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eAIP

Civil Aviation Authority of Singapore

AIP AMENDMENT 05/2025

Effective date
02 OCT 2025

Publication date
02 OCT 2025

1 Significant information and changes

1.1 Singapore FIR

a) Amendments to ATFM section of the Singapore AIP, specifically related to Bay of Bengal Cooperative ATFM (BOBCAT) section.

b) Incorporated AIRAC AIP Sup 118/2025, para 4.2.1 - Inclusion of FL320 and FL340 on ATS routes N644, L750, P628 and UL833.

1.2 Singapore Changi Airport

a) Updated GRF-related information under ‘AD 1.2 - Rescue and firefighting services, runway surface condition assessment and reporting’ and introduced a new sub-section: ‘AD 1.2.2 – Runway surface condition assessment and reporting, and snow plan’.

b) Updated Aerodrome Reference Temperature to 32.6°C under AIP Section WSSS AD 2.2.

2 This amendment incorporates information contained in the listed AIRAC AIP Supplements and NOTAMs, which are hereby superseded:

AIP Supplements

AIRAC AIP Supplement 118/2025 dated 24/07/2025

NOTAM

A2968/2025 dated 29/08/2025
A3104/2025 dated 10/09/2025
A3196/2025 dated 19/09/2025
A3221/2025 dated 23/09/2025

AMENDED PAGES

To be removed				To be inserted		
GEN				GEN		
	GEN 0.2-1	07 AUG 2025			GEN 0.2-1	02 OCT 2025
	GEN 0.3-1	07 AUG 2025			GEN 0.3-1	02 OCT 2025
	GEN 0.3-2	07 AUG 2025			GEN 0.3-2	02 OCT 2025
	GEN 0.3-3	07 AUG 2025			GEN 0.3-3	02 OCT 2025
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	GEN 0.6-1	12 JUN 2025			GEN 0.6-1	02 OCT 2025
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	GEN 3.5-2	12 JUN 2025			GEN 3.5-2	02 OCT 2025
	GEN 3.6-3	07 AUG 2025			GEN 3.6-3	02 OCT 2025
	GEN 3.6-4	07 AUG 2025			GEN 3.6-4	02 OCT 2025
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					ENR 1.9-6	02 OCT 2025
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	ENR 3.1-1	12 JUN 2025			ENR 3.1-1	02 OCT 2025
	ENR 3.1-21	12 JUN 2025			ENR 3.1-21	02 OCT 2025

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					AD 1.2-2	02 OCT 2025
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	AD 2.WSSL-5	12 JUN 2025			AD 2.WSSL-5	02 OCT 2025
	AD 2.WSSL-6	12 JUN 2025			AD 2.WSSL-6	02 OCT 2025
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	AD 2.WSAP-8	12 JUN 2025			AD 2.WSAP-8	02 OCT 2025
	AD 2.WSAP-9	12 JUN 2025			AD 2.WSAP-9	02 OCT 2025
	AD 2.WSAP-10	12 JUN 2025			AD 2.WSAP-10	02 OCT 2025
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	AD 2.WSAT-3	12 JUN 2025			AD 2.WSAT-3	02 OCT 2025

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GEN 0.2 RECORD OF AIP AMENDMENTS

AIP AMENDMENT

NR/Year	Publication Date	Effective date	Inserted by
03/2025	12 JUN 2025	12 JUN 2025	
04/2025	07 AUG 2025	07 AUG 2025	
05/2025	02 OCT 2025	02 OCT 2025	

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GEN 0.3 RECORD OF CURRENT AIP SUPPLEMENTS

NR/Year	Subject	AIP section(s) affected	Period of Validity	Cancellation record
059/2020	SINGAPORE CHANGI AIRPORT – LONG TERM CLOSURE OF AIRCRAFT STAND E20 AT TERMINAL 2, SINGAPORE CHANGI AIRPORT		2020/08/25 2026/12/30	
006/2024	PAYA LEBAR AIRPORT – CRANES		2024/01/11 2025/12/31	
007/2024	PAYA LEBAR AIRPORT – LUFFING CRANES		2024/01/11 2025/12/31	
017/2024	SINGAPORE CHANGI AIRPORT – CLOSURE OF AIRCRAFT STAND 504 AT WEST CARGO APRON		2024/02/22 2025/10/31	
020/2024	PAYA LEBAR AIRPORT – SADDLE CRANES		2024/02/08 2025/12/31	
047/2024	PAYA LEBAR AIRPORT – LUFFING CRANES		2024/02/08 2025/12/30	
048/2024	PAYA LEBAR AIRPORT – CRANES		2024/02/08 2025/12/31	
083/2024	SINGAPORE CHANGI AIRPORT- DECOMMISSIONING OF AIRCRAFT STANDS E1 AND F30 AND TEMPORARY CLOSURE OF TAXILANES R1,R2,R3 AND AIRCRAFT STANDS E2,E3,E4,F31,F32,F33 AND F34 DUE TO CONSTRUCTION WORK ACTIVITIES AT TERMINAL 2		2024/05/09 2028/01/03	
134/2024	SINGAPORE CHANGI AIRPORT – TEMPORARY CLOSURE OF TAXILANE N4 BEHIND AIRCRAFT STAND 604 AND DOWNGRADE OF AIRCRAFT STAND 603 TO CODE C		2024/08/30 2025/10/02	
161/2024	PAYA LEBAR AIRPORT – MOBILE CRANE		2024/10/17 2025/10/31	
171/2024	PAYA LEBAR AIRPORT – MOBILE CRANE		2024/10/17 2025/11/10	
174/2024	SINGAPORE CHANGI AIRPORT – CLOSURE OF TAXIWAYS ASSOCIATED WITH RUNWAY 02R/20L		2024/11/28 2027/12/22	
176/2024	SINGAPORE CHNAGI AIRPORT - USE OF CONSTRUCTION LASERS, LOCATIONS OF AUTOMATIC TOTAL STATIONS AND CONCRETE BLOCKS TO SUPPORT CONSTRUCTION ACTIVITIES AT TERMINAL 2		2024/10/28 2026/10/05	
177/2024	PAYA LEBAR AIRPORT – MOBILE CRANE		2024/11/14 2025/11/15	
178/2024	PAYA LEBAR AIRPORT – CRANES		2024/11/14 2025/12/31	
181/2024	PAYA LEBAR AIRPORT – MOBILE CRANE		2024/11/14 2025/11/30	
185/2024	PAYA LEBAR AIRPORT – MOBILE CRANE		2024/11/14 2025/12/31	
186/2024	PAYA LEBAR AIRPORT – MOBILE CRANE		2024/11/14 2025/12/31	
187/2024	PAYA LEBAR AIRPORT – LUFFER CRANES		2024/11/14 2025/12/31	
188/2024	PAYA LEBAR AIRPORT – CRANES		2024/11/14 2025/12/31	

