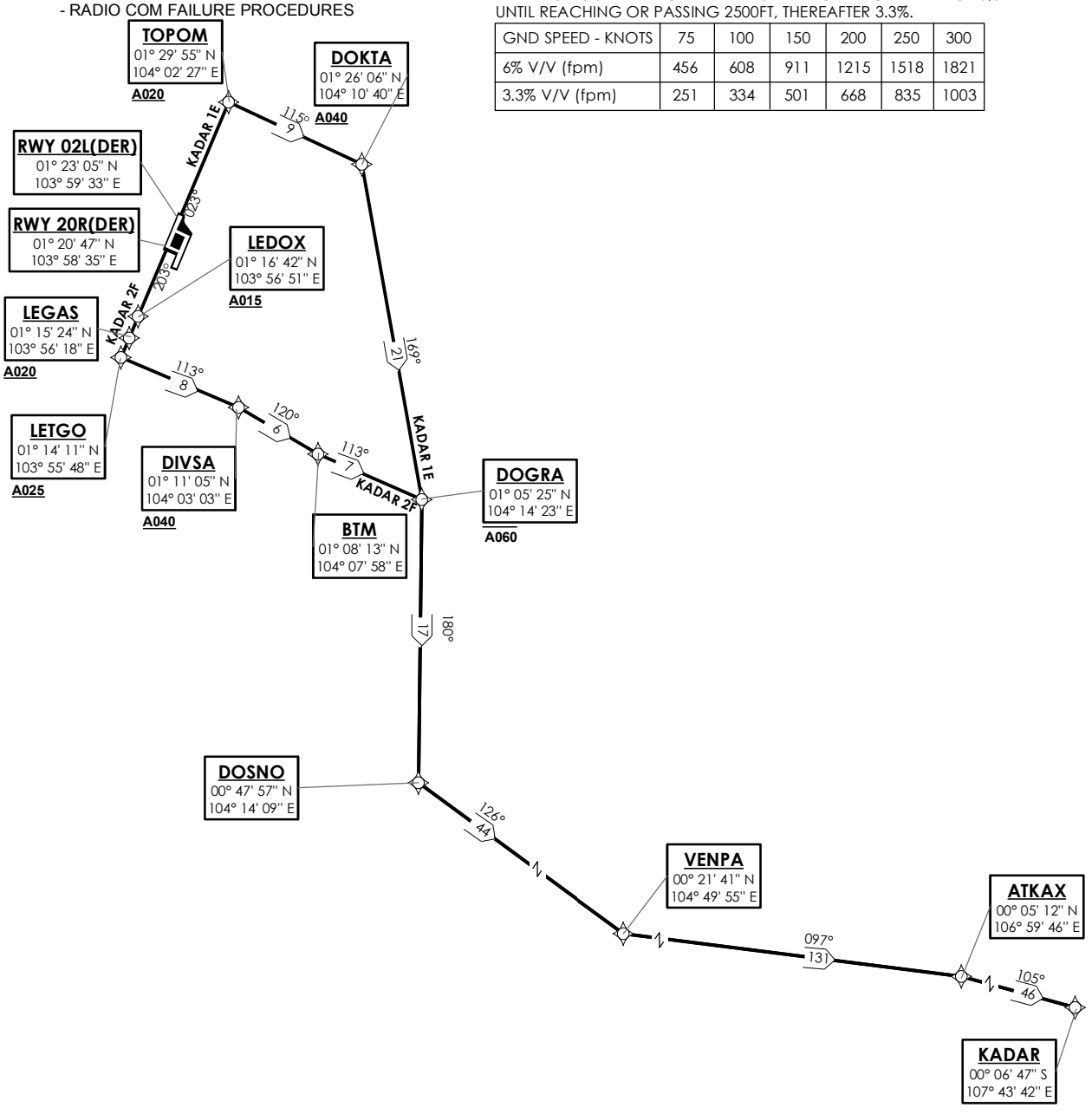
SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
SEE (ENR 1.5-4) FOR MINIMUM CLIMB GRADIENT CRITERIA.

RWY 20R

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR.
DEPARTURES SHALL BE ON A MINIMUM NET CLIMB GRADIENT OF 6% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
6% V/V (fpm)	456	608	911	1215	1518	1821
3.3% V/V (fpm)	251	334	501	668	835	1003





NOT TO SCALE

CHANGES : New climb gradient for RWY 20R.

KADAR 1E (SID) RNAV GNSS RWY 02L - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOPOM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To ATKAX, turn right. To KADAR.	TOPOM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	ATKAX [R] -	TF	N
	KADAR	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOPOM	-	023(022.5)	-0.5	R	A020+	-	RNAV1
TF	DOKTA	-	115(114.5)	-0.5	R	A040+	-	RNAV1
TF	DOGRA	-	169(168.5)	-0.5	R	A060-	-	RNAV1
TF	DOSNO	-	180(179.5)	-0.5	L	-	-	RNAV1
TF	VENPA	-	126(125.5)	-0.5	L	-	-	RNAV1
TF	ATKAX	-	097(096.5)	-0.5	R	-	-	RNAV1
TF	KADAR	-	105(104.5)	-0.5	-	-	-	RNAV1

KADAR 2F (SID) RNAV GNSS RWY 20R - DESCRIPTIONS

Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To LEDOX on course 203° at or above 1500ft. To LEGAS at or above 2000ft. To LETGO at or above 2500ft, turn left. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To ATKAX, turn right. To KADAR.	LEDOX [M203; A015+] -	CF	N
	LEGAS [A020+] -	TF	N
	LETGO [A025+; L] -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	ATKAX [R] -	TF	N
	KADAR	TF	N

Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	LEDOX	-	203(202.5)	-0.5	-	A015+	-	RNAV1
TF	LEGAS	-	203(202.5)	-0.5	-	A020+	-	
TF	LETGO	-	203(202.5)	-0.5	L	A025+	-	RNAV1
TF	DIVSA	-	113(112.5)	-0.5	R	A040+	-	RNAV1
TF	BTM	-	120(119.5)	-0.5	L	-	-	RNAV1
TF	DOGRA	-	113(112.5)	-0.5	R	A060-	-	RNAV1
TF	DOSNO	-	180(179.5)	-0.5	L	-	-	RNAV1
TF	VENPA	-	126(125.5)	-0.5	L	-	-	RNAV1
TF	ATKAX	-	097(096.5)	-0.5	R	-	-	RNAV1
TF	KADAR	-	105(104.5)	-0.5	-	-	-	RNAV1

RADIO COMMUNICATIONS FAILURE PROCEDURE

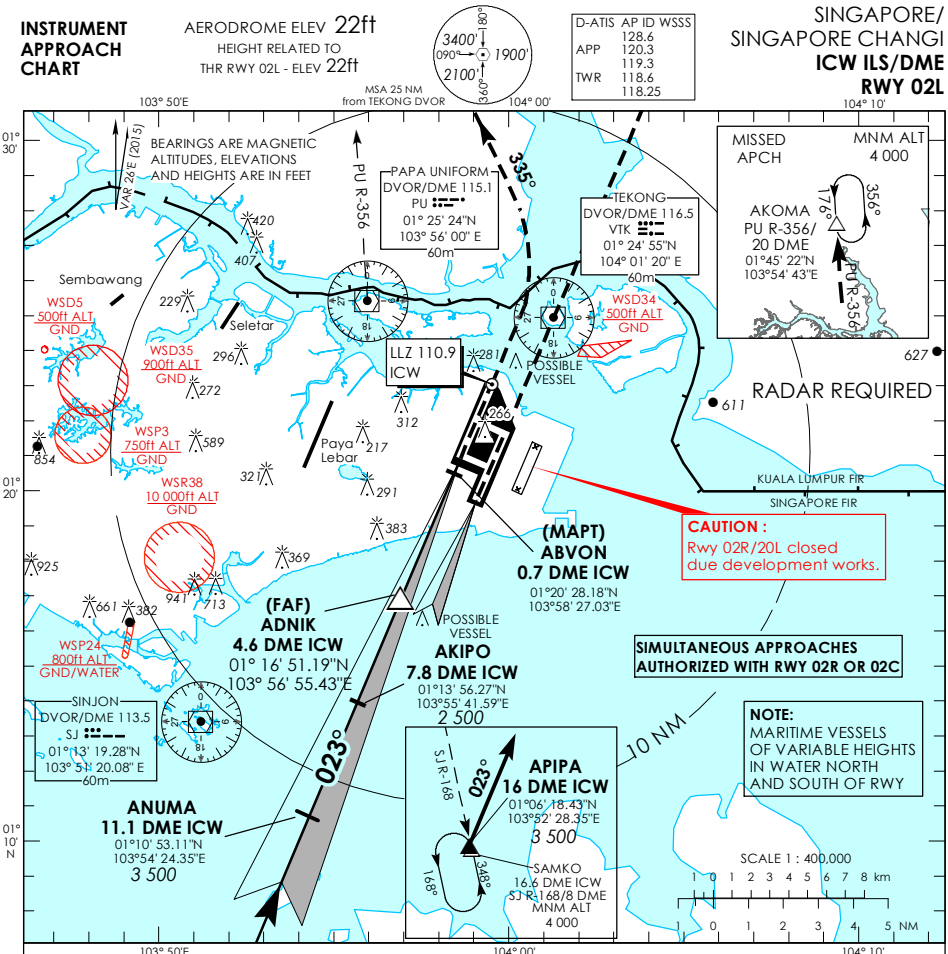
1	**SET TRANSPONDER TO MODE A/C CODE 7600**
2	**COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:** **RWY 02L -** PROCEED STRAIGHT AHEAD TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE. **RWY 20R -** PROCEED STRAIGHT AHEAD TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

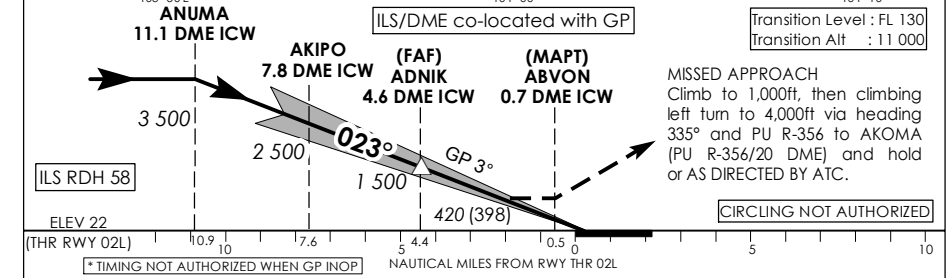
INSTRUMENT APPROACH CHART

AERODROME ELEV 22ft
HEIGHT RELATED TO
THR RWY 02L - ELEV 22ft

D-ATIS	AP ID WSSS
APP	128.6
	120.3
	119.3
TWR	118.6
	118.25

SINGAPORE/ SINGAPORE CHANGI
ICW ILS/DME RWY 02L





Category of Aircraft		OCA (OCH) A	B	C	D	D_L
Straight-in	CAT I ILS	**173 (151)**	**187 (165)**	**203 (181)**	**216 (194)**	**219 (197)**
	CAT II ILS	**88 (66)**	**98 (76)**	**108 (86)**	**127 (105)**	**127 (105)**
	GP INOP	**420 (398)**				

Distance	4 DME	3 DME	2 DME
Altitude (Height)	**1290 (1268)**	**970 (948)**	**660 (638)**

Speed	knots	70	120	150	185
FAF - MAPT 3.9nm	min : s *	**3 : 21**	**1 : 57**	**1 : 34**	**1 : 16**
Rate of descent/GS	ft/min	**370**	**635**	**795**	**980**

CHANGES : Obstacles updated.

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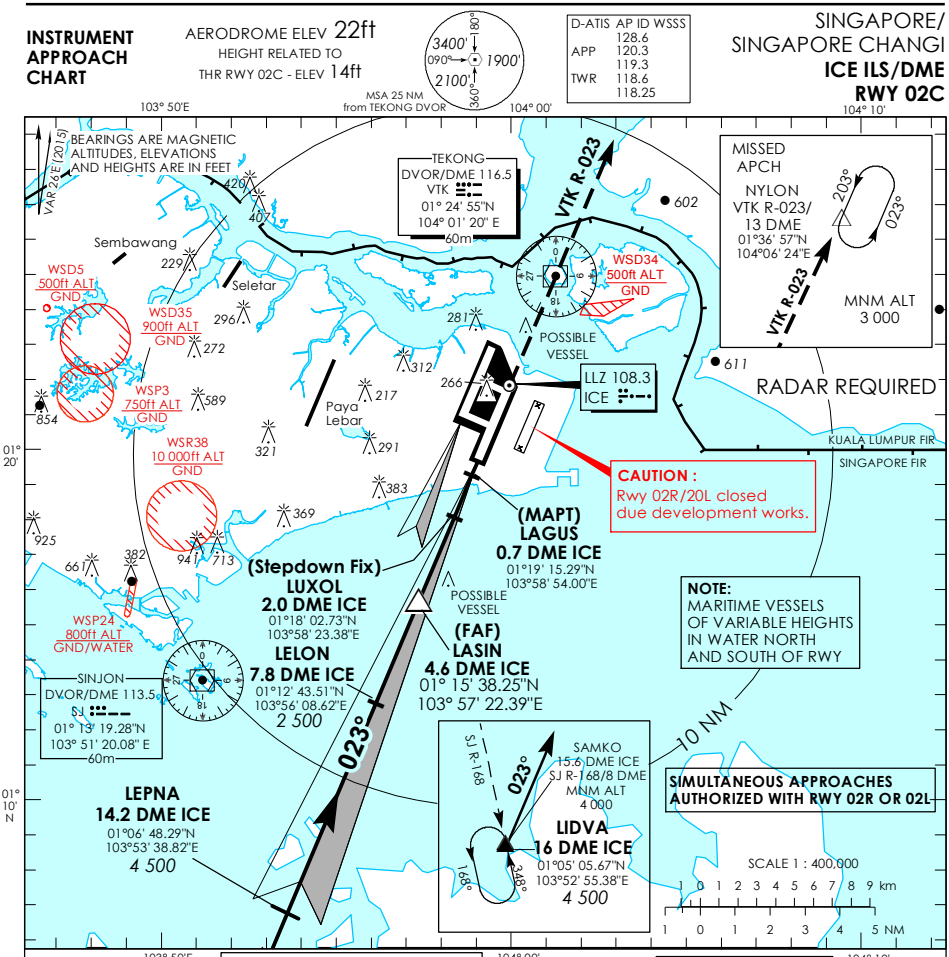
INSTRUMENT APPROACH CHART

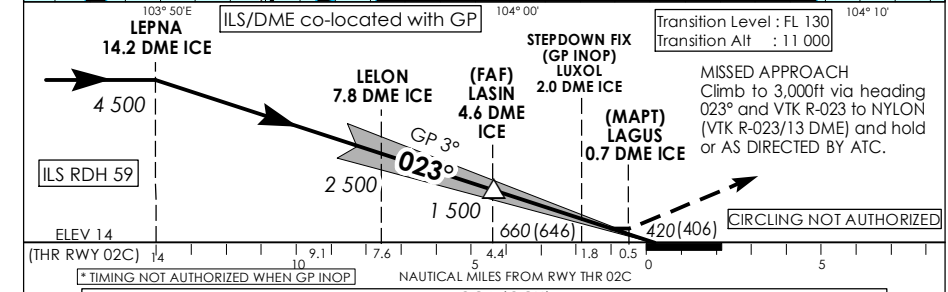
AERODROME ELEV 22ft
HEIGHT RELATED TO
THR RWY 02C - ELEV 14ft

MSA 25 NM
from TEKONG DVOR

D-ATIS	AP ID WSSS
	128.6
APP	120.3
	119.3
TWR	118.6
	118.25

SINGAPORE/ SINGAPORE CHANGI
ICE ILS/DME RWY 02C





* TIMING NOT AUTHORIZED WHEN GP INOP

OCA (OCH)						
Category of Aircraft		A	B	C	D	D_L
Straight-in	CAT I ILS	**170 (156)**	**180 (166)**	**196 (182)**	**209 (195)**	**212 (198)**
	GP INOP (with stepdown fix)	**420 (406)**				
	GP INOP (without stepdown fix)	**660 (646)**				

Distance	4 DME			3 DME	
Altitude (Height)	**1290 (1276)**			**970 (956)**	
Speed	knots	70	120	150	185
FAF - MAPT 3.9nm	min : s*	**3 : 21**	**1 : 57**	**1 : 34**	**1 : 16**
Rate of descent/GS	ft/min	**370**	**635**	**795**	**980**

CHANGES : Obstacles updated.