NR/Year	Subject	AIP section(s) affected	Period of Validity	Cancellation record
190/2024	PAYA LEBAR AIRPORT – CRAWLER CRANE		2024/11/14 2025/10/20	
192/2024	PAYA LEBAR AIRPORT – TOPLESS CRANES		2024/11/14 2025/11/30	
193/2024	PAYA LEBAR AIRPORT – CRAWLER TOWER CRANES		2024/11/14 2025/12/31	
194/2024	PAYA LEBAR AIRPORT – TOWER CRANES		2024/11/14 2025/12/31	
195/2024	PAYA LEBAR AIRPORT – FLAT-TOP CRANES		2024/11/14 2025/12/31	
196/2024	PAYA LEBAR AIRPORT – MOBILE CRANE		2024/11/14 2025/11/01	
197/2024	PAYA LEBAR AIRPORT – CRANES		2024/11/14 2025/12/15	
198/2024	PAYA LEBAR AIRPORT – TOWER CRANES		2024/11/14 2025/11/15	
199/2024	SINGAPORE CHANGI AIRPORT – LONG TERM CLOSURE OF AIRCRAFT STAND E5 AT TERMINAL 2, SINGAPORE CHANGI AIRPORT		2024/12/26 2025/10/30	
201/2024	PAYA LEBAR AIRPORT – MOBILE CRANES		2024/12/12 2025/10/31	
202/2024	PAYA LEBAR AIRPORT – MOBILE CRANES		2024/12/12 2025/10/31	
203/2024	PAYA LEBAR AIRPORT – MOBILE CRANES		2024/12/12 2025/10/31	
204/2024	PAYA LEBAR AIRPORT – CRAWLER CRANE		2024/12/12 2025/11/30	
205/2024	PAYA LEBAR AIRPORT – TOPLESS CRANES		2024/12/12 2025/11/30	
208/2024	PAYA LEBAR AIRPORT – CRANES		2024/12/12 2025/12/30	
209/2024	PAYA LEBAR AIRPORT – CRANES		2024/12/12 2025/12/30	
212/2024	PAYA LEBAR AIRPORT – MOBILE CRANE		2024/12/31 2025/10/31	
218/2024	SELETAR AIRPORT - CLOSURE OF HELICOPTER LANDING AREA		2024/12/30 2025/12/31	
002/2025	PAYA LEBAR AIRPORT – MOBILE CRANES		2025/01/24 2025/12/31	
003/2025	PAYA LEBAR AIRPORT – TRUCK CRANE		2025/01/24 2025/12/31	
004/2025	PAYA LEBAR AIRPORT – LUFFING TOWER CRANE		2025/01/24 2025/12/30	
005/2025	PAYA LEBAR AIRPORT – TOPLESS TOWER CRANES		2025/01/24 2025/12/31	
006/2025	PAYA LEBAR AIRPORT – TOWER CRANE		2025/01/24 2025/12/31	
009/2025	PAYA LEBAR AIRPORT – MOBILE CRANE		2025/01/24 2025/12/31	
010/2025	PAYA LEBAR AIRPORT – LUFFING CRANE		2025/01/24 2025/12/31	
013/2025	PAYA LEBAR AIRPORT – CRANES		2025/01/24 2025/12/14	

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014/2025	PAYA LEBAR AIRPORT – MOBILE CRANE		2025/01/24 2025/12/31	
015/2025	PAYA LEBAR AIRPORT – MOBILE CRANE		2025/01/24 2025/12/31	
016/2025	PAYA LEBAR AIRPORT – FLAT TOP CRANES		2025/01/24 2025/12/31	
017/2025	PAYA LEBAR AIRPORT – LUFFING CRANES		2025/01/24 2025/12/31	
018/2025	PAYA LEBAR AIRPORT – FLAT TOP CRANES		2025/01/24 2025/12/31	
019/2025	PAYA LEBAR AIRPORT – TOWER CRANES		2025/01/24 2025/12/31	
020/2025	PAYA LEBAR AIRPORT – TOWER CRANES		2025/01/24 2025/12/31	
021/2025	PAYA LEBAR AIRPORT – LUFFER CRANES		2025/01/24 2025/12/31	
022/2025	PAYA LEBAR AIRPORT – CRANES		2025/01/24 2025/12/31	
024/2025	PAYA LEBAR AIRPORT – LUFFING CRANES		2025/02/17 2025/12/01	
025/2025	PAYA LEBAR AIRPORT – LUFFER CRANE		2025/02/17 2025/12/31	
027/2025	PAYA LEBAR AIRPORT – CRAWLER CRANES		2025/02/17 2025/12/30	
028/2025	PAYA LEBAR AIRPORT – CRANES		2025/02/17 2025/12/31	
029/2025	PAYA LEBAR AIRPORT – CRANES		2025/02/17 2025/12/31	
030/2025	PAYA LEBAR AIRPORT – TOPLESS CRANES		2025/02/17 2025/12/31	
034/2025	PAYA LEBAR AIRPORT – FLAT TOP CRANES		2025/02/17 2026/01/31	
036/2025	SINGAPORE CHANGI AIRPORT - STEEL AND FRANGIBLE FRAMES AND FRANGIBLE POSTS		2025/02/28 2026/01/02	
038/2025	SINGAPORE CHANGI AIRPORT – CLOSURE OF AIRCRAFT STAND 604 AT EAST CARGO APRON		2025/04/17 2026/02/19	
040/2025	PAYA LEBAR AIRPORT – MOBILE CRANE		2025/03/11 2026/03/20	
041/2025	PAYA LEBAR AIRPORT – TOWER CRANES		2025/03/11 2025/12/31	
043/2025	PAYA LEBAR AIRPORT – CRANES		2025/03/11 2026/02/12	
044/2025	PAYA LEBAR AIRPORT – CRANES		2025/03/11 2026/01/31	
045/2025	PAYA LEBAR AIRPORT – LUFFING CRANES		2025/03/11 2025/12/31	
046/2025	PAYA LEBAR AIRPORT – MOBILE CRANE		2025/03/11 2026/01/15	
047/2025	PAYA LEBAR AIRPORT – CRANES		2025/03/11 2025/12/31	
048/2025	PAYA LEBAR AIRPORT – CRANES		2025/03/11 2025/12/31	

NR/Year	Subject	AIP section(s) affected	Period of Validity	Cancellation record
049/2025	PAYA LEBAR AIRPORT – CRANES		2025/03/11 2026/12/31	
050/2025	PAYA LEBAR AIRPORT – CRANES		2025/04/10 2026/03/01	
051/2025	PAYA LEBAR AIRPORT – CRANES		2025/04/10 2026/03/05	
052/2025	PAYA LEBAR AIRPORT – CRANES		2025/04/10 2026/03/07	
054/2025	PAYA LEBAR AIRPORT – CRANES		2025/04/10 2026/03/05	
055/2025	PAYA LEBAR AIRPORT – CRANES		2025/04/10 2026/03/27	
057/2025	PAYA LEBAR AIRPORT – CRANE		2025/04/10 2025/12/31	
060/2025	PAYA LEBAR AIRPORT – CRANE		2025/04/10 2025/12/31	
061/2025	PAYA LEBAR AIRPORT – CRANES		2025/04/10 2025/12/31	
063/2025	PAYA LEBAR AIRPORT – CRANES		2025/04/10 2025/12/31	
064/2025	SINGAPORE CHANGI AIRPORT – APPLY MINIMUM THRUST AT EAST CARGO APRON		2025/05/05 2026/02/28	
065/2025	SINGAPORE CHANGI AIRPORT – TEMPORARY FIXED OBJECTS AT AIRCRAFT STAND 504 AND STRIPS OF RUNWAY 02L/20R, TAXIWAYS N2, W, W3, M4, AND M, USE OF SURVEY LASERS, SOLAR PANELS AND CONCRETE SLABS		2025/05/26 2027/08/31	
066/2025	PAYA LEBAR AIRPORT – CRANES		2025/05/15 2025/11/30	
067/2025	PAYA LEBAR AIRPORT – CRANE		2025/05/15 2026/04/14	
068/2025	PAYA LEBAR AIRPORT – CRANES		2025/05/15 2026/04/17	
069/2025	PAYA LEBAR AIRPORT – CRANES		2025/05/15 2026/04/22	
070/2025	PAYA LEBAR AIRPORT – CRANES		2025/05/15 2026/04/26	
071/2025	PAYA LEBAR AIRPORT – CRANES		2025/05/15 2026/04/17	
072/2025	PAYA LEBAR AIRPORT – MOBILE CRANE		2025/05/15 2025/12/31	
075/2025	PAYA LEBAR AIRPORT – CRANES		2025/05/15 2026/05/01	
076/2025	PAYA LEBAR AIRPORT – CRANES		2025/05/15 2026/05/01	
077/2025	PAYA LEBAR AIRPORT – CRANE		2025/05/15 2025/12/31	
078/2025	PAYA LEBAR AIRPORT – CRANES		2025/05/15 2026/05/01	
079/2025	PAYA LEBAR AIRPORT – CRANES		2025/05/15 2026/05/02	
080/2025	PAYA LEBAR AIRPORT – CRANES		2025/05/15 2026/05/01	

NR/Year	Subject	AIP section(s) affected	Period of Validity	Cancellation record
083/2025	PAYA LEBAR AIRPORT – CRANES		2025/05/29 2026/12/31	
084/2025	PAYA LEBAR AIRPORT – CRANE		2025/05/29 2026/12/31	
085/2025	PAYA LEBAR AIRPORT – CRANES		2025/07/31 2026/08/01	
086/2025	PAYA LEBAR AIRPORT – CRANE		2025/06/19 2026/07/31	
087/2025	PAYA LEBAR AIRPORT – CRANES		2025/06/19 2025/12/31	
088/2025	PAYA LEBAR AIRPORT – CRANE		2025/06/19 2026/01/31	
089/2025	PAYA LEBAR AIRPORT – CRANE		2025/06/19 2025/12/31	
090/2025	PAYA LEBAR AIRPORT – CRANES		2025/06/19 2026/05/16	
091/2025	SINGAPORE CHANGI AIRPORT – CHANGES TO PILOT DISPLAY INFORMATION ON THE AIRCRAFT DOCKING GUIDANCE SYSTEM(ADGS) - PILOT DISPLAY UNIT (PDU)		2025/08/07 PERM	
092/2025	PAYA LEBAR AIRPORT – CRANES		2025/07/10 2025/12/31	
093/2025	PAYA LEBAR AIRPORT – CRANES		2025/07/10 2026/06/01	
094/2025	PAYA LEBAR AIRPORT – CRANES		2025/07/10 2026/06/03	
095/2025	PAYA LEBAR AIRPORT – CRANE		2025/07/10 2026/06/05	
096/2025	PAYA LEBAR AIRPORT – CRANE		2025/07/10 2026/01/31	
097/2025	PAYA LEBAR AIRPORT – CRANE		2025/07/10 2025/12/31	
098/2025	PAYA LEBAR AIRPORT – CRANE		2025/07/10 2026/01/31	
099/2025	PAYA LEBAR AIRPORT – CRANE		2025/07/10 2026/01/31	
100/2025	PAYA LEBAR AIRPORT – CRANES		2025/07/10 2026/06/06	
101/2025	PAYA LEBAR AIRPORT – CRANE		2025/07/10 2026/01/07	
102/2025	PAYA LEBAR AIRPORT – CRANES		2025/07/10 2026/06/06	
103/2025	PAYA LEBAR AIRPORT – CRANES		2025/07/10 2026/06/06	
104/2025	PAYA LEBAR AIRPORT – CRANES		2025/07/10 2026/06/06	
105/2025	PAYA LEBAR AIRPORT – CRANES		2025/07/10 2026/06/09	
106/2025	PAYA LEBAR AIRPORT – CRANES		2025/07/10 2026/06/09	
107/2025	PAYA LEBAR AIRPORT – FRANGIBLE TOWERS		2025/07/10 2025/12/31	
108/2025	PAYA LEBAR AIRPORT – CRANE		2025/07/10 2026/12/31	

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109/2025	PAYA LEBAR AIRPORT – CRANES		2025/07/10 2026/06/13	
110/2025	PAYA LEBAR AIRPORT – CRANE		2025/07/10 2025/10/31	
111/2025	PAYA LEBAR AIRPORT – CRANE		2025/07/10 2026/01/31	
112/2025	PAYA LEBAR AIRPORT – CRANES		2025/07/10 2026/06/19	
113/2025	PAYA LEBAR AIRPORT – CRANES		2025/07/10 2026/06/20	
114/2025	PAYA LEBAR AIRPORT – CRANE		2025/07/10 2026/12/21	
115/2025	PAYA LEBAR AIRPORT – CRANES		2025/07/10 2025/12/31	
116/2025	PAYA LEBAR AIRPORT – CRANE		2025/07/10 2026/06/25	
117/2025	PAYA LEBAR AIRPORT – CRANES		2025/07/10 2026/06/30	
119/2025	SINGAPORE CHANGI AIRPORT – UPDATED INFORMATION AND DATA FOR RUNWAY 02R/20L		2025/09/04 2026/02/18	
120/2025	SINGAPORE CHANGI AIRPORT – UPDATED CLOSURE SCHEDULES FOR RUNWAY 02L/ 20R AND RUNWAY 02C/20C		2025/09/04 2027/03/31	
121/2025	AIRSPACE CLOSURE KUALA LUMPUR AND SINGAPORE FIRS EXERCISE BERSAMA LIMA 2025 240001UTC SEPT 25 TO 051100UTC OCT 2025		2025/09/24 2025/10/05	
122/2025	PAYA LEBAR AIRPORT – CRANES		2025/08/14 2026/07/16	
123/2025	PAYA LEBAR AIRPORT – CRANE		2025/08/14 2026/01/31	
124/2025	PAYA LEBAR AIRPORT – CRANES		2025/08/14 2026/07/11	
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143/2025	PAYA LEBAR AIRPORT – CRANE		2025/09/11 2026/08/19	
144/2025	PAYA LEBAR AIRPORT – CRANE		2025/09/11 2026/08/01	
145/2025	PAYA LEBAR AIRPORT – CRANES		2025/09/11 2026/01/10	
146/2025	SINGAPORE CHANGI AIRPORT – CLOSURE OF AIRCRAFT STAND 504 AT WEST CARGO APRON		2025/10/30 2027/01/21	
147/2025	SINGAPORE CHANGI AIRPORT – LONG TERM CLOSURE OF AIRCRAFT STAND E5 AT TERMINAL 2, SINGAPORE CHANGI AIRPORT		2025/10/30 2026/05/29	
148/2025	SINGAPORE CHANGI AIRPORT – TEMPORARY CLOSURE AT THE JUNCTION OF TAXIWAY W1, TAXIWAY W AND TAXIWAY V1		2025/10/30 2026/03/31	

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GEN 1.2 ENTRY, TRANSIT AND DEPARTURE OF AIRCRAFT

1 INTRODUCTION

1.1 International flights into, from or over Singapore territory shall be subject to the current Singapore regulations relating to civil aviation. These regulations correspond in all essentials to the Standards and Recommended Practices contained in Annex 9 to the Convention on International Civil Aviation.

1.2 Aircraft flying into or departing from Singapore territory shall make their first landing at, or final departure from an international aerodrome (see AIP Singapore page AD 1.3-1 and section AD 2).