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INSTRUMENT APPROACH CHART

AERODROME ELEV 22ft
HEIGHT RELATED TO
DTHR RWY 20R - ELEV 13ft

MSA 25 NM from TEKONG DVOR
3400' 080° 1900' 2100' 180° 360°

D-ATIS	AP ID WSSS
APP	128.6 120.3 119.3
TWR	118.6 118.25

SINGAPORE/
SINGAPORE CHANGI
ICH ILS/DME
RWY 20R

103° 50'E 104° 00' 104° 10'

SIMULTANEOUS APPROACHES AUTHORIZED WITH RWY 20L OR 20C

RWY 20R ILS DME NOT AVAILABLE BEYOND 15 DEG WEST OF RWY 20R CENTRELINE BELOW 2500FT

VAR 26°E (2015)

BEARINGS ARE MAGNETIC
ALTITUDES, ELEVATIONS
AND HEIGHTS ARE IN FEET

10 NM

IGULA
11.1 DME ICH
01°32' 32.27"N
104°03' 32.66"E
3 500

IDVAS
7.8 DME ICH
01°29' 34.66"N
104°02' 17.75"E
2 500

(FAF)
IDURO
4.6 DME ICH
01° 26' 39.84"N
104° 01' 03.94"E

(MAPT)
IDUNA
0.8 DME ICH
01°23' 05.80"N
103°59' 33.58"E

203°

IPNAK
16 DME ICH
01°37' 11.93"N
104°05' 30.83"E
3 500

203° 023° 203°

NYLON
(16.2 DME ICH/
VTK R-023/
13 DME)
MNM ALT
3 000

TEKONG
DVOR/DME 116.5
VTK
01° 24' 55"N
104° 01' 20" E
60m

RADAR REQUIRED

Sembawang
Seletar
Paya Lebar

WSD5 500ft ALT GND
WSD35 900ft ALT GND
WSP3 750ft ALT GND
WSR38 10 000ft ALT GND
WSP24 800ft ALT GND/WATER
WSD34 500ft ALT GND

POSSIBLE VESSEL

CAUTION :
Rwy 02R/20L closed due development works.

LLZ 108.9
ICH

NOTE:
MARITIME VESSELS OF VARIABLE HEIGHTS IN WATER NORTH AND SOUTH OF RWY

KUALA LUMPUR FIR
SINGAPORE FIR

SINJON
DVOR/DME 113.5
SJ
01°13' 19.28"N
103° 51' 20.08" E
60m

SCALE 1 : 400,000
1 0 1 2 3 4 5 6 7 8 9 km
1 0 1 2 3 4 5 NM

MISSED APCH
SJ R-168
SJ R-146
MNM ALT 5 000
SAMKO
SJ R-168/8 DME
01°05': 30"N
103°52' 55"E
168° 348°

This procedure requires a missed approach climb gradient of 3.7% (225 ft/NM) until passing 2,500ft.
For aircraft which can only achieve a 2.5% (152 ft/NM) climb gradient, the CAT I OCA (OCH) is 693ft (680ft).

MISSED APPROACH
Climb straight ahead to 5,000ft.
On crossing SJ R-146, proceed direct to SAMKO Holding Area and hold or AS DIRECTED BY ATC.

CIRCLING NOT AUTHORIZED

Transition Level : FL 130
Transition Alt : 11 000
ILS RDH 57

(MAPT) IDUNA 0.8 DME ICH
(FAF) IDURO 4.6 DME ICH
IDVAS 7.8 DME ICH
IGULA 11.1 DME ICH 3 500
203°
GP 3°
2 500
1 500
420(407)
ILS/DME co-located with GP
ELEV 13
(DTHR RWY 20R)

10 5 0 DISPLACED THR 0.6 4.4 5 7.6 9.1 10 10.9
NAUTICAL MILES FROM RWY DTHR 20R

* TIMING NOT AUTHORIZED WHEN GP INOP

Category of Aircraft		OCA (OCH) A	B	C	D	D_L
Straight-in	CAT I ILS	152 (139)	159 (146)	179 (166)	192 (179)	195 (182)
	GP INOP	420 (407)				

Distance	4 DME		3 DME		2 DME	
Altitude (Height)	1290 (1277)		970 (957)		650 (637)	
Speed	knots	70	120	150	185	
FAF - MAPT 3.9nm	min : s *	3 : 21	1 : 57	1 : 34	1 : 16	
Rate of descent/GS	ft/min	370	635	795	980	

CHANGES : New climb gradient for RWY 20R.

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INSTRUMENT APPROACH CHART

AERODROME ELEV 22ft
HEIGHT RELATED TO THR RWY 20C - ELEV 15ft

MSA 25 NM from TEKONG DVOR
3400' 080° 1900' 180° 2100' 360°

D-ATIS	AP ID WSSS
	128.6
APP	120.3
	119.3
TWR	118.6
	118.25

SINGAPORE/ SINGAPORE CHANGI
ICC ILS/DME RWY 20C

103° 50'E 104° 00' 104° 10'

BEARINGS ARE MAGNETIC
ALTITUDES, ELEVATIONS AND HEIGHTS ARE IN FEET

VAR 28°E (2015)

RADAR REQUIRED

SIMULTANEOUS APPROACHES AUTHORIZED WITH RWY 20L OR 20R

ELALU
14.2 DME ICC
01°34' 39.87"N
104°05' 24.21"E
4 500

EGORA
16 DME ICC
01°36' 21.37"N
104°06' 07.23"E
4 500
203° 023°
203°
NYLON
16.7 DME ICC
VTK R-023/
13 DME
MNM ALT
3 000

ELBEB
7.8 DME ICC
01°28' 44.66"N
104°02' 54.38"E
2 500

(FAF)
ELMIN
4.6 DME ICC
01° 25' 49.68"N
104° 01' 40.51"E

10 NM

203°

TEKONG
DVOR/DME 116.5
VTK
01° 24' 55"N
104° 01' 20" E
60m

Sembawang
Seletar
Paya Lebar

WSD5
500ft ALT
GND

WSD35
900ft ALT
GND

WSP3
750ft ALT
GND

WSR38
10 000ft ALT
GND

WSD34
500ft ALT
GND

POSSIBLE VESSEL

(MAPT)
ESBIT
0.7 DME ICC
01°22' 12.07"N
104°00' 08.64"E

CAUTION :
Rwy 02R/20L closed due development works.

KUALA LUMPUR FIR
SINGAPORE FIR

ESLUX
6.7 DME VTK
01° 18' 44.31"N
103° 58' 40.44"E

POSSIBLE VESSEL

130°

LLZ 109.7
ICC

EXOMO
VTK R-158/
22 DME
01° 04' 25.49"N
104° 09' 33.17"E
VTK R-158°
158°
338°
MISSED APCH
MNM ALT
4 000

NOTE:
MARITIME VESSELS OF VARIABLE HEIGHTS IN WATER NORTH AND SOUTH OF RWY

SINJON
DVOR/DME 113.5
SJ
01° 13' 19.28"N
103° 51' 20.08" E
60m

WSP24
800ft ALT
GND/WATER

SCALE 1 : 400,000
1 0 1 2 3 4 5 6 7 8 9 km
1 0 1 2 3 4 5 NM

01° 30' N
01° 20' N

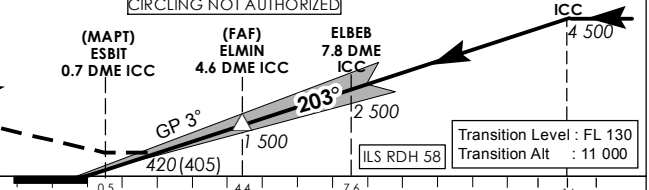
This procedure requires a missed approach climb gradient of 2.8% (171 ft/NM) until passing 2,000ft.
For aircraft which can only achieve a 2.5% (152 ft/NM) climb gradient, the CAT I OCA (OCH) is 315ft (300ft).

MISSED APPROACH
Climb to 4,000ft via VTK R-203 to ESLUX (6.7 DME VTK). At ESLUX turn left heading 130° to intercept VTK R-158 to EXOMO (VTK R-158/22 DME) and hold or AS DIRECTED BY ATC.

ILS/DME co-located with GP

ELEV 15
(THR RWY 20C)

CIRCLING NOT AUTHORIZED



* TIMING NOT AUTHORIZED WHEN GP INOP

OCA (OCH)						
Category of Aircraft		A	B	C	D	D_L
Straight-in	CAT I ILS	**166 (151)**	**180 (165)**	**196 (181)**	**209 (194)**	**212 (197)**
	CAT II ILS	**71 (56)**	**78 (63)**	**91 (76)**	**101 (86)**	**107 (92)**
	GP INOP	**420 (405)**				

Distance	4 DME	3 DME	2 DME
Altitude (Height)	**1290 (1275)**	**980 (965)**	**660 (645)**

Speed	knots	70	120	150	185
FAF - MAPT 3.9nm	min : s *	**3 : 21**	**1 : 57**	**1 : 34**	**1 : 16**
Rate of descent/GS	ft/min	**370**	**635**	**795**	**980**

CHANGES : New climb gradient for RWY 20C.

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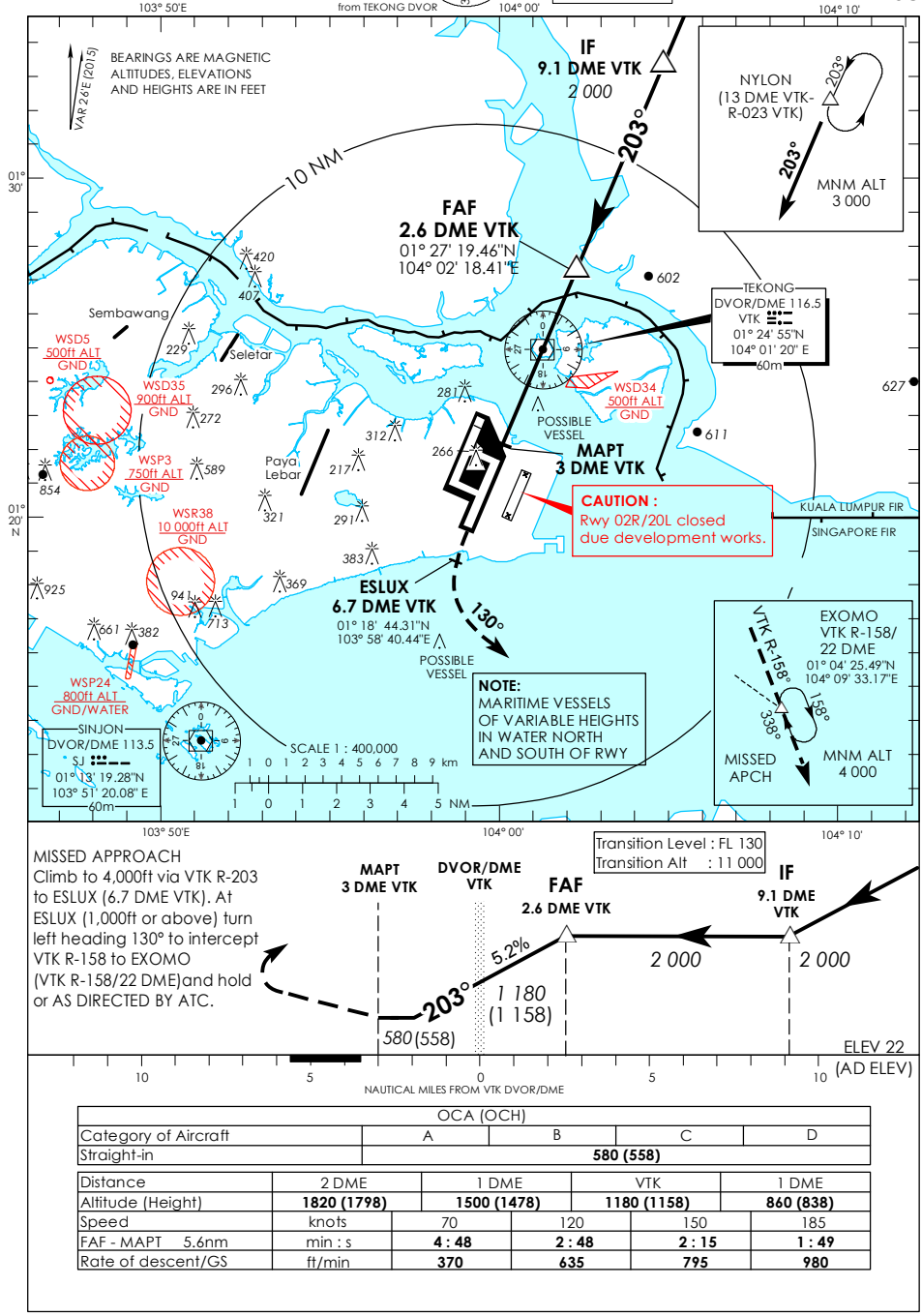
INSTRUMENT APPROACH CHART - ICAO

AERODROME ELEV 22ft
HEIGHT RELATED TO AD ELEV

MSA 25 NM from TEKONG DVOR
3400' 090° 1900' 2100' 180° 360°

D-ATIS	AP ID WSSS
APP	128.6 120.3 119.3
TWR	118.6 118.25

SINGAPORE/ SINGAPORE CHANGI
VTK DVOR/DME RWY 20C



MISSED APPROACH
Climb to 4,000ft via VTK R-203 to ESLUX (6.7 DME VTK). At ESLUX (1,000ft or above) turn left heading 130° to intercept VTK R-158 to EXOMO (VTK R-158/22 DME)and hold or AS DIRECTED BY ATC.