1.3 Notwithstanding the regulations relating to civil aviation over Singapore territory, aircraft operators should consult the respective AIPs for other documentary and / or permit requirements for flights intending to enter, depart, and / or overfly the sovereign airspaces of States along the planned flight routes.

1.4 In particular, for Indonesian sovereign airspace within portions of airspace in which Singapore provides Air Traffic Services (ATS) (see ENR 2.1), aircraft operators should also consult AIP Indonesia GEN 1.2 Entry, Transit and Departure of Aircraft at https://iwish.kemenhub.go.id/ for Indonesia's requirements for flights intending to enter, depart, and/or overfly its sovereign airspace. Please note that this AIP's reference to these requirements is without prejudice to Singapore's legal position on such requirements.

2 APPLICATION FOR SLOTS AT SINGAPORE CHANGI AIRPORT

2.1 Singapore Changi Airport is a slot coordinated airport, with Changi Airport Group (CAG) as the Slot Coordinator. To ensure efficiency of aircraft operations and optimisation of airport resources, all operators of scheduled and non-scheduled (commercial and non-commercial) flights must obtain slots from the Changi Slot Coordinator prior to the operation of such flights.

2.2 To apply for slots for access to Singapore Changi Airport, all operators or agents of non-scheduled, commercial and non-commercial flights shall submit applications for slots via either a Slot Clearance Request (SCR), or for operators without a 2-letter IATA airline code, a General (Aviation) Clearance Request (GCR) to the Changi Slot Coordinator at csc@changiairport.com.

Changi Slot Coordinator
c/o Changi Airport Group (Singapore) Pte Ltd
Singapore Changi Airport
P.O. Box 168
Singapore 918146
Tel: +65 6541 2378 or +65 6541 3064

2.3 Operators or agents of non-scheduled, commercial and non-commercial flights shall submit their slot requests to the Changi Slot Coordinator no later than 72 hours prior to the operation of the flight, for which the slot will be utilised.

2.4 To facilitate the optimisation of aircraft parking resources at Singapore Changi Airport, operators or agents of non-scheduled, commercial and non-commercial flights are strongly advised to limit their ground time to no more than 24 hours from the arrival slot timing.

2.5 For urgent non-scheduled, commercial (including ad hoc changes to scheduled flights) and non-commercial flight operations that are less than 24 hours from the proposed date of operation, in addition to submitting the SCR/GCR, operators/ agents must also inform the Airside Operations Section of CAG (Airside Control Centre) at changi.airside@changiairport.com or +65 8533 4558 / +65 6541 2151.

2.6 **EXEMPT FLIGHTS**

Notwithstanding paragraph 2.1, the following types of flights may operate to / from Singapore Changi Airport without obtaining slots from the Changi Slot Coordinator:

- Emergency landings. e.g. diversions or quick returns after takeoff, oil spill response operations
- Flights operating under diplomatic cover
- Flights operated by the military, including those carrying supplies but excluding those chartered on a commercial basis by the military
- Humanitarian flights including those responding to medical emergencies where the safety of human life is concerned or involved in search and rescue operations
- Technical flights including radar and NAVAID calibration / check flights

2.7 RESTRICTIONS ON OPERATIONS AT SINGAPORE CHANGI AIRPORT

2.7.1 All scheduled operations using passenger aircraft with a capacity of less than 150 seats are not permitted at Singapore Changi Airport during the following peak hours. Exceptions may be granted for scheduled operations going to/coming from airports with restrictions on larger aircraft types.

Arrival Peak Hours		Departure Peak Hours	
In UTC	In Local Time	In UTC	In Local Time
0900 to 1059	1700 to 1859	1600 to 1759	0000 to 0159
1600 to 1759	0000 to 0159	2300 to 0159	0700 to 0959

2.7.2 All scheduled and non-scheduled (commercial and non-commercial) propeller aircraft operations are not permitted at Singapore Changi Airport.

3 SUBMISSION OF FLIGHT DETAILS AND APPLICATION FOR SLOTS AT SELETAR AIRPORT

3.1 Seletar Airport is a schedules facilitated airport, with Changi Airport Group (CAG) as the Seletar Schedules Facilitator. To ensure efficiency of aircraft operations and optimisation of airport resources, all operators of non-scheduled (commercial and non-commercial) flights must submit details of their planned operations to the Seletar Schedules Facilitator prior to these operations. Operators shall also be prepared to make adjustments to their schedules when necessary as advised by the Seletar Schedules Facilitator to ensure that airport capacity parameters are not exceeded. In addition, all operators of scheduled flights must obtain slots from the Seletar Schedules Facilitator prior to the operation of such flights. No operation will be permitted without the approval of the Seletar Schedules Facilitator.

3.2 For non-scheduled (commercial and non-commercial) flight operations, operators or agents shall submit details of their planned operations to seletar.airside@changiairport.com during the flights submission window, defined as no earlier than 7 calendar days but no later than 1400 UTC / 2200 LT on the day prior to the planned operations.

3.3 For urgent non-scheduled (commercial and non-commercial) flight operations of which details were not submitted during the flights submission window, operators or agents must submit the details to seletar.airside@changiairport.com and call to inform the Airside Operations Section of Seletar Airport at
+65 6481 5077.

3.4 Operators or agents shall include the following details of the flight operations in their submission:

- Name of operator and appointed ground handling agent;
- Date and time of arrival and departure (in local time);
- Aircraft type and seat capacity;
- Origin and destination;
- Aircraft registration number; and
- Purpose of flight (e.g. business aviation; general aviation; cargo; maintenance, repair and operations (MRO); etc.).

3.5 For scheduled flight operations, operators shall submit applications for slots via a Slot Clearance Request (SCR) to csc@changiairport.com.

3.6 All operators shall adhere to the Worldwide Airport Slot Guidelines (WASG). A copy of this document can be obtained from https://www.iata.org/en/programs/ops-infra/slots/slot-guidelines/

3.7 EXEMPT FLIGHTS

3.7.1 Notwithstanding paragraph 3.1, the following types of flights may operate to / from Seletar Airport without submitting details of their flight operations to the Seletar Schedules Facilitator during the flights submission window as stipulated in paragraph 3.2:

- Emergency landings, e.g. diversions or quick returns after takeoff, oil spill response operations;
- Flights operating under diplomatic cover;
- Flights operated by the military, including those carrying supplies but excluding those chartered on a commercial basis by the military;
- Humanitarian flights including those responding to medical emergencies where the safety of human life is concerned or involved in search & rescue operations; and
- Technical flights including radar and NAVAID calibration /check flights.

3.7.2 However, operators or agents of exempt flights shall call to inform the Airside Operations Section of Seletar Airport at +65 6481 5077 of their flight operations in advance.

– Newspapers, books and magazines
– Pre-recorded cartridges and cassettes
– Telecommunication and radio communication equipment
– Toy walkie-talkies
– Arms and explosives
– Bulletproof clothing
– Toy guns, pistols, and revolvers
– Weapons, kris, spears and swords
– Medicines and pharmaceutical products
– Poisons
– Dangerous Cargo
– Ionising Radiation (IR) irradiating apparatus & Radioactive material (e.g. x-ray equipment)
– Non-ionising Radiation (IR) irradiating apparatus (e.g. ultraviolet sunlamps)
– Telecommunication and radio communication equipment

Please visit the Immigration & Checkpoints Authority (ICA) website for more information on controlled and prohibited goods .