Transition Level : FL 130
Transition Alt : 11 000

OCA (OCH)				
Category of Aircraft	A	B	C	D
Straight-in	580 (558)			

Distance	2 DME	1 DME	VTK	1 DME
Altitude (Height)	1820 (1798)	1500 (1478)	1180 (1158)	860 (838)
Speed	knots	70	120	150	185
FAF - MAPT 5.6nm	min : s	4 : 48	2 : 48	2 : 15	1 : 49
Rate of descent/GS	ft/min	370	635	795	980

CHANGES : Obstacles updated.

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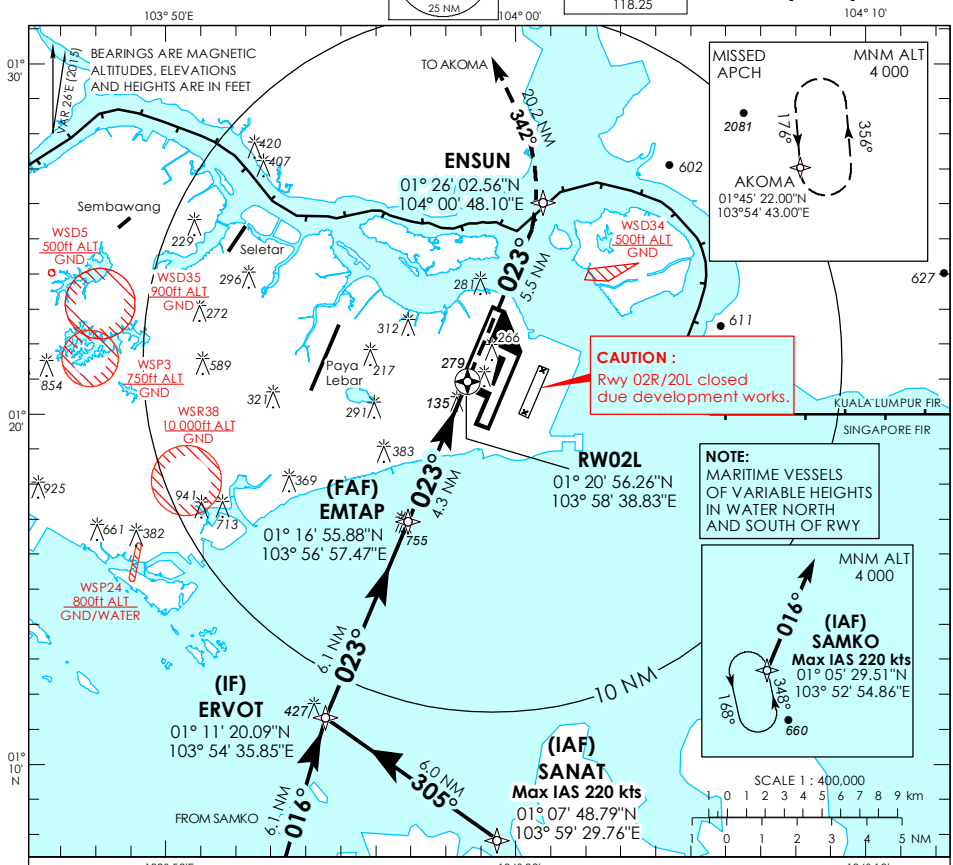
INSTRUMENT APPROACH CHART

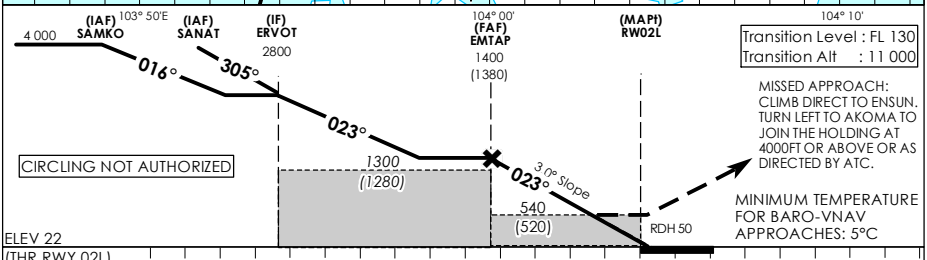
AERODROME ELEV 22ft
HEIGHT RELATED TO THR RWY 02L - ELEV 22ft

MSA 3500 ARP 25 NM

D-ATIS	AP ID WSSS
	128.6
APP	120.3
	119.3
TWR	118.6
	118.25

SINGAPORE/ SINGAPORE CHANGI
RNAV (GNSS) RWY 02L





		OCA (OCH)			
Category of Aircraft		A	B	C	D
LNAV/VNAV	2.5%	**450 (430)**			
LNAV	2.5%	**540 (520)**			

Fix	SAMKO	SANAT	ERVOT	EMTAP	RW02L	ENSUN	AKOMA
Altitude (Height)	**4000 (3978)**	**4000 (3978)**	**2800 (2778)**	**1400 (1378)**	**540 (518)**	**880 (858)**	**4000 (3978)**
Speed	knots	80	100	120	140	160	180
FAF - MAPt 4.3nm	min : s	**3 : 14**	**2 : 35**	**2 : 09**	**1 : 51**	**1 : 37**	**1 : 26**
Rate of descent/GS	ft/min	**424**	**530**	**637**	**743**	**849**	**955**

CHANGES : Obstacles updated.

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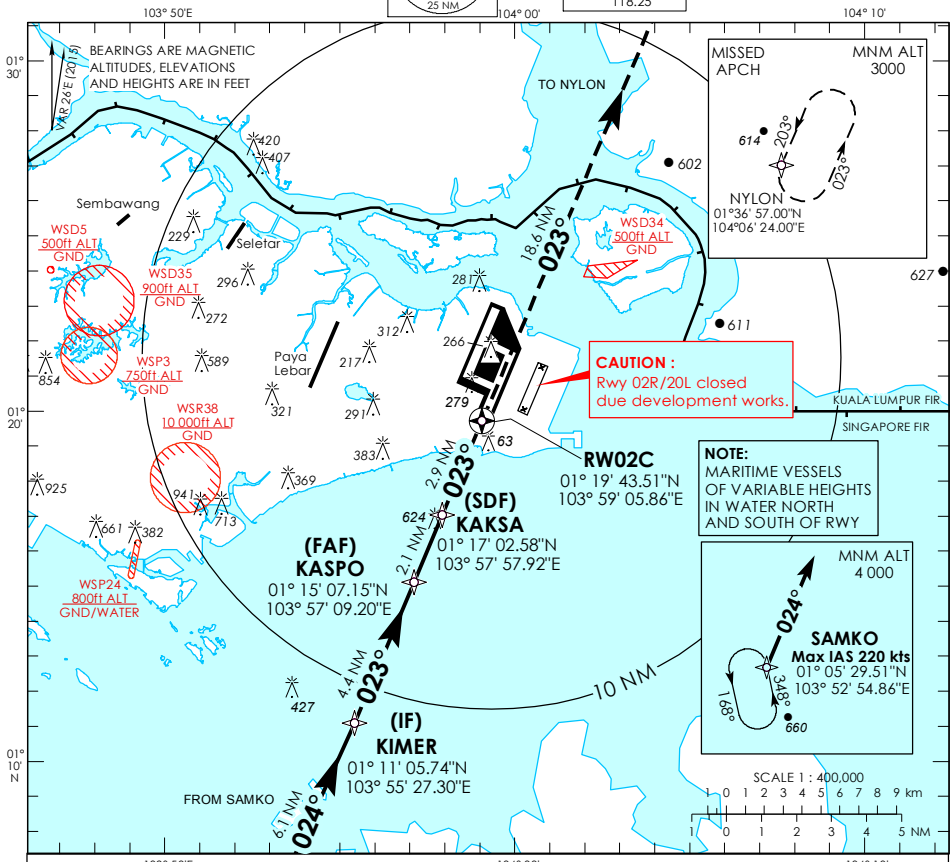
INSTRUMENT APPROACH CHART

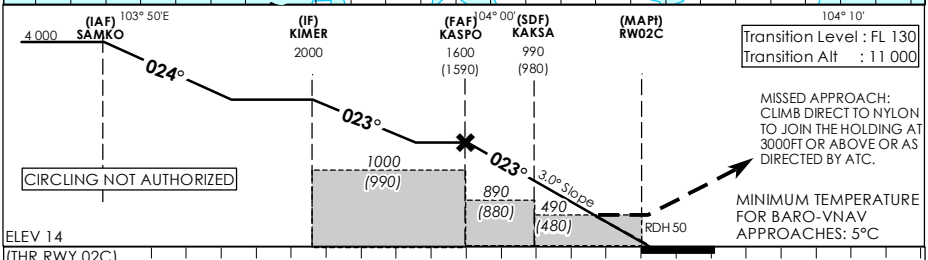
AERODROME ELEV 22ft
HEIGHT RELATED TO THR RWY 02C - ELEV 14ft

MSA 3500 — ARP — 25 NM

D-ATIS	AP ID WSSS
	128.6
APP	120.3
	119.3
TWR	118.6
	118.25

SINGAPORE/ SINGAPORE CHANGI
RNAV (GNSS) RWY 02C





OCA (OCH)					
Category of Aircraft		A	B	C	D
LNAV	2.5%	**490 (480)**			
LNAV without SDF	2.5%	**890 (880)**			
LNAV/VNAV	2.5%	**360 (350)**			

Fix		SAMKO	KIMER	KASPO	KAKSA	RW02C	NYLON
Altitude (Height)		**4000 (3986)**	**2000 (1986)**	**1600 (1586)**	**990 (976)**	**490 (476)**	**3000 (2986)**
Speed	knots	80	100	120	140	160	180
FAF - MAPt 5nm	min : s	**3 : 45**	**3 : 00**	**2 : 30**	**2 : 09**	**1 : 53**	**1 : 40**
Rate of descent/GS	ft/min	**425**	**531**	**637**	**743**	**849**	**955**

CHANGES : Obstacles updated.

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INSTRUMENT APPROACH CHART - ICAO

AERODROME ELEV 22ft
HEIGHT RELATED TO
DTHR RWY 20R - ELEV 13ft

MSA
3500
ARP
25 NM

D-ATIS	AP ID WSSS
	128.6
APP	120.3
	119.3
TWR	118.6
	118.25

SINGAPORE/ SINGAPORE CHANGI
RNAV (GNSS) RWY 20R

103° 50'E — 104° 10'

BEARINGS ARE MAGNETIC
ALTITUDES, ELEVATIONS
AND HEIGHTS ARE IN FEET

VAR 2.6E (2015)

(IAF) BIDUS
Max IAS 220 kts
01° 35' 54.05"N
103° 57' 54.86"E

127° 6.7 NM

FROM NYLON

211° 6.0 NM

(IAF) BIPOP
Max IAS 220 kts
01° 31' 21.83"N
104° 10' 18.03"E

273° 7.1 NM

(IF) ELBEX
01° 31' 48.96"N
104° 03' 14.18"E

203° 3.8 NM

10 NM

(FAF) ELGAP
01° 28' 20.28"N
104° 01' 46.15"E

203° 6.2 NM

RW20R
01° 22' 33.92"N
103° 59' 20.06"E

(IAF) NYLON
Max IAS 220 kts
01° 36' 57.00"N
104° 06' 24.00"E

203° 023° 211°

MNM ALT 3000

01° 30'

Sembawang
Seletar
Paya Lebar

WSD5 500ft ALT GND
WSD35 900ft ALT GND
WSP3 750ft ALT GND
WSR38 10 000ft ALT GND
WSD34 500ft ALT GND
WSP24 800ft ALT GND/WATER

CAUTION :
Rwy 02R/20L closed due development works.

KUALA LUMPUR FIR
SINGAPORE FIR

01° 20' N

NOTE:
MARITIME VESSELS OF VARIABLE HEIGHTS IN WATER NORTH AND SOUTH OF RWY

MISSED APCH
4.1 NM
ENLES
01°09'31.51"N
103°53' 49.83"E
SAMKO
01°05'29.51"N
103°52' 54.86"E
168°
348°
MNM ALT 3200

203° 14.1 NM

TO ENLES

SCALE 1 : 400,000
1 0 1 2 3 4 5 6 7 8 9 km
1 0 1 2 3 4 5 NM

103° 50'E — 104° 00' — 104° 10'

Transition Level : FL 130
Transition Alt : 11 000

MISSED APPROACH:
CLIMB DIRECT TO ENLES.
TURN LEFT TO SAMKO TO
JOIN THE HOLDING AT
3200FT OR ABOVE OR AS
DIRECTED BY ATC.

MINIMUM TEMPERATURE
FOR BARO-VNAV
APPROACHES: 5°C

(MAPt) RW20R	(FAF) ELGAP	(IF) ELBEX	(IAF) BIDUS	(IAF) BIPOP	(IAF) NYLON
	2 000 (1990)	2000	3400	3000	3000

203° 127° 273° 211°

3° Slope 203°

690 (680)

RDH 50

CIRCLING NOT AUTHORIZED

ELEV 13 (DTHR RWY 20R)

5 0 DISPLACED THR 5 10
NAUTICAL MILES FROM DTHR RWY 20R

OCA (OCH)					
Category of Aircraft		A	B	C	D
LNAV/VNAV	2.5%	690 (680)			
LNAV	2.5%	690 (680)			

Fix	BIDUS	NYLON	BIPOP	ELBEX	ELGAP	RW20R	ENLES	SAMKO
Altitude (Height)	3400 (3387)	3000 (2987)	3000 (2987)	2000 (1987)	2000 (1987)	690 (680)	2180 (2167)	3200 (3187)
Speed	knots	80	100	120	140	160	180	
FAF - MAPt 6.2 nm	min : s	4 : 39	3 : 44	3: 06	2 : 40	2 : 20	2 : 04	
Rate of descent/GS	ft/min	425	531	637	743	849	955	

CHANGES : Obstacles updated.

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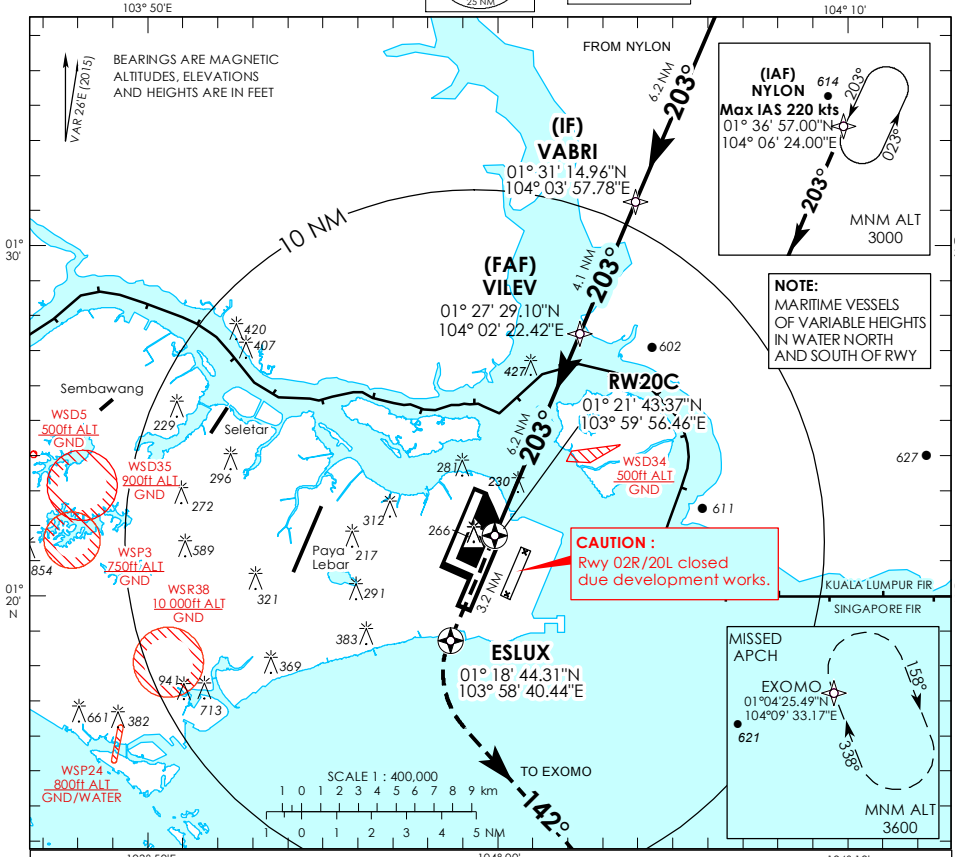
INSTRUMENT APPROACH CHART - ICAO

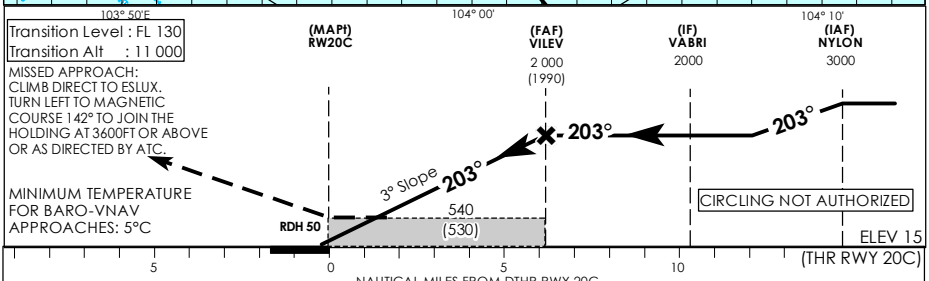
AERODROME ELEV 22ft
HEIGHT RELATED TO
THR RWY 20C - ELEV 15ft

MSA
3500
ARP
25 NM

D-ATIS	AP ID WSSS
	128.6
APP	120.3
	119.3
TWR	118.6
	118.25

SINGAPORE/ SINGAPORE CHANGI
RNAV (GNSS) RWY 20C





OCA (OCH)					
Category of Aircraft		A	B	C	D
LNAV/VNAV	2.5%	**490 (480)**			
LNAV	2.5%	**540 (530)**			

Fix		NYLON	VABRI	VILEV	RW20C	ESLUX	EXOMO
Altitude (Height)		**3000 (2985)**	**2000 (1985)**	**2000 (1985)**	**540 (525)**	**540 (525)**	**3600 (3585)**
Speed	knots	80	100	120	140	160	180
FAF - MAPt 6.2 nm	min : s	**4 : 39**	**3 : 44**	**3: 06**	**2 : 40**	**2 : 20**	**2 : 04**
Rate of descent/GS	ft/min	**425**	**531**	**637**	**743**	**849**	**955**

CHANGES : Obstacles updated.

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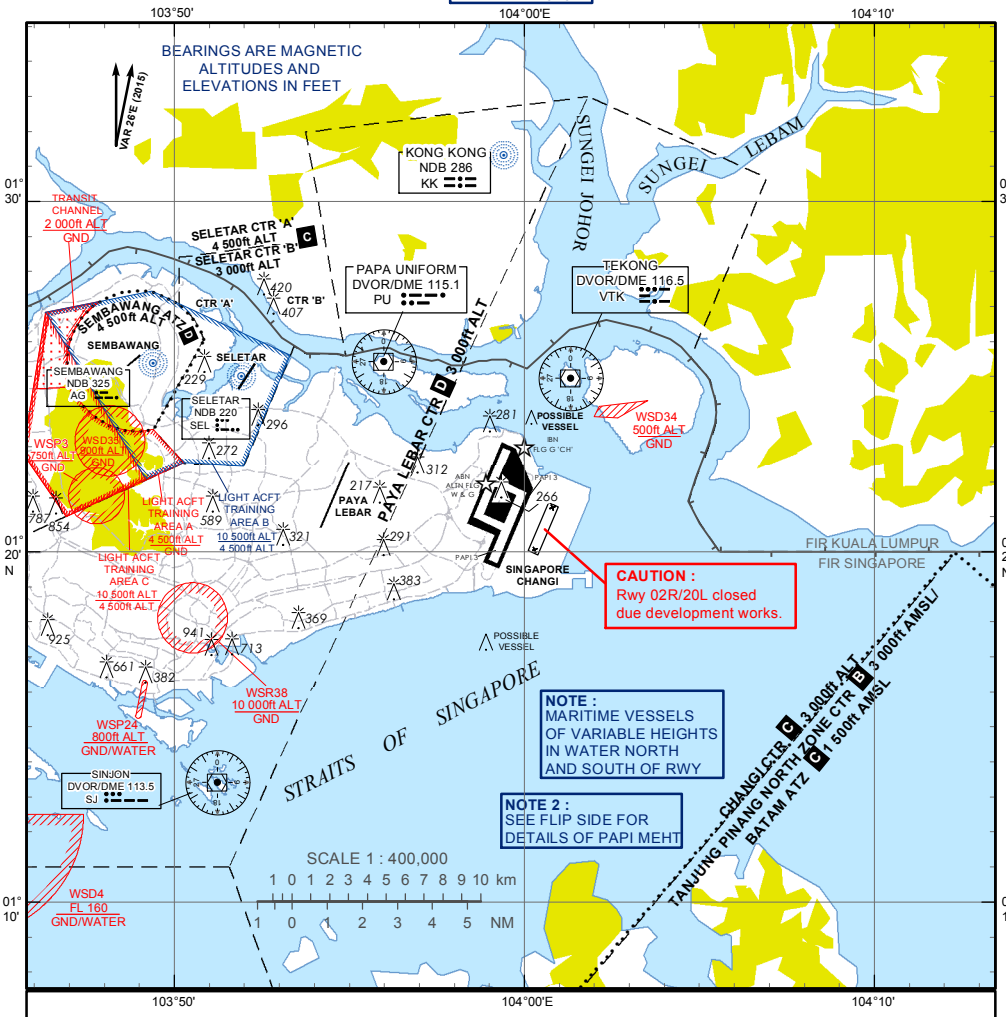
VISUAL APPROACH CHART - ICAO

AERODROME ELEV 22 ft

D-ATIS	AP ID WSSS
	128.6
APP	120.3
	119.3
TWR	118.6
	118.25

SINGAPORE/SINGAPORE CHANGI



VISUAL APPROACH PROCEDURE

1. **An IFR flight operating into Singapore Changi Airport may be cleared for a visual approach subject to the following conditions :-**
   - a) **The pilot has the aerodrome in sight and can conduct his approach with visual reference to terrain;**
   - b) **The flight will not cause delay to other traffic;**
   - c) **There is no conflicting tall vessel movement;**
   - d) **The cloud ceiling at the aerodrome is 4,000ft or more for landing on RWY 20C/R and 3,000ft or more for on RWY 02C/L ; and**
   - e) **The visibility at the aerodrome is 5km or more.**
2. **Notwithstanding para 1d) and 1e), if the pilot reports that he has the aerodrome in sight and can conduct his approach with visual reference to terrain, the flight may be cleared for a visual approach.**
3. **Pilots may expect radar vectoring for separation and sequencing with other traffic prior to being cleared for a visual approach.**

CHANGES : Obstacles updated.

PAPI 3° (MEHT)*				
Pilot's eye height over the threshold when the following PAPI lights come in view.	**RUNWAY**			
	02L	20R	02C	20C
2 White lights and 2 Red lights	20.6m	20.0m	19.8m	19.8m
3 White lights and 1 Red light	23.1m	22.6m	23.7m	23.7m
4 White lights	25.6m	25.0m	26.2m	26.2m

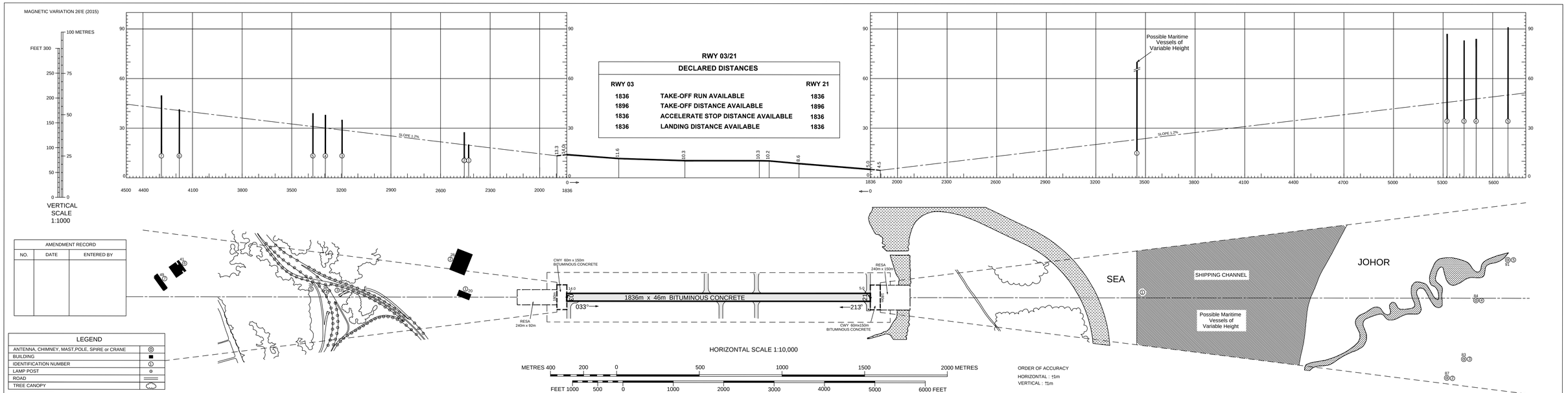
*MEHT : Minimum Eye Height Over the Threshold.

Note : Aircraft with eye-to-wheel height greater than 8 metres are advised to fly with 2 white lights and 2 red lights visible so as to achieve sufficient wheel clearance.

DIMENSIONS AND ELEVATIONS IN METRES

AERODROME OBSTACLE CHART - ICAO
TYPE A (OPERATING LIMITATIONS)

SINGAPORE/Singapore Seletar



AMENDMENT RECORD		
NO.	DATE	ENTERED BY

LEGEND	
ANTENNA, CHIMNEY, MAST,POLE, SPIRE or CRANE	◎
BUILDING	■
IDENTIFICATION NUMBER	①
LAMP POST	⊙
ROAD	═══
TREE CANOPY	☁

CHANGES : Runway 21 Runway End Safety Area (RESA) extended.

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AERODROME OBSTACLE CHART - ICAO TYPE B

SINGAPORE / Seletar

AERODROME ELEVATION 14m
ELEVATIONS AND DIMENSIONS IN METRES
(ACCURACY OF ELEVATIONS : ± 2.5m)

JOHOR

SELAT

JOHOR

OUTER HORIZONTAL SURFACE 153m

APPROACH SURFACE SLOPE 1:40

TAKE-OFF CLIMB SURFACE SLOPE 1:50

TAKE-OFF CLIMB SURFACE SLOPE 1:50

APPROACH SURFACE SLOPE 1:40

Mobile Cranes 128

Possible Maritime Vessels of Variable Height

Mobile Cranes 100.5

INNER HORIZONTAL SURFACE 56m

P. SELETAR

MRT LINE

CONICAL SURFACE Slope 1:20

APPROACH SURFACE SLOPE 1:50

APPROACH SURFACE SLOPE 1:50

TRANSITIONAL SURFACE SLOPE 1:7

P. PUNGGOL BARAT

RESA 240m

CWY 60m

213°

033°

TRANSITIONAL SURFACE SLOPE 1:7

P. PUNGGOL TIMOR

P. UBIN

Buildings up to 90m

Punggol

Sungai

PULAU SERANGOON

Upper Seletar Reservoir

Lower Seletar Reservoir

INNER HORIZONTAL SURFACE 56m

LRT LINE

LRT LINE

Sungai Serangoon

OUTER HORIZONTAL SURFACE 153m

APPROACH SURFACE SLOPE 1:50

APPROACH SURFACE SLOPE 1:50

MRT LINE

CONICAL SURFACE Slope 1:20

MRT LINE

Lower Pierce Reservoir

Lower Pierce Reservoir

APPROACH SURFACE SLOPE 1:40

TAKE-OFF CLIMB SURFACE SLOPE 1:50

TAKE-OFF CLIMB SURFACE SLOPE 1:50

APPROACH SURFACE SLOPE 1:40

MRT LINE

MacRitchie Reservoir

VAR 26° E (2015)
ANNUAL CHANGE
NEGLIGIBLE

HORIZONTAL SCALE 1 : 25,000

Meters 1000 500 0 1000 2000 3000 4000 5000

Feet 1000 0 5000 10000 15000 20000

AMENDMENT RECORD		
NO	DATE	ENTERED BY

LEGEND	
AERODROME REF POINT 01° 25' 01.04"N LAT 103° 52' 03.52"E LONG	
ANTENNA, CHIMNEY, MAST, POLE, SPIRE or CRANE	
SPOT HEIGHT IN METRES	
BUILDING or STRUCTURE	
ROAD	
BUILD - UP AREA	

CHANGES : Runway 21 Runway End Safety Area (RESA) extended.
Obstacles updated.