2 IMMIGRATION REQUIREMENTS

2.1 All passengers are required to present themselves with their travel documents, and endorsements (if necessary).

All travellers, including Singapore Citizens, Permanent Residents, Long-Term Pass holders and foreign visitors, are required to electronically submit their pre-trip health and travel history declarations to the Immigration & Checkpoints Authority (ICA) via the SG Arrival Card (SGAC) e-Service, before arriving in Singapore. This does not apply to those transiting/transferring through Singapore without seeking immigration clearance.

All travellers seeking entry into Singapore are required to comply with Singapore's border control requirements, which can be found at https://www.ica.gov.sg/enter-transit-depart.

2.2 Any person entering Singapore from a place outside Singapore, or is leaving Singapore for a place outside Singapore (including aircrew entering or leaving Singapore on functional check flights) shall present to an immigration officer at an authorised airport, a valid passport or a valid travel document recognised by the Government of Singapore (in the case of an alien, a visa for Singapore where such a visa is required) with the exception of the following persons:

a) A member of the Singapore Armed Forces travelling on duty;
b) A member of such Visiting Forces as the Minister may determine;
c) Any child or person who is included in the passport or other travel document of a parent of the child, or of a spouse or other relative of the person and is accompanying that parent, spouse or relative (as the case may be) when travelling to and leaving from Singapore.

2.3 Nationals of the following countries require visas for the purpose of social visits in Singapore (with exception of an aircrew who is an airline crew member that, in the course of a journey on duty from a place outside Singapore to Singapore, or from a place outside Singapore to a place outside Singapore, calls at an authorised airport):

– Afghanistan
– Algeria
– Bangladesh*
– Commonwealth of Independent States**
– Democratic People's Republic of Korea (North Korea)
– Egypt
– Georgia*
– India*
– Iran
– Iraq
– Jordan*
– Kosovo
– Lebanon
– Libya
– Mali
– Morocco*
– Nigeria*
– Pakistan
– Somalia

– South Sudan^
– Sudan
– Syria
– Tunisia*
– Turkmenistan*
– Ukraine*
– Yemen
– Holders of Alien's passport

Visitors holding Hong Kong Document of Identity, Macao Special Administrative Region (MSAR) Travel Permit, Palestinian Authority Passport, Refugee Travel Document**, Temporary Passport issued by United Arab Emirates, and PRC Travel Document will also require a visa to enter Singapore.

^ South Sudan has been recognised as a sovereign state, with AL2 visa to be imposed. Only the ordinary and official South Sudan TDs has been assessed to be recognised for entry.

* Commonwealth of Independent States (CIS): Armenia, Azerbaijan, Belarus, Kazakhstan, Krygyzstan, Moldova, Russia, Tajikistan, and Uzbekistan.

** Refugee Travel Documents are subjected to assessment of recognition for entry into Singapore.

Nationals of Commonwealth of Independent States (Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, and Uzbekistan), Georgia, Turkmenistan, and Ukraine may qualify for the 96-hour visa free transit facility (VFTF) provided that:

a) the person is in transit to a third country;
b) the person holds a valid passport, confirmed onward air-ticket, entry facilities (including visa) to the third country and have sufficient funds for the period of stay in Singapore;
c) the person continues his journey to the third country within 96 hours visa free period granted; and
d) the person satisfies Singapore's entry requirements.

Nationals of India, as well as Nationals of the People's Republic of China (PRC) holding other travel documents issued by the PRC^ (excluding ordinary, diplomatic, public affairs and service passports) may qualify for the 96-hour VFTF provided that:

a) the person is in transit to or from a third country via Singapore by any mode of transport and will depart via air or sea;
b) the person holds a valid passport and confirmed onward air/ferry/cruise ticket for departure from Singapore within 96 hours;
c) the person has a valid visa*/long-term pass (with a validity of at least 1 month from the date of entry into Singapore under the VFTF) issued by any of the following countries:
   – Australia
   – Canada
   – Germany
   – Japan
   – New Zealand
   – Switzerland
   – United Kingdom
   – United States of America

^ These include the PRC Travel Document, Hong Kong Special Administrative Region (SAR) Document of Identity (DOI) and Macau SAR Travel Permit.

* A visa is considered valid so long as it is issued by/ good for entry into one of the eight countries listed above. Travellers with Single Journey Visas (SJV) may still be granted VFTF on the return leg of their journey (i.e. after the SJV is used and no longer valid), but:

– the person must travel directly from the country that issued the SJV, en route through Singapore, back to their home country
– the person must not have returned to their home country since they last used the SJV.

2.4 Visitors must satisfy the following basic entry requirements before they are allowed to enter Singapore:

a) They are in possession of passports with at least 6 months' validity with assurance of their re-entry into their countries of residence or origin;
b) They have sufficient funds to last for the intended period of stay in Singapore;

GEN 1.6 SUMMARY OF NATIONAL REGULATIONS AND INTERNATIONAL AGREEMENTS/ CONVENTIONS

1 LIST OF CIVIL AVIATION LEGISLATION, AIR NAVIGATION REGULATIONS AND ORDERS

The following is a list of legislation (Acts and subsidiary legislation) affecting aviation and air navigation in the Republic of Singapore together with the International Agreements/Conventions ratified or acceded to by the Republic of Singapore. It is essential that anyone engaged in air operations be acquainted with the relevant legal documents.

Copies of the legislation may be obtained as follows:

Electronic versions of the legislation may be freely accessed at
https://sso.agc.gov.sg
https://www.caas.gov.sg/legislation-regulations/legislation

Electronic versions of all Singapore legislation may be accessed via subscription to Lawnet at
https://www.lawnet.sg

Print copies of all the legislation may be purchased (by post) from:

Post:	Toppan Next Pte. Ltd., No. 1 Kim Seng Promenade, #18-01, Great World City, East Lobby Singapore 237994.
Tel:	(65) 68269600
Fax:	(65) 68203341
URL:	www.toppannext.com