GRID : Grid lines and co-ordinates shown are based on WGS-84 datum.

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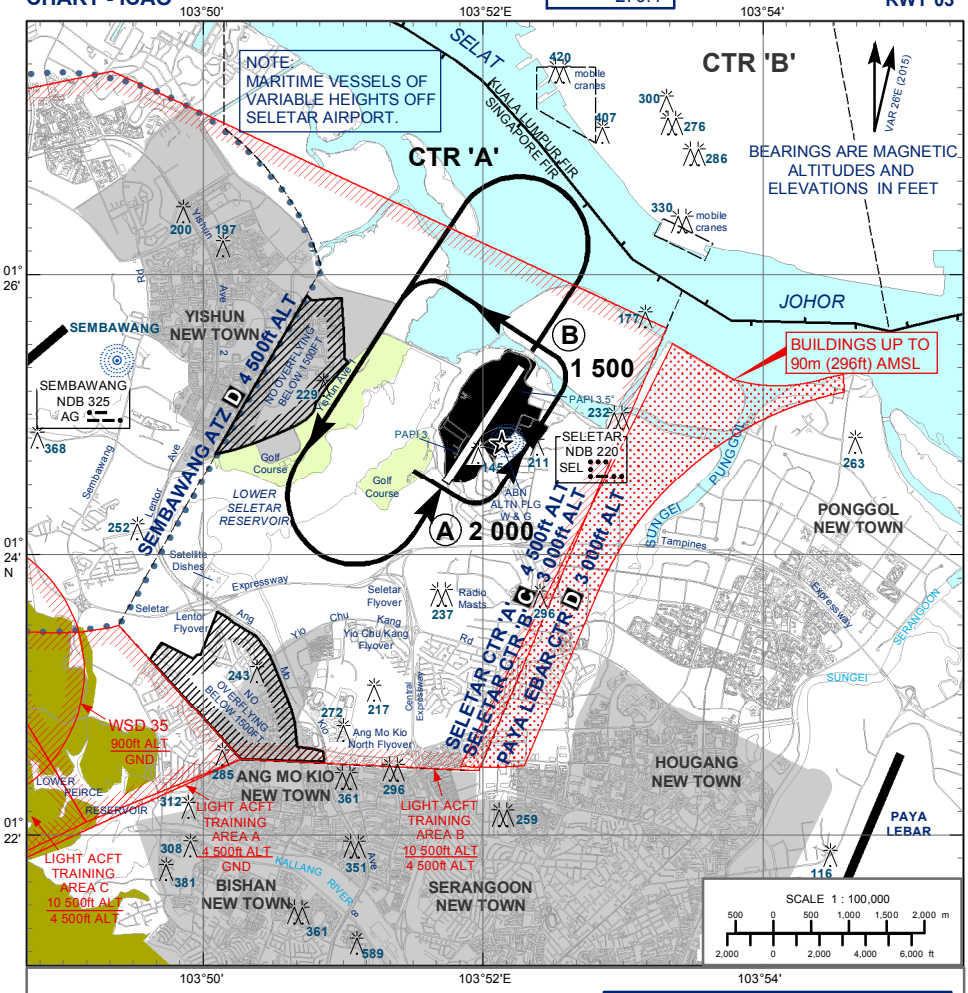
VISUAL APPROACH CHART - ICAO

AD ELEV 46 ft

APP	120.3
TWR	118.45
	270.4

SINGAPORE/SELETAR

RWY 03



JOINING PROCEDURE - RWY 03

1) Join overhead at 2 000ft ALT or as cleared by ATC and at a speed of not more than 170kt.

2) When over Position A, join the circuit crossing the upwind end of the runway (Position B) at 1 500ft ALT or above or at the altitude cleared by ATC.

3) Joining aircraft shall give way to circuit traffic already on downwind.

CAUTION

a) Pilots are required to keep clear of Sembawang ATZ.

b) Pilots should not fly to the east of the runway.
This is to keep clear of tall buildings up to 90m (296ft) AMSL to the east of Seletar CTR.
(See area shaded in red).

Built-up residential areas - No overflying below 1 500ft (458m).
Aircraft types which are unable to safely manoeuvre clear of the restricted areas are not allowed to operate at Seletar Airport.

PAPI 3°		
Pilot's eye height over the threshold when the following PAPI lights come into view	RUNWAY	
	03	21
2 white lights and 2 red lights (MEHT)*	15.2m	15.3m
3 white lights and 1 red light	17.1m	16.6m
4 white lights	18.8m	18.0m

*MEHT : Minimum Eye Height Over the Threshold.

Note : Aircraft with eye-to-wheel height greater than 6.3 metres are advised to fly with 2 white and 2 red lights visible so as to achieve sufficient wheel clearance.

Note:

1) Pilots are to be advised of the steel structure 91m (300ft) AMSL 2nm north of the airfield.
2) Pilots are required to keep their turns within Seletar Control Zone.
3) Pilots are required to keep clear of Sembawang CTR and Paya Lebar CTR.

CHANGES : Obstacles updated.

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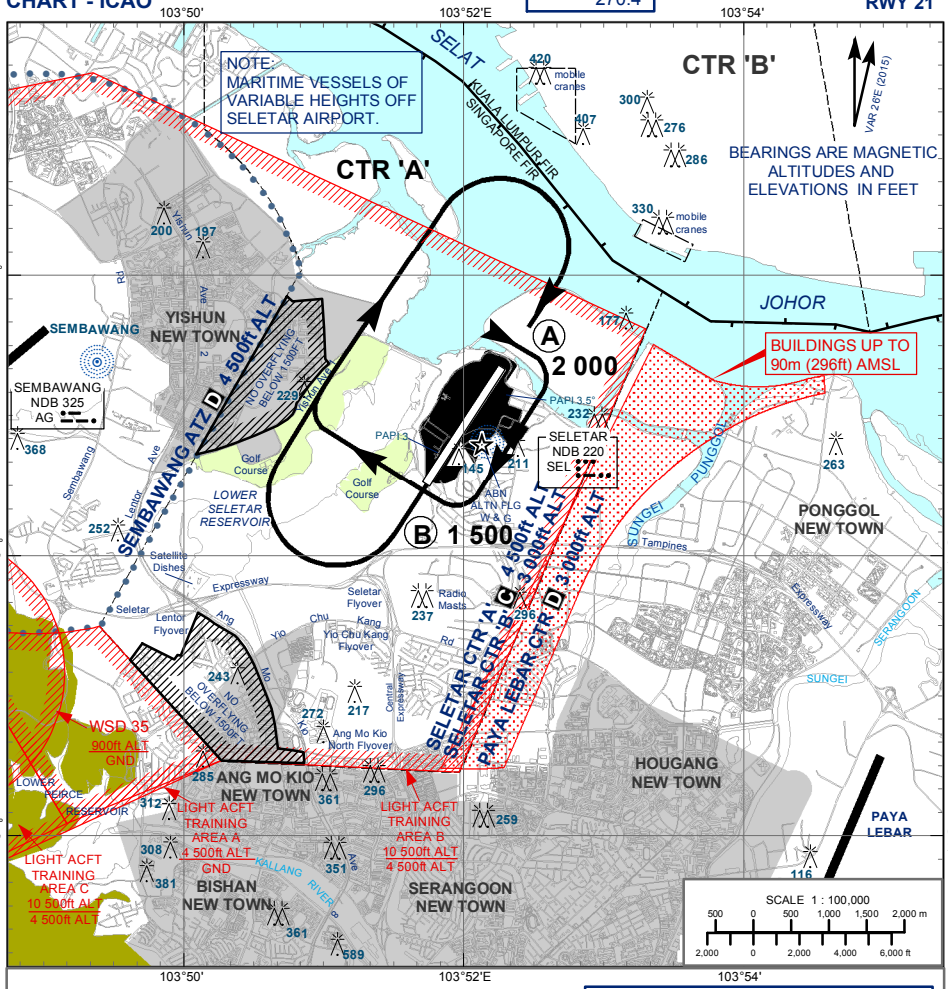
VISUAL APPROACH CHART - ICAO

AD ELEV 46 ft

APP	120.3
TWR	118.45
	270.4

SINGAPORE/SELETAR

RWY 21



JOINING PROCEDURE - RWY 21

1) Join overhead at 2 000ft ALT or as cleared by ATC and at a speed of not more than 170kt.

2) When over Position A, join the circuit crossing the upwind end of the runway (Position B) at 1 500ft ALT or above or at the altitude cleared by ATC.

3) Joining aircraft shall give way to circuit traffic already on downwind.

CAUTION

a) Pilots are required to keep clear of Sembawang ATZ.

b) Pilots should not fly to the east of the runway. This is to keep clear of tall buildings up to 90m (296ft) AMSL to the east of Seletar CTR. (See area shaded in red).

Built-up residential areas - No overflying below 1 500ft (458m). Aircraft types which are unable to safely manoeuvre clear of the restricted areas are not allowed to operate at Seletar Airport.

PAPI 3.5°	RUNWAY	
Pilot's eye height over the threshold when the following PAPI lights come into view	03	21
2 white lights and 2 red lights (MEHT)*	15.2m	15.3m
3 white lights and 1 red light	17.1m	16.6m
4 white lights	18.8m	18.0m

*MEHT : Minimum Eye Height Over the Threshold.

Note : Aircraft with eye-to-wheel height greater than 6.3 metres are advised to fly with 2 white and 2 red lights visible so as to achieve sufficient wheel clearance.

Note:

1) Pilots are to be advised of the steel structure 91m (300ft) AMSL 2nm north of the airfield.
2) Pilots are required to keep their turns within Seletar Control Zone.
3) Pilots are required to keep clear of Sembawang CTR and Paya Lebar CTR.

CHANGES : Obstacles updated.

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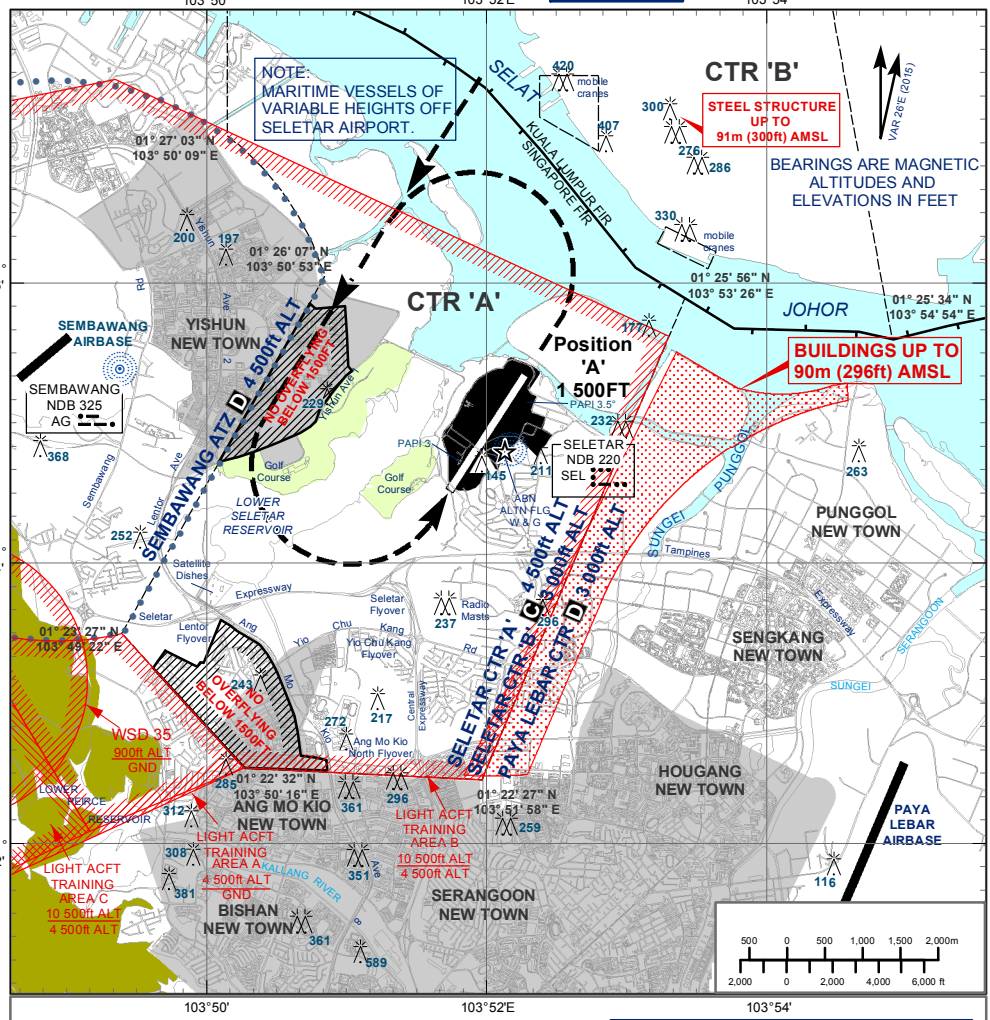
VISUAL APPROACH CHART - ICAO

AD ELEV 46 ft

APP	120.3
TWR	118.45
	270.4

SINGAPORE/SELETAR

RWY 03



ADVISORY JOINING PROCEDURES FROM JB AND KK - RWY 03

Straight-in Approach

1) Join downwind at 2 000ft at a speed of not more than 170kt.
2) When downwind, descend from 2 000ft for a visual approach or as cleared by ATC. Pilots should have runway in sight.
3) Joining aircraft shall give way to circuit traffic already on downwind.

Circling Approach

1) Join downwind at 2 000ft at a speed of not more than 160kt.
2) When passing over position 'A', descend from 2 000ft to 1 500ft and turn left for downwind Runway 03. At downwind, descend for a visual approach or as cleared by ATC. Pilots should have runway in sight.
3) Joining aircraft shall give way to circuit traffic already on downwind.