1.1 CIVIL AVIATION LEGISLATION

No	Legislation	Citation
Civil Aviation Authority of Singapore Act & related legislation		
1	Civil Aviation Authority of Singapore Act 2009	
2	Civil Aviation Authority of Singapore (Airport Development Levy) Order 2018	S437/2018
3	Civil Aviation Authority of Singapore (Aviation Levy) Order 2018	S522/2018
4	Civil Aviation Authority of Singapore (Changi Airport) By-laws 2009	S313/2009
5	Civil Aviation Authority of Singapore (Changi Airport) Notification 2009	S293/2009
6	Civil Aviation Authority of Singapore (Composition of Offences) Regulations 2009	S315/2009
7	Civil Aviation Authority of Singapore (Seletar Airport) By-laws 2009	S314/2009
8	Civil Aviation Authority of Singapore (Seletar Airport) Notification 2009	S294/2009
Air Navigation Act & related legislation		
9	Air Navigation Act 1966	
10	Air Navigation Order	O 2
11	Air Navigation (101 - Unmanned Aircraft Operations) Regulations 2019	S 833/2019
12	Air Navigation (119 – Air Operator Certification) Regulations 2018	S 443/2018
13	Air Navigation (121 – Commercial Air Transport by Large Aeroplanes) Regulations 2018	S 444/2018
14	Air Navigation (125 – Complex General Aviation) Regulations 2018	S 501/2018
15	Air Navigation (135 – Commercial Air Transport by Helicopters and Small Aeroplanes) Regulations 2018	S 445/2018
16	Air Navigation (137 – Aerial Work) Regulations 2018	S 502/2018
17	Air Navigation (139 – Aerodromes) Regulations 2023	S 10/2023
18	Air Navigation (91 – General Operating Rules) Regulations 2018	S441/2018
19	Air Navigation (92 – Carriage of Dangerous Goods) Regulations 2022	S998/2022
20	Air Navigation (98 – Special Operations) Regulations 2018	S442/2018
21	Air Navigation (99 - Breath Testing for Alcohol) Regulations 2019	S177/2019
22	Air Navigation (Aviation Security) Order	O 5
23	Air Navigation (Carbon Emissions and Reporting) Regulations 2022	S997/2022
24	Air Navigation (Composition of Offences) Rules 2017	S667/2017
25	Air Navigation (Licensing of Air Services) Regulations	RG 2
26	Air Navigation (Paya Lebar and Tengah Aerodrome Fees) Order	O 1
27	Air Navigation (Prohibited Flights) Order	O 6
28	Air Navigation (Protected Areas – Army Division Facilities) Order 2024	S341/2024
29	Air Navigation (Protected Areas – Army Headquarters and Formation Facilities) Order 2024	S340/2024
30	Air Navigation (Protected Areas – Catchment and Waterways Facilities) Order 2024	S124/2024
31	Air Navigation (Protected Areas – Military Offshore Facilities) Order 2024	S344/2024
32	Air Navigation (Protected Areas – Military Training-1 Facilities) Order 2024	S345/2024
33	Air Navigation (Protected Areas – Military Training-2 Facilities) Order 2024	S346/2024
34	Air Navigation (Protected Areas – Military Training-3 Facilities) Order 2024	S347/2024
35	Air Navigation (Protected Areas – Non-Military Places) Order 2024	S126/2024
36	Air Navigation (Protected Areas – Public Hospitals) Order 2024	S122/2024
37	Air Navigation (Telecommunication Facilities) Order 2024	S123/2024
38	Air Navigation (Protected Areas – Republic of Singapore Air Force Facilities) Order 2024	S342/2024

GEN 1.7 DIFFERENCES FROM ICAO STANDARDS, RECOMMENDED PRACTICES AND PROCEDURES

ANNEX 1 **Personnel Licensing**, 13th Edition

Chapter 2

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

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 section ENR 1.7 para 4.4.

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

- NIL Difference

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,** 20th Edition

- NIL Difference

ANNEX 4 **Aeronautical Charts,** 11th Edition

- NIL Difference

ANNEX 5 **Units of Measurement to be used in Air and Ground Operations**, 5th Edition

- NIL Difference

ANNEX 6 **Operation of Aircraft**

Part I (International Commercial Air Transport - Aeroplanes) - 11th Edition

Chapter 12

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) - 10th Edition

- NIL Difference

Part III (International Operations - Helicopters) - 10th Edition

- NIL Difference

ANNEX 7 **Aircraft Nationality and Registration Marks,** 6th Edition

- NIL Difference.

ANNEX 8 **Airworthiness of Aircraft,** 12th Edition

- NIL Difference

ANNEX 9 **Facilitation**, 17th Edition

Chapter 3

3.16.1 Singapore adopts an electronic visa system (e-Visa) to retrieve information to verify the identity of the visa holder.

3.29 Singapore requires all travellers, including Singapore Citizens, Permanent Residents, Long-Term Pass holders and foreign visitors, to complete an electronic SG Arrival Card (SGAC) before/upon arrival in Singapore.

3.51 Singapore may allow the entry of an inadmissible person under special circumstances; for instance, to seek emergency medical treatment. In such cases, the airlines shall continue to be responsible for the custody and care of the passenger and eventual repatriation.

3.71 With effect from 27 Aug 2007, air crew who arrive in Singapore on crew duty and seeking temporary entry into Singapore are required to produce their passports for immigration clearance. However, their passports will not be endorsed. Crew who are nationals of countries that require visa to enter Singapore will continue to be exempted from the visa requirements if they arrive in Singapore as part of their crew duty or to join their assigned flights for the purpose of performing their crew duty.

Chapter 5

5.9.1 Under Singapore's regulations, the cost of custody and care of inadmissible persons pending their removal shall be borne by the aircraft operator.

5.18 The obligations, responsibilities, and costs associated with the removal of deportees are a shared responsibility. Singapore works closely with foreign diplomatic missions to facilitate the removal of deportees.

5.23 A valid travel document is required before any special consideration can be given to the admission of such persons. For Permanent Residents, entry permit and valid Travelling documents are required before entry is granted.

5.29 The required travel document to facilitate the return of the national will be issued upon confirmation of the person's Singapore Citizenship status.

ANNEX 10 **Aeronautical Telecommunications**

Volume I (Radio Navigation Aids) - 7th Edition

Volume II (Communication Procedures including those with PANS status) - 7th Edition

Volume III (Communication Systems) - 2nd Edition
Part I - Digital Data Communication Systems
Part II - Voice Communication Systems

Volume IV (Surveillance and Collision Avoidance Systems) - 5th Edition

Volume V (Aeronautical Radio Frequency Spectrum Utilization) - 3rd Edition

- NIL Difference

ANNEX 11 **Air Traffic Services**,15th Edition
- NIL Difference

ANNEX 12 **Search and Rescue**, 8th Edition
- NIL Difference

ANNEX 13 **Aircraft Accident and Incident Investigation**, 13th Edition
- NIL Difference

ANNEX 14 **Aerodromes**

Volume I (Aerodrome Design and Operations) - 8th Edition

Chapter 3

3.4.3 The words “wherever practicable” in Annex 14 paragraph 3.4.3 have been removed in our national regulations. Without exception, the width of the runway strip shall be 140m where the code number is 3 or 4; and 70m where the code number is 1 or 2.

Chapter 4

4.2.14 For a precision approach runway category I, the inner approach surface; inner transitional surfaces; and balked landing surface shall be established, in addition to the conical surface; inner horizontal surface; approach surface and transitional surfaces.

Chapter 6

6.1.1.6 Annex 14 paragraph 6.1.1.6(c) which states that the marking may be omitted when the obstacle is lighted by high-intensity obstacle lights by day has been removed from our national regulations.

Chapter 7

7.4.1 Relating to the display of unserviceability markers, our national regulations require additionally that “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 Relating to the level of rescue and fire fighting protection to be provided, the remission factor has been removed from our national regulations.

Volume II (Heliports) - 5th Edition
- Not applicable

ANNEX 15 **Aeronautical Information Services**, 16th Edition
- NIL Difference

ANNEX 16 **Environmental Protection**

Volume I (Aircraft Noise) - 8th Edition

Volume II (Aircraft Engine Emissions) - 4th Edition

Volume III (Aeroplane CO? Emissions) - 1st Edition
- NIL Difference

ANNEX 17 **Aviation Security - Safeguarding International Civil Aviation Against Acts of Unlawful Interference**, 12th Edition
- NIL Difference

ANNEX 18 **The Safe Transport of Dangerous Goods by Air,** 4th Edition
- NIL Difference