CAUTION

a) Pilots are required to keep clear of Sembawang ATZ and Paya Lebar CTR. Turns should therefore be kept within Seletar CTR.

b) Pilots should not fly to the east of the runway. This is to keep clear of tall buildings up to 90m (296ft) AMSL there. Pilots should have all relevant obstructions in sight, including steel structure 91m (300ft) AMSL 2nm north of the airfield.

c) Built-up residential areas - No overflying below 1 500ft (458m).
Aircraft types which are unable to safely manoeuvre clear of the restricted areas are not allowed to operate at Seletar Airport.

PAPI 3°		
Pilot's eye height over the threshold when the following PAPI lights come into view	RUNWAY	
	03	21
2 white lights and 2 red lights (MEHT)*	15.2m	15.3m
3 white lights and 1 red light	17.1m	16.6m
4 white lights	18.8m	18.0m

*MEHT : Minimum Eye Height Over the Threshold.

Note : Aircraft with eye-to-wheel height greater than 6.3 metres are advised to fly with 2 white and 2 red lights visible so as to achieve sufficient wheel clearance.

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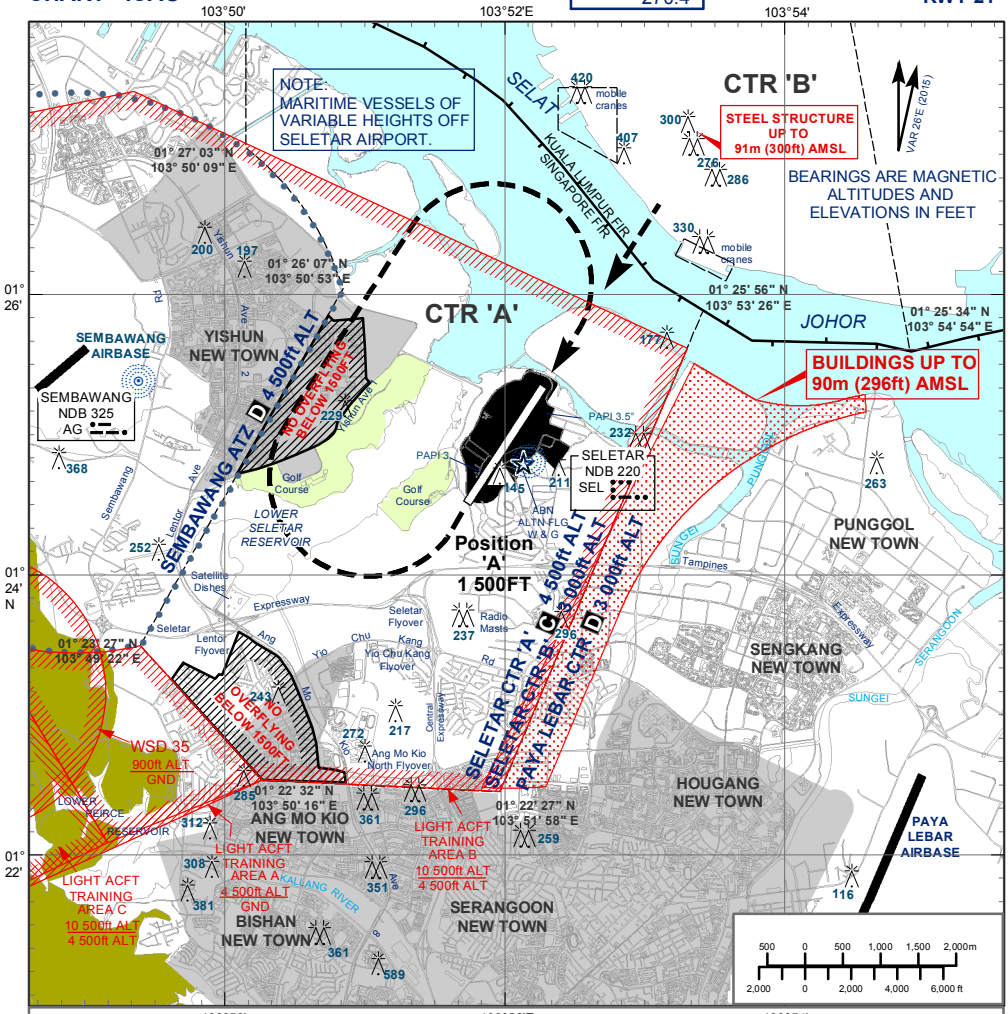
VISUAL APPROACH CHART - ICAO

AD ELEV 46 ft

APP	120.3
TWR	118.45
	270.4

SINGAPORE/SELETAR

RWY 21



ADVISORY JOINING PROCEDURES FROM JB AND KK - RWY 21

Straight-in Approach

1) Join direct for a visual approach Runway 21, descending from 2 000ft at a speed of not more than 170kt, or as cleared by ATC. Pilots should have runway in sight.
2) Joining aircraft shall give way to circuit traffic already on downwind.

Circling Approach

1) Overfly the runway at 2 000ft at a speed of not more than 160kt.
2) When passing over position 'A', descend from 2 000ft to 1 500ft and turn right for downwind Runway 21. At downwind, descend for a visual approach or as cleared by ATC. Pilots should have the runway in sight.
3) Joining aircraft shall give way to circuit traffic already on downwind.

PAPI 3.5°		
Pilot's eye height over the threshold when the following PAPI lights come into view	RUNWAY	
	03	21
2 white lights and 2 red lights (MEHT)*	15.2m	15.3m
3 white lights and 1 red light	17.1m	16.6m
4 white lights	18.8m	18.0m

*MEHT : Minimum Eye Height Over the Threshold.

Note : Aircraft with eye-to-wheel height greater than 6.3 metres are advised to fly with 2 white and 2 red lights visible so as to achieve sufficient wheel clearance.

CAUTION

a) Pilots are required to keep clear of Sembawang ATZ and Paya Lebar CTR. Turns should therefore be kept within Seletar CTR.

b) Pilots should not fly to the east of the runway. This is to keep clear of tall buildings up to 90m (296ft) AMSL there. Pilots should have all relevant obstructions in sight, including steel structure 91m (300ft) AMSL 2nm north of the airfield.

c) Built-up residential areas - No overflying below 1 500ft (458m).
Aircraft types which are unable to safely manoeuvre clear of the restricted areas are not allowed to operate at Seletar Airport.

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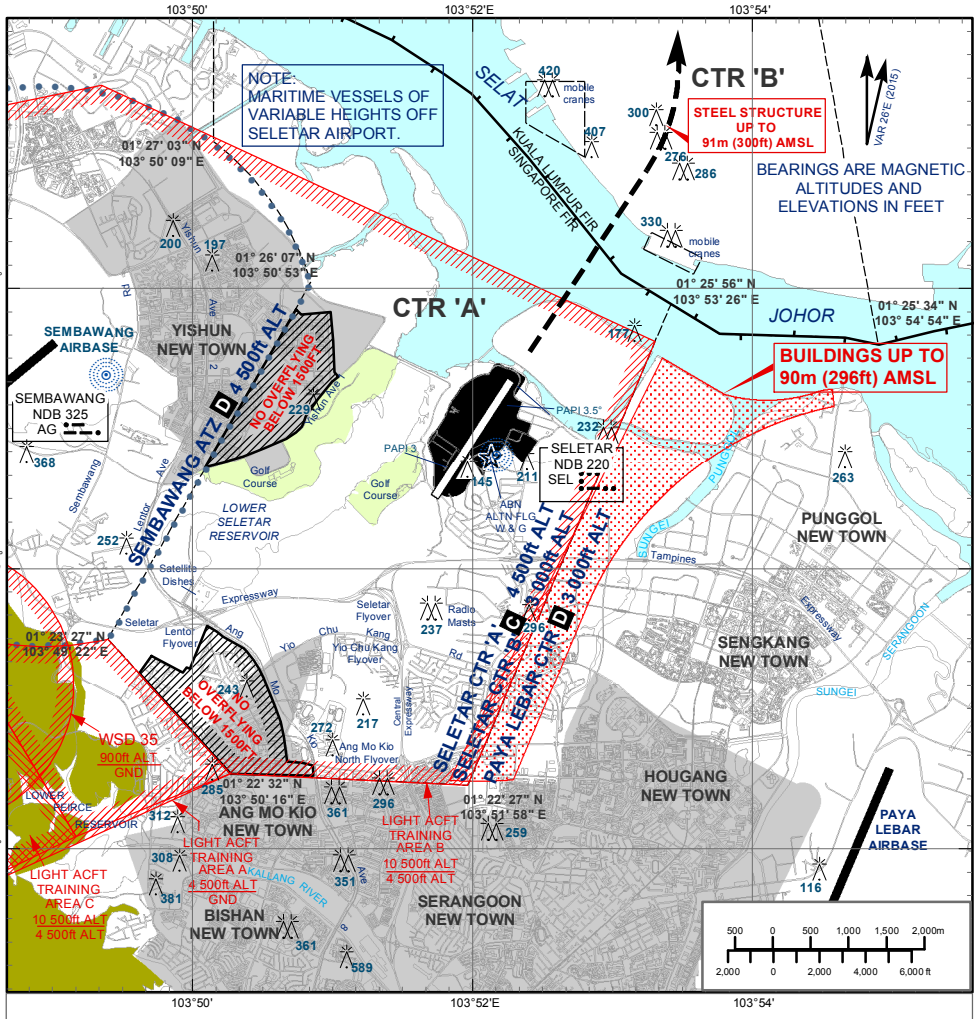
VISUAL DEPARTURE CHART

AD ELEV 46 ft

TWR 118.45
270.4

SINGAPORE/SELETAR

RWY 03



ADVISORY DEPARTURE PROCEDURE FOR RUNWAY 03

On departure, pilots of both fixed-wing and rotary-wing aircraft should climb ahead to an altitude cleared by ATC. Pilots can expect a radar heading to leave Seletar CTR. Where a radar heading is not given, pilots shall navigate to the next waypoint in accordance with their clearance.

CAUTION

a) Pilots are required to keep clear of Sembawang ATZ and Paya Lebar CTR. Turns should therefore be kept within Seletar CTR.

b) Pilots should not fly to the east of the runway. This is to keep clear of tall buildings up to 90m (296ft) AMSL there. Pilots should have all relevant obstructions in sight, including steel structure 91m (300ft) AMSL 2nm north of the airfield.

c) Built-up residential areas - No overflying below 1 500ft (458m)
Aircraft types which are unable to safely manoeuvre clear of the restricted areas are not allowed to operate at Seletar Airport.

CHANGES : Obstacles updated.

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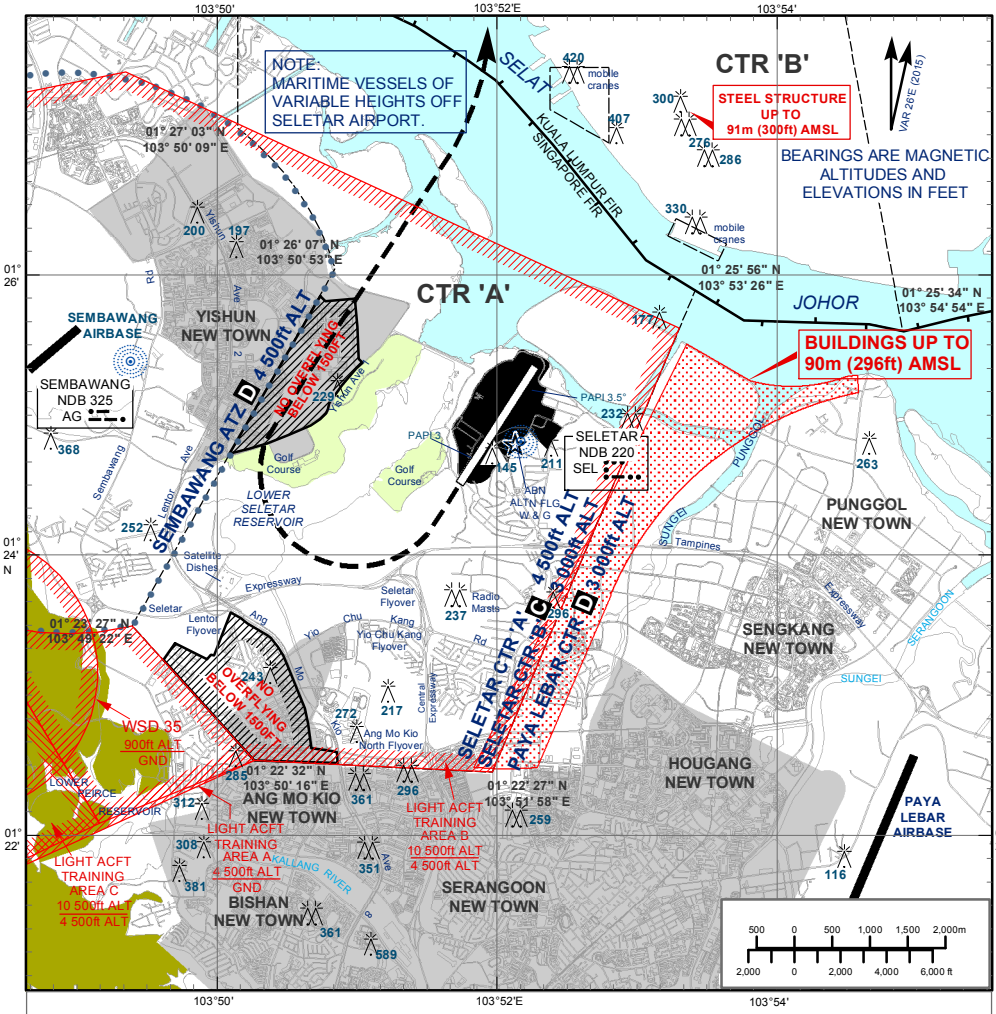
VISUAL DEPARTURE CHART

AD ELEV 46 ft

TWR 118.45
270.4

SINGAPORE/SELETAR

RWY 21



ADVISORY DEPARTURE PROCEDURES FOR RUNWAY 21

On departure, pilots can expect climb to an initial altitude cleared by ATC. Pilots of fixed-wing aircraft can expect to turn right to join the circuit pattern till end of downwind and then expect a radar heading to leave Seletar CTR. Where a radar heading is not given, pilots shall navigate to the next waypoint in accordance with their ATC clearance.

Pilots of rotary-wing aircraft can expect to turn left after departure to join the helicopter circuit pattern till end of downwind. Thereafter, they can expect further en-route clearance.

CAUTION

a) Pilots are required to keep clear of Sembawang ATZ and Paya Lebar CTR. Turns should therefore be kept within Seletar CTR.

b) Pilots should not fly to the east of the runway. This is to keep clear of tall buildings up to 90m (296ft) AMSL there. Pilots should have all relevant obstructions in sight, including steel structure 91m (300ft) AMSL 2nm north of the airfield.

c) Built-up residential areas - No overflying below 1 500ft (458m)
Aircraft types which are unable to safely manoeuvre clear of the restricted areas are not allowed to operate at Seletar Airport.

CHANGES : Obstacles updated.

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WSAP AD 2.14 APPROACH AND RUNWAY LIGHTING

RWY Designator	*APCH LGT type LEN INTST*	*THR LGT colour WBAR*	*VASIS (MEHT) PAPI*	*TDZ LGT LEN*	*RWY Centre Line LGT LEN, spacing, colour, INTST*	*RWY edge LGT LEN, spacing colour, INTST*	*RWY END LGT colour WBAR*	*SWY LGT LEN colour*
1	2	3	4	5	6	7	8	9
02/20	Sequenced FLG LGT. Modified Calvert High INTST White LGT with brilliancy control.	Green	PAPI on 3° glide slope	-	Nil	White with Amber	Red	Red

WSAP AD 2.15 OTHER LIGHTING, SECONDARY POWER SUPPLY

WDI/Taxiway/Stopway	Lighted
IBN	012120.6N 1035410.0E; Flashing Red 'PL" ; Operating hours HN and IMC

WSAP AD 2.17 ATS AIRSPACE

1	*Designation and Lateral Limits*	**PAYA LEBAR CTR** 011100N 1035134E 013300N 1040149E 013200N 1035344E 012534N 1035454E thence along international BDRY to 012544N 1035320E 012227N 1035158E 012232N 1035016E 012100N 1034654E 012025N 1034539E 011835N 1034459E thence southwards on 180° to 011100N 1034559E and eastwards to join up with 011100N 1035134E.
2	*Vertical Limits*	GND to 3000 FT ALT
3	*Airspace Classification*	D
4	*ATS Unit Call Sign, Language(s)*	PAYA LEBAR TOWER (Singapore APP outside the opr hours of PAYA LEBAR TOWER), English
5	*Transition Altitude*	11000 FT (3,350m)
6	*Remarks*	Northern Transit Corridor: RSAF military aircraft (with the exception of trainer aircraft) using the northern transit corridor will enter the airspace over Johor at or above 5,000ft. RSAF trainer aircraft using the northern corridor will enter the airspace over Johor at or above 2,000ft.

WSAP AD 2.18 ATS COMMUNICATION FACILITIES

Service designation	*Call sign*	*Frequency*	*Hours of operation*	*Remarks*
APP	PAYA LEBAR APPROACH	119.9 MHz 298.0 MHz *255.8 MHz #127.7 MHz	BTN 2300-1100 SUN-MON to THU-FRI; BTN 2300-0500 FRI-SAT; and on SUN, Public holidays and outside the above times PPR from RSAF HQ via Paya Lebar Operations.	* for monitoring aircraft operating in Light Aircraft Training Areas. # for monitoring aircraft operating in Light Aircraft Training Areas and Seletar outbound/inbound traffic.
TWR	PAYA LEBAR TOWER	118.05 MHz 121.7 MHz 263.1 MHz		
GND	PAYA LEBAR GROUND	121.7 MHz 296.0 MHz		
PAR	PAYA LEBAR TALKDOWN	119.9 MHz †269.0 MHz ♦240.5 MHz		† for Talkdown 1,♦for Talkdown 2 Maint Period: BTN 0001-1100 First THU of EV month
SRE	PAYA LEBAR DIRECTOR	283.0 MHz		Maint Period: BTN 0001-1100 Second THU of EV month
ACC	SINGAPORE RADAR	P123.7 MHz S127.3 MHz	H24	for AWY B469, G219, G334, R208, L625, L629, L635, L642, M751, M753, M758, M761, M763, M771, N884, N891, N892.
		P133.25 MHz S135.8 MHz		for AWY A457, A464, A576, B466, R325 (all northbound) and R469.
		P134.4 MHz S128.1 MHz 255.4 MHz		for AWY A464, A576, G579, (all southbound), B470, G220, N875 and in area in the immediate vicinity of Singapore.
				Radar Maint Period: Monthly - EV third SAT BTN 1601-2359

WSAP AD 2.19 RADIO NAVIGATION AND LANDING AIDS

Type of Aid and MAG Variation	*IDENT*	*FREQ*	*OPR Hour*	*Position of transmitting Antenna Coordinates*	*DME transmitting Antenna Elevation / Remarks*
TACAN	PLA	CH110X	BTN 2300-1100 from SUN-MON to THU-FRI, BTN 2300-0500 FRI-SAT; and on SUN, Public holiday and outside the above times PPR from RSAF HQ via Paya Lebar Operations.	012224.00N 1035451.00E	030° MAG 2.375km from ARP. Maint Period: BTN 0001-0900 Second SAT of EV month RWY 02 step-down fix revised to 4.4 DME at 1060ft.
PAPA UNIFORM DVOR/DME	PU	115.1 MHz CH98X	H24	012523.99N 1035559.74E	020° MAG 9km from THR RWY 02 Antenna Hgt: 190ft AMSL. Coverage 200NM. Maint Period: BTN 0200-0600 Third WED of EV month
SINJON DVOR/DME	SJ	113.5 MHz CH82X	H24	011319.28N 1035120.08E	201° MAG 14.5km from THR RWY 02 (Paya Lebar). Antenna HGT: 194ft AMSL Coverage 200NM Maint Period: BTN 0200-0600 Third THU of EV month
ILS LLZ RWY 02	IPN	109.3MHz	H24	012246.41N 1035503.64E	LOC 401m from THR RWY 20 along centreline of RWY. Course width 3 DEG. Maint Period: BTN 0001-0900 First SUN of EV month

DIMENSIONS AND ELEVATIONS IN METRES

AERODROME OBSTACLE CHART - ICAO

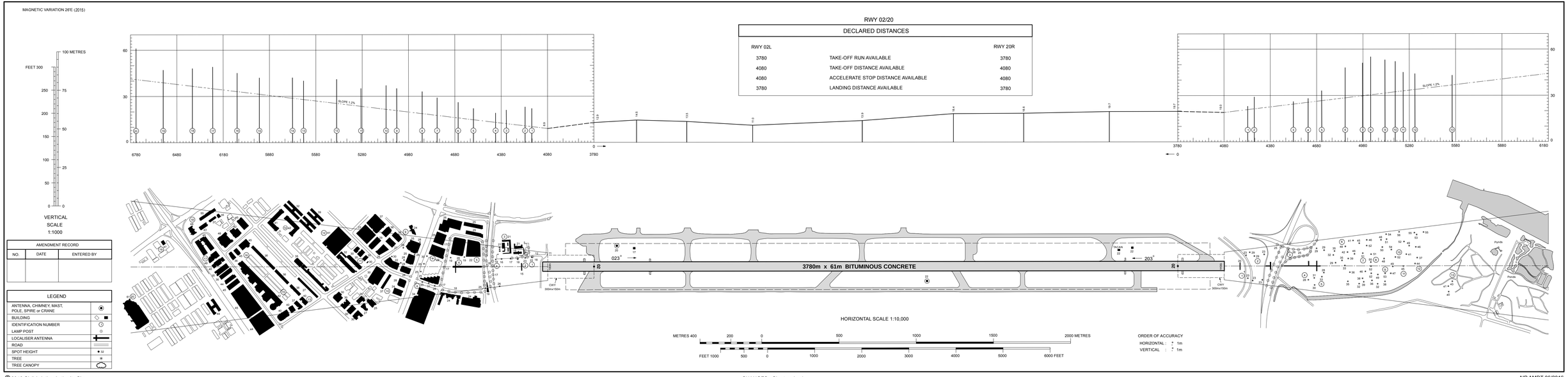
TYPE A (OPERATING LIMITATIONS)

SINGAPORE/Paya Lebar Airport

MAGNETIC VARIATION 26°E (2015)

RWY 02/20

DECLARED DISTANCES		
RWY 02L		RWY 20R
3780	TAKE-OFF RUN AVAILABLE	3780
4080	TAKE-OFF DISTANCE AVAILABLE	4080
4080	ACCELERATE STOP DISTANCE AVAILABLE	4080
3780	LANDING DISTANCE AVAILABLE	3780



AMENDMENT RECORD		
NO.	DATE	ENTERED BY

LEGEND	
ANTENNA, CHIMNEY, MAST, POLE, SPIRE or CRANE	
BUILDING	
IDENTIFICATION NUMBER	
LAMP POST	
LOCALISER ANTENNA	
ROAD	
SPOT HEIGHT	33
TREE	
TREE CANOPY	

ORDER OF ACCURACY
HORIZONTAL : 1m
VERTICAL : 1m

CHANGES : Chart revised

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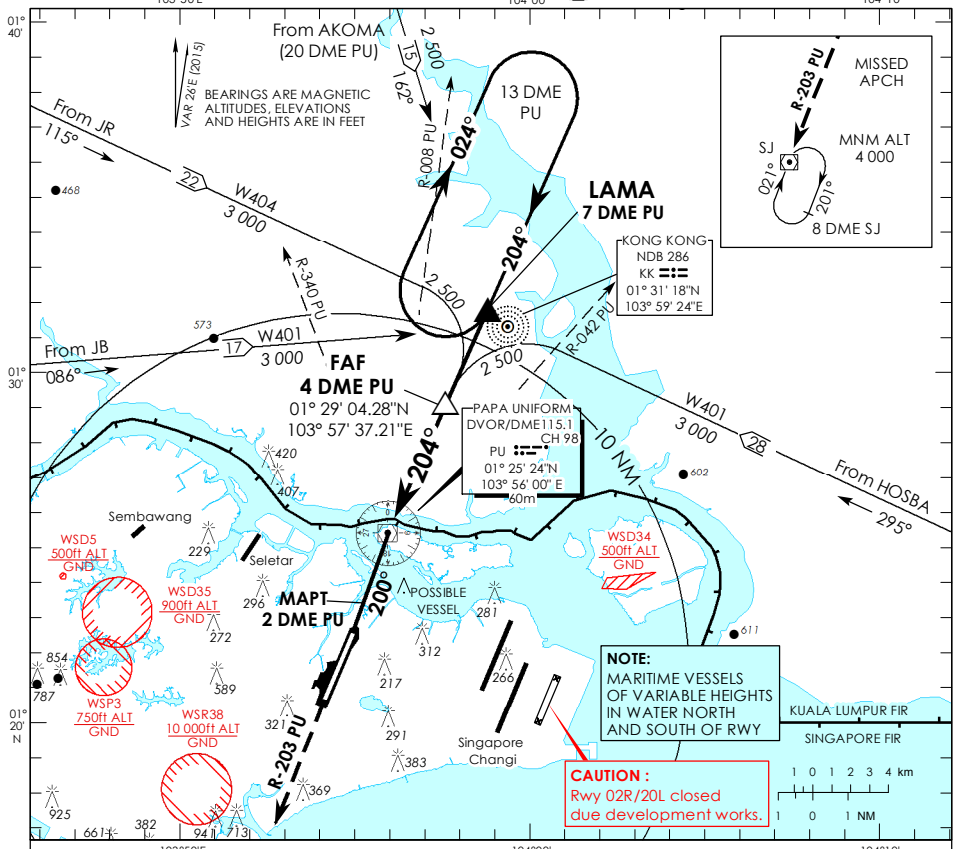
INSTRUMENT APPROACH CHART

AERODROME ELEV 65ft
HEIGHT RELATED TO AD ELEV - 65ft

MSA 25 NM from PAPA UNIFORM DVOR
3400' 2900' 2100'

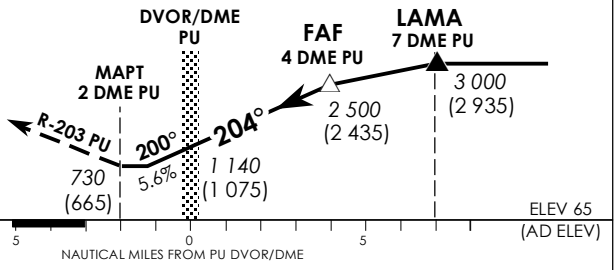
APP 120.3
119.9
TWR 118.05

SINGAPORE/ PAYA LEBAR
PU DVOR/DME RWY 20



Transition Level : FL 130
Transition Alt : 11 000

MISSED APPROACH
Climb to 4 000ft on R-203 PU to SJ DVOR/DME and hold South right turn 021° inbound or AS DIRECTED BY ATC



OCA (OCH)				
Category of Aircraft	A	B	C	D
Straight-in	**730 (665)**			

Distance	3 DME	2 DME	1 DME	PU DVOR/DME	1 DME
Altitude (Height)	**2160 (2095)**	**1820 (1755)**	**1480 (1415)**	**1140 (1075)**	**800 (735)**
Speed	knots	70	120	150	185
FAF - MAPT 6nm	min : s	**5 : 09**	**3 : 00**	**2 : 24**	**1 : 57**
Rate of descent/GS	ft/min	**370**	**635**	**795**	**980**

CHANGES : Reprint.