ANNEX 19 **Safety Management**, 2nd Edition
- NIL Difference

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

NOTAM exchanged with other NOF (R=Received only, S=Sent only, EAD=Received from/Sent to European AIS Database)		
Abu Dhabi	Jakarta	Paro (R)
Addis Ababa	Jeddah	Phnom Penh (R)
Almaty (EAD)	Johannesburg	Plaisance
Amman (EAD)	Kabul	Port Moresby
Amsterdam (EAD)	Karachi	Praha (S)
Ankara (EAD)	Kathmandu	Pyongyang
Antananarivo	Khartoum (R)	Riga (EAD)
Athinai	Kobenhavn (EAD)	Roma
Baghdad	Kolkata	Sanaa
Bahrain	Kuala Lumpur	Sarajevo (S)
Baku (EAD)	Kuwait	Seoul
Bangkok	Kyiv (EAD)	Shannon (EAD)
Beijing	Lisboa (EAD)	Sofia
Beograd (EAD)	Ljubljana (EAD)	Stockholm (EAD)
Brasilia (S)	Lobamba (R)	Taipei
Brazzaville (R)	London (EAD)	Tallinn (EAD)
Brunei	Luqa (EAD)	Tbilisi (EAD)
Bruxelles (EAD)	Macao	Tehran
Bucuresti (EAD)	Madrid (EAD)	Tel Aviv
Budapest (EAD)	Mahé	Tirana (EAD)
Cairo (S)	Male	Tokyo
Canberra	Manila (EAD)	Tripoli
Chennai	Maseru (R)	Vientiane
Christchurch	Minsk (EAD)	Vilnius (EAD)
Colombo	Moskva	Warsaw (S) (EAD)
Damascus (R)	Mumbai	Washington
Dar es-Salaam (R)	Muscat	Wien (EAD)
Dhaka	Nadi	Windhoek (R)
Frankfurt (EAD)	Nairobi	Yangon
Hanoi	New Delhi	Yerevan (S) (EAD)
Harare	Nicosia (EAD)	Zagreb (EAD)
Helsinki (EAD)	Ottawa	Zurich
Hong Kong	Paris (EAD)	

SNOWTAM

Series S (SNOWTAM) comprises information concerning the presence or cessation of hazardous conditions due to snow, ice, slush, frost, standing water or water associated with snow, slush, ice or frost on the movement area.

SNOWTAM is issued for Singapore Changi Airport and Seletar Airport in accordance with ICAO PANS-AIM (Doc 10066), Appendix 4 by the International NOTAM Office (NOF).

Pre-flight Information Bulletin (PIB), a recapitulation of valid NOTAM in plain language, can be retrieved from AIM-SG URL: https://aim-sg.caas.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 Aeronautical Charts

Aeronautical charts are a visual representation of a portion of the Earth specifically designated to meet the needs of air navigation.

3.8 Sale of publications

The Aeronautical Information Products can be accessed freely via AIM-SG URL: https://aim-sg.caas.gov.sg.

3.8.1 AIRAC SYSTEM

3.8.1.1 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.

3.8.1.2 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 2022 to 2026:

AIRAC Effective Dates				
Year 2022	Year 2023	Year 2024	Year 2025	Year 2026
27 January	26 January	25 January	23 January	22 January
24 February	23 February	22 February	20 February	19 February
24 March	23 March	21 March	20 March	19 March
21 April	20 April	18 April	17 April	16 April
19 May	18 May	16 May	15 May	14 May
16 June	15 June	13 June	12 June	11 June
14 July	13 July	11 July	10 July	09 July
11 August	10 August	08 August	07 August	06 August
08 September	07 September	05 September	04 September	03 September
06 October	05 October	03 October	02 October	01 October
03 November	02 November	31 October	30 October	29 October
01 December	30 November	28 November	27 November	26 November
29 December	28 December	26 December	25 December	24 December

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

3.8.1.4 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 for a duration of 14 days.

3.8.2 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://aim-sg.caas.gov.sg
SELETAR		

3.8.3 DIGITAL DATA SETS

To be developed.

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GEN 3.2 AERONAUTICAL CHARTS

3.2.1 Responsible Services

3.2.1.1 The Civil Aviation Authority of Singapore publishes a range of aeronautical charts for use by all types of civil aviation. The Aeronautical Information Services produces some of these charts which are part of the AIP. The charts published in the AIP are produced in accordance with the provisions contained in the ICAO documents listed in para 1.2. Differences to the provisions contained in ICAO Annex 4 - Aeronautical Charts are detailed in subsection GEN 1.7

3.2.1.2 Applicable ICAO Documents

Annex 4	-	Aeronautical Charts, Eleventh Edition 2009.
Doc 8168-OPS/611	-	Aircraft Operations, Volume II - Construction of Visual and Instrument Flight Procedures, Fifth Edition 2006.

3.2.2 MAINTENANCE OF CHARTS

3.2.2.1 Aeronautical charts published in the AIP are updated regularly. Significant changes or revisions in aeronautical information for other aeronautical charts are also included in the amendment.

3.2.2.2 Information found to be incorrect after publication will be corrected by an AIC or NOTAM if they are of operational significance.

3.2.3 PURCHASE ARRANGEMENTS

3.2.3.1 The charts listed in paragraph 4.1 can be accessed freely via AIM-SG URL: https://aim-sg.caas.gov.sg

3.2.4 AERONAUTICAL CHART SERIES AVAILABLE

3.2.4.1 The following series of aeronautical charts are produced:

a) World Aeronautical Chart - ICAO;
b) Aerodrome Chart - ICAO;
c) Aerodrome Obstacle Chart - ICAO Type A (for each runway);
d) Aerodrome Obstacle Chart - ICAO Type B;
e) Precision Approach Terrain Chart - ICAO
f) Enroute Chart - ICAO;
g) Area Chart - ICAO;
h) Standard Departure Chart - Instrument (SID) - ICAO;
i) Standard Arrival Chart - Instrument (STAR) - ICAO;
j) Instrument Approach Chart - ICAO (for each runway and procedure type);
k) Visual Approach Chart - ICAO

3.2.4.2 General description of each series

a) **World Aeronautical Chart - ICAO 1: 1 000 000**

This series is constructed on Lambert Conformal Conic Projection with two standard parallels at 0 deg 40 min and 3 deg 20 min. This spheroid is World Geodetic System 1984 (WGS84). The aeronautical data shown have been kept to a minimum, consistent with the use of the chart for visual air navigation.It includes a selection of aerodromes, significant obstacles, elements of the ATS system, prohibited, restricted and danger areas, and radio navigation aids. The chart provides information to satisfy visual air navigation and is also used as a pre-flight planning chart.

b) **Aerodrome Chart - ICAO**

This chart contains detailed aerodrome data to provide flight crews with information that will facilitate the ground movement of aircraft:

– from the aircraft stand to the runway; and
– from the runway to the aircraft stand;

It also provides essential operational information at Singapore Changi Airport and Seletar Aerodrome.

c) **Aerodrome Obstacle Chart - ICAO Type A (operating limitations)**

This chart contains detailed information on obstacles in the take-off flight path areas of Singapore Changi Airport, Seletar Aerodrome and Paya Lebar Airport. It is shown in plan and profile view. This obstacle information provides the data necessary to enable an operator to comply with the operating limitations of ICAO Annex 6, Parts I and II, Chapter 5.

d) **Aerodrome Obstacle Chart - ICAO Type B**

This chart is produced to assist in the determination of critical heights for Singapore Changi Airport and Seletar Aerodrome.

e) **Precision Approach Terrain Chart - ICAO**

This chart provides detailed terrain profile information within a defined portion of the final approach so as to enable aircraft operating agencies to assess the effects of the terrain on decision height determination by the use of radio altimeters. This chart is produced for the precision approach Cat II runways at Singapore Changi Airport.

f) **Enroute Chart - ICAO**

This chart is produced for the entire Singapore FIR. The aeronautical data include all aerodromes, prohibited, restricted and danger areas and the air traffic services system in detail. This chart provides the flight crew with information to facilitate navigation along ATS routes in compliance with air traffic services procedures.

g) **Area Chart - ICAO**

This chart is produced when the air traffic services routes or position reporting requirements are complex and cannot be shown on the En-route Chart - ICAO. It shows, in more detail, those aerodromes that affect terminal routings, prohibited, restricted and danger areas and the air traffic services system. This chart provides the flight crew with information to facilitate the various phases of instrument flight:

– the transition between the en-route phase and the approach to an aerodrome;
– the transition between the take-off/missed approach and the en-route phase of flight; and
– flights through areas of complex ATS routes or airspace structure.

h) **Standard Departure Chart - Instrument (SID) - ICAO**

This chart is produced whenever a standard departure route - instrument has been established and cannot be shown with sufficient clarity on the Area Chart - ICAO.