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INSTRUMENT APPROACH CHART

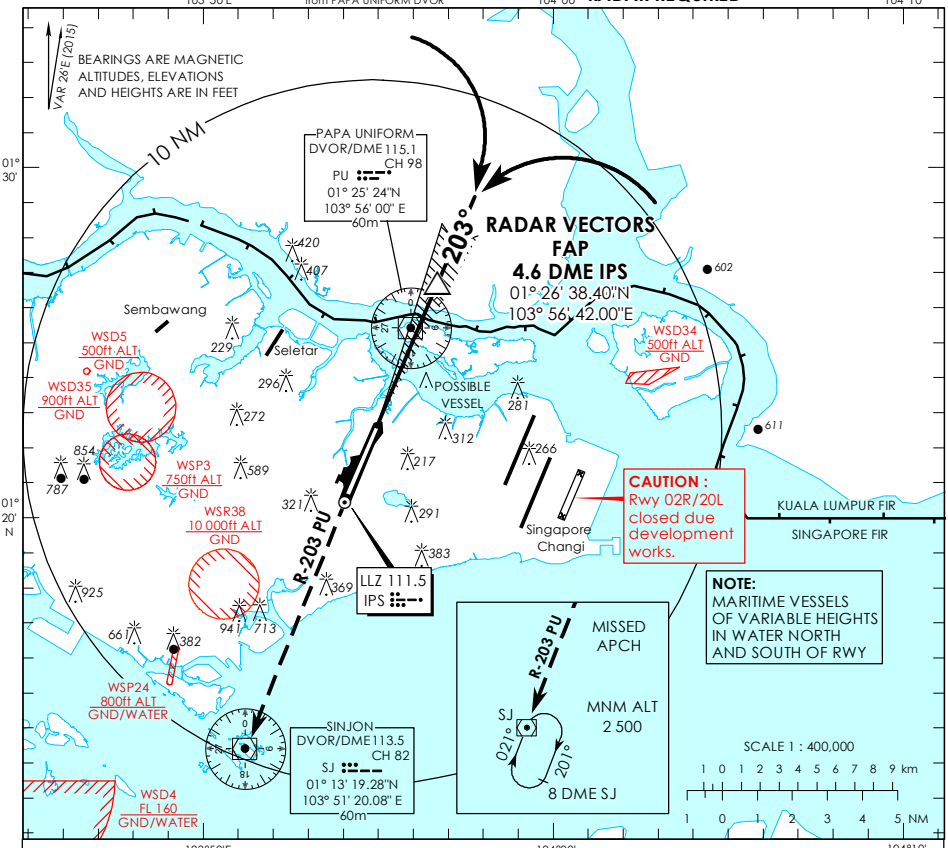
AERODROME ELEV 65ft
HEIGHT RELATED TO THR RWY 20 - 65ft

MSA 25 NM from PAPA UNIFORM DVOR
3400' 2900' 2100'

ATIS Paya Lebar	148.9	
Singapore APP	120.3	
Paya Lebar APP	119.9	298.0
Paya Lebar TWR	118.05	263.1
GND CON	121.7	296.0

RADAR REQUIRED

SINGAPORE/ PAYA LEBAR
IPS ILS/DME RWY 20

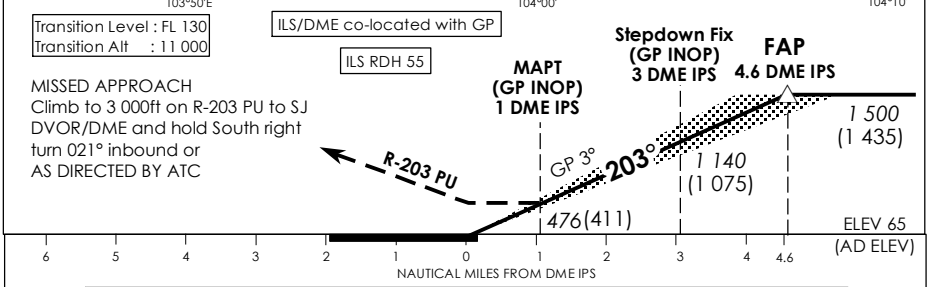


Transition Level : FL 130
Transition Alt : 11 000

ILS/DME co-located with GP

ILS RDH 55

MISSED APPROACH
Climb to 3 000ft on R-203 PU to SJ DVOR/DME and hold South right turn 021° inbound or AS DIRECTED BY ATC



OCA (OCH)					
Category of Aircraft		A	B	C	D
Straight-in	CAT I ILS	**194 (129)**	**204 (139)**	**214 (149)**	**224 (159)**
	GP INOP	**476 (411)**			

Distance		4 DME	3 DME	2 DME
Altitude (Height)		**1300 (1235)**	**1140 (1075)**	**820 (755)**
Speed	knots	70	120	150	185
FAF - MAPT 3.6nm	min : s	**3 : 06**	**1 : 48**	**1 : 27**	**1 : 11**
Rate of descent/GS	ft/min	**370**	**635**	**795**	**980**

CHANGES : Reprint.

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INSTRUMENT APPROACH CHART

AERODROME ELEV 65ft
HEIGHT RELATED TO THR RWY 02 - 43ft

ATIS Paya Lebar	148.9	
Singapore APP	120.3	
Paya Lebar APP	119.9	298.0
Paya Lebar TWR	118.05	263.1
GND CON	121.7	296.0

SINGAPORE/ PAYA LEBAR **RNAV (GNSS) RWY 02**

MSA 25 NM from PAYA LEBAR ARP: 3500, ARP, 25 NM

RADAR REQUIRED

103°50'E 104°00' 104°10'

VAR 2.6°E(2015)

BEARINGS ARE MAGNETIC
ALTITUDES, ELEVATIONS AND HEIGHTS ARE IN FEET

(MATF) ALDAM
01°27'49.57"N
103°57'12.64"E

022° 4.5 NM
10 NM
023° 7.1 NM

MISSED APCH
MNM ALT 3 000
024°
204°
022°
LAMA
01°31'50.00"N
103°58'50.00"E

Sembawang
Seletar
WSD5 500ft ALT GND
WSD35 900ft ALT GND
WSD34 500ft ALT GND
POSSIBLE VESSEL
WSP3 750ft ALT GND
WSR38 10 000ft ALT GND
WSP24 800ft ALT GND/WATER
WSD4 FL 160 GND/WATER

CAUTION : Rwy 02R/20L closed due development works.

KUALA LUMPUR FIR
SINGAPORE FIR
Singapore Changi

NOTE:
MARITIME VESSELS OF VARIABLE HEIGHTS IN WATER NORTH AND SOUTH OF RWY

(MAPt) RWY02
01°20'41.08"N
103°54'10.36"E

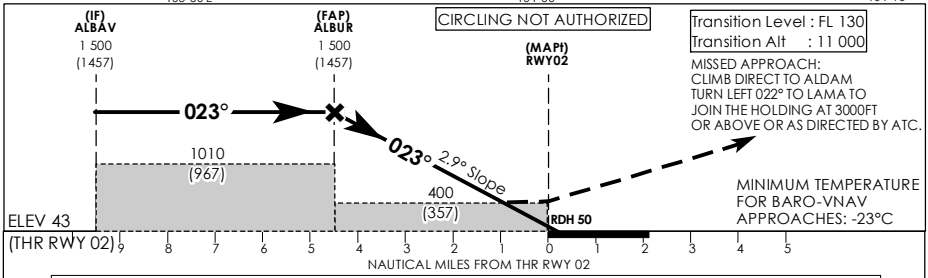
023° 4.5 NM

(FAP) ALBUR
01°16'28.90"N
103°52'23.08"E

023° 5.0 NM

RADAR VECTORS (IF) ALBAV
01°11'52.85"N
103°50'25.65"E

SCALE 1 : 400,000
1 0 1 2 3 4 5 6 7 8 9 km
1 0 1 2 3 4 5 NM



OCA (OCH)					
Category of Aircraft		A	B	C	D
LNAV/VNAV	2.5%	**400 (357)**			
LNAV	2.5%	**400 (357)**			

Fix		ALBAV	ALBUR	RWY02	ALDAM	LAMA
Altitude (Height)		**1500 (1457)**	**1500 (1457)**	**400 (357)**	**1250 (1207)**	**1910 (1867)**
Speed	knots	80	100	120	140	160	180
FAP - MAPt 4.5 nm	min : s	**3 : 23**	**2 : 42**	**2 : 15**	**1 : 56**	**1 : 41**	**1 : 30**
Rate of descent/GS	ft/min	**410**	**513**	**615**	**718**	**821**	**923**

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INSTRUMENT APPROACH CHART

AERODROME ELEV 65ft
HEIGHT RELATED TO THR RWY 20 - 65ft

MSA 25 NM from PAYA LEBAR ARP

ATIS Paya Lebar	148.9	
Singapore APP	120.3	
Paya Lebar APP	119.9	298.0
Paya Lebar TWR	118.05	263.1
GND CON	121.7	296.0

RADAR REQUIRED

SINGAPORE/ PAYA LEBAR **RNAV (GNSS) RWY 20**

VAR 2° E (2015)

BEARINGS ARE MAGNETIC
ALTITUDES, ELEVATIONS AND HEIGHTS ARE IN FEET

RADAR VECTORS (IF) ROBGU
01°31'18.70"N
103°58'41.60"E

10 NM

203° 5.0 NM

(FAP) REDEN
01°26'42.64"N
103°56'44.17"E

(MAPt) RWY20
01°22'34.21"N
103°54'58.49"E

203° 4.5 NM

POSSIBLE VESSEL

203° 6.3 NM

(MATF) RUGVI
01°16'45.71"N
103°52'30.23"E

200° 3.6 NM

Sembawang
Seletar
Singapore Changi

WSD5 500ft ALT GND
WSD35 900ft ALT GND
WSP3 750ft ALT GND
WSR38 10 000ft ALT GND
WSP24 800ft ALT GND/WATER
WSD4 FL 160 GND/WATER
WSD34 500ft ALT GND

CAUTION : Rwy 02R/20L closed due development works.

KUALA LUMPUR FIR
SINGAPORE FIR

NOTE: MARITIME VESSELS OF VARIABLE HEIGHTS IN WATER NORTH AND SOUTH OF RWY

MISSED APCH
200°
MNM ALT 4 500
SJ
168°
348°
SJ
01°13' 21.54"N
103°51'51.74"E

SINJON
DVOR/DME 113.5
CH 82
SJ
01° 13' 19.28"N
103° 51' 20.08" E
60m

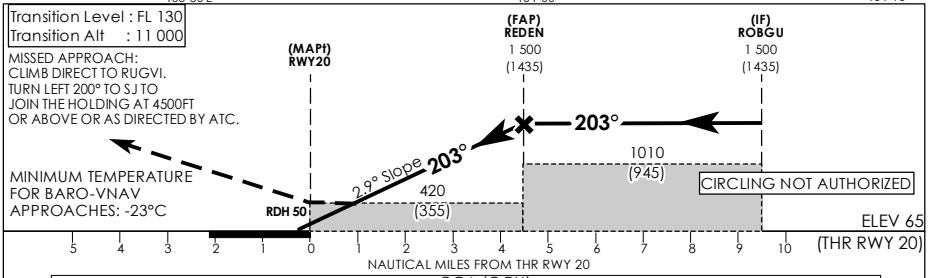
SCALE 1 : 400,000
1 0 1 2 3 4 5 6 7 8 9 km
1 0 1 2 3 4 5 NM

103°50'E 104°00' 104°10'
01° 30' N
01° 20' N

Transition Level : FL 130
Transition Alt : 11 000

MISSED APPROACH:
CLIMB DIRECT TO RUGVI.
TURN LEFT 200° TO SJ TO
JOIN THE HOLDING AT 4500FT
OR ABOVE OR AS DIRECTED BY ATC.

MINIMUM TEMPERATURE FOR BARO-VNAV APPROACHES: -23°C



OCA (OCH)					
Category of Aircraft		A	B	C	D
LNAV/VNAV	2.5%	**420 (355)**			
LNAV	2.5%	**420 (355)**			

Fix		ROBGU	REDEN	RWY20	RUGVI	SINJON
Altitude (Height)		**1500 (1435)**	**1500 (1435)**	**420 (355)**	**1030 (965)**	**1580 (1515)**
Speed	knots	80	100	120	140	160	180
FAP - MAPt 4.5 nm	min : s	**3 : 23**	**2 : 42**	**2 : 15**	**1 : 56**	**1 : 41**	**1 : 30**
Rate of descent/GS	ft/min	**410**	**513**	**615**	**718**	**821**	**923**

CHANGES : Reprint.

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WSAT AD 2.18 ATS COMMUNICATION FACILITIES

Service designation	*Call sign*	*Frequency P - Primary S - Secondary*	*Hours of operation*	*Remarks*
APP	TENGAH APPROACH	P130.0 MHz P263.4 MHz S122.0 MHz	BTN 2300-1100 SUN/MON to THU/FRI; and On SUN, Public holidays and outside the above times, PPR from RSAF HQ via Tengah Ops.	
TWR	TENGAH TOWER	P122.0 MHz P282.5 MHz S263.4 MHz		
	TENGAH GROUND	122.0 MHz 337.8 MHz		
	TENGAH TALKDOWN	130.0 MHz 290.8 MHz 328.5 MHz		
ACC	SINGAPORE RADAR	P123.7 MHz S127.3 MHz	H24	for AWY B469, G219, G334, R208, L625, L629, L635, L642, M751, M753, M758, M761, M763, M771, N884, N891 and N892.
		133.8 MHz	0000-1430	
		P133.25 MHz S135.8 MHz	H24	for AWY A457, A464, A576, B466, R325 (all northbound) and R469.
		P134.4 MHz S128.1 MHz 255.4 MHz		for AWY A464, G579, A576 (all southbound), B470, G220, N875 and in area in the immediate vicinity of Singapore
				Radar Maint Period: Monthly - EV third SAT 1601-2359
	SINGAPORE RADIO	6556 kHz 11297 kHz	H24	SEA 1, SATCOM SER AVBL SSB suppressed carrier
		5655 kHz 8942 kHz 11396 kHz		SEA 2, SATCOM SER AVBL SSB suppressed carrier
		6556 kHz		SEA 3, SATCOM SER AVBL SSB suppressed carrier
APP	SINGAPORE APPROACH	P120.3 MHz S124.6 MHz		TAR - Intermediate approach to Singapore Changi airport and other airports in Singapore - DEP from all airports in Singapore Maint Period: Monthly EV first THU 0000-0900 (ASR I) and EV fourth SAT 1601-2359 (ASR II)

WSAT AD 2.19 RADIO NAVIGATION AND LANDING AIDS

RADIO NAVIGATION AND LANDING AIDS					
Type of Aid	*IDENT*	*FREQ*	*OPR Hour*	*Coordinates*	*Remarks*
TACAN	TNG	CH86X	2300-1100 from SUN/MON to THU/FRI; SUN, Public holidays and outside the above times prior permission required from RSAF HQ via Tengah Operations.	012336.00N 1034242.00E	043° MAG 0.55km from ARP Maint Period: 0001-0900 second SAT of EV month

RADIO NAVIGATION AND LANDING AIDS					
SINJON DVOR/DME	SJ	113.5 MHz CH82X	H24	011319.28N 1035120.08E	201° MAG 14.5km from THR RWY 02 (Paya Lebar) Antenna HGT: 194ft AMSL. Coverage 200NM Maint Period: 0200-0600 third THU of EV month
ILS LLZ RWY 36	ITN	108.1 MHz	H24	012408.43N 1034234.34E	Located 260m from THR RWY 18 along centreline of RWY. Course width 3°
ILS GP RWY 36	-	334.7 MHz	H24	012240.84N 1034231.01E	GP antenna 3°
ILS DME RWY 36	ITN	CH18X	H24	012241.02N 1034226.67E	DME co-located with GP
ILS LLZ RWY 18	ITS	111.3 MHz	H24	012221.63N 1034224.98E	Located 290m from THR RWY 36 along centreline of RWY. Course width 3°
ILS GP RWY 18	-	332.3 MHz	H24	012351.64N 1034237.33E	GP antenna 3°
ILS DME RWY 18	ITS	CH50X	H24	012350.04N 1034236.38E	DME co-located with GP