The aeronautical data shown include the aerodrome of departure, aerodrome(s) which affect the designated standard departure route-instrument, prohibited, restricted and danger areas and the air traffic services system. This chart provides the flight crew with information that will enable them to comply with the designated standard departure route-instrument from the take-off phase to the en-route phase.

i) **Standard Arrival Chart - Instrument (STAR) - ICAO**

This chart is produced whenever a standard arrival route - instrument has been established and cannot be shown with sufficient clarity on the Area Chart - ICAO.

The aeronautical data shown include the aerodrome of landing, aerodrome(s) which affect the designated standard arrival route-instrument, prohibited, restricted and danger areas and the air traffic services system. This chart provides the flight crew with information that will enable them to comply with the designated arrival route-instrument from the en-route phase to the approach phase.

j) **Instrument Approach Chart - ICAO**

This chart is produced for all aerodromes used by civil aviation where instrument approach procedures have been established. A separate Instrument Approach Chart - ICAO has been provided for each approach procedure.

The aeronautical data shown include information on aerodromes, prohibited, restricted and danger areas, radio communication facilities and navigation aids, minimum sector altitude, procedure track portrayed in plan and profile view, aerodrome operating minima, etc.

This chart provides the flight crew with information that will enable them to perform an approved instrument approach procedure to the runway of intended landing including the missed approach procedure and where applicable, associated holding patterns.

k) **Visual Approach Chart - ICAO**

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

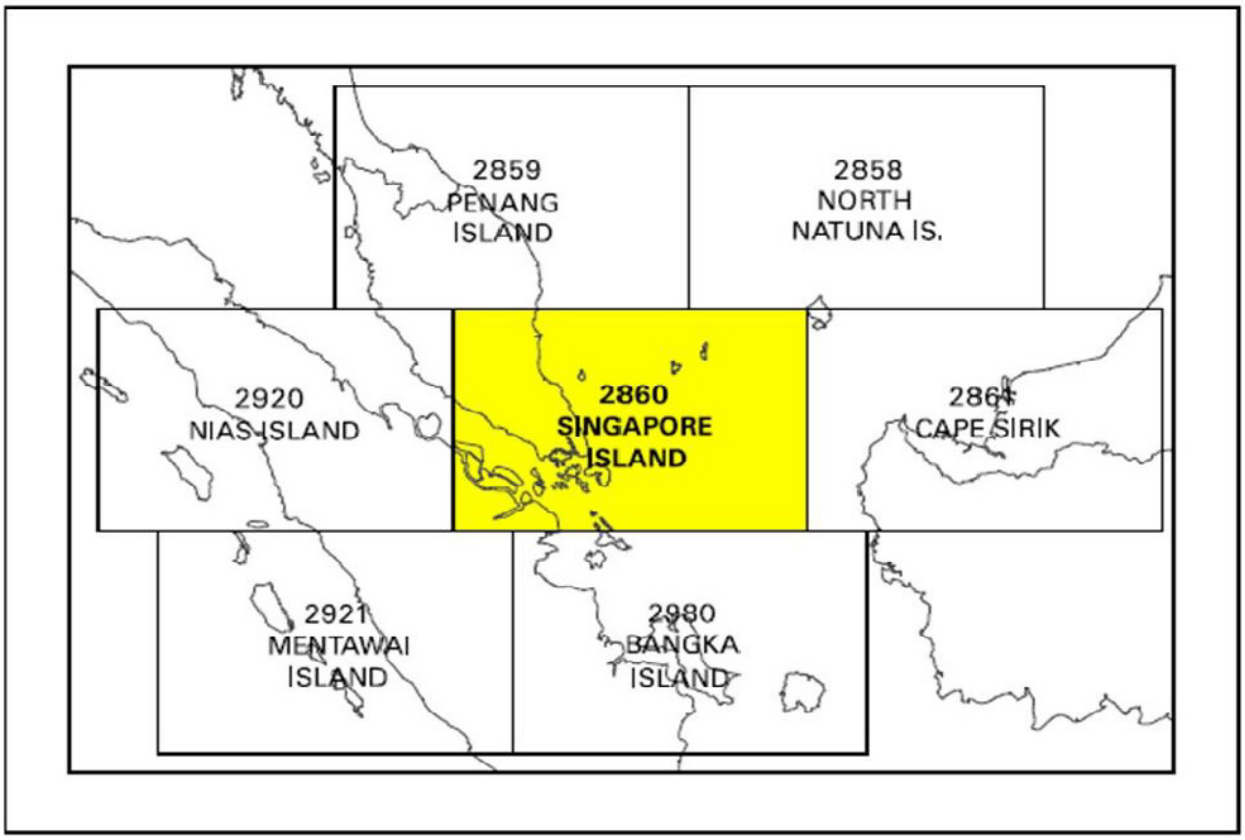
– only limited navigation facilities are available; or
– radio communication facilities are not available; or
– no adequate aeronautical charts of the aerodrome and its surroundings at 1:500 000 or greater scale are available; or
– visual approach procedures have been established

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

3.2.5 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 MAR 24
Enroute Chart ICAO (ENRC)			ERC 6-1	In AIP	05 SEP 24
Instrument Approach Chart ICAO (IAC)		**Singapore Changi**			
	1:400 000	RWY 02L - ICW ILS/DME	AD-2-WSSS-IAC-1	In AIP	20 FEB 25
	1:400 000	RWY 02C - ICE ILS/DME	AD-2-WSSS-IAC-2	In AIP	20 FEB 25
	1:400 000	RWY 02R - ICX ILS/DME	AD-2-WSSS-IAC-3	In AIP	20 FEB 25
	1:400 000	RWY 20R - ICH ILS/DME	AD-2-WSSS-IAC-5	In AIP	20 FEB 25
	1:400 000	RWY 20C - ICC ILS/DME	AD-2-WSSS-IAC-6	In AIP	20 FEB 25
	1:400 000	RWY 20C - VTK DVOR/DME	AD-2-WSSS-IAC-7	In AIP	20 FEB 25
	1:400 000	RWY 02L - RNP	AD-2-WSSS-IAC-9	In AIP	20 FEB 25
	1:400 000	RWY 02C - RNP	AD-2-WSSS-IAC-10	In AIP	20 FEB 25
	1:400 000	RWY 20R - RNP	AD-2-WSSS-IAC-11	In AIP	20 FEB 25
	1:400 000	RWY 20C - RNP	AD-2-WSSS-IAC-12	In AIP	20 FEB 25
	1:400 000	RWY 02R - RNP	AD-2-WSSS-IAC-13	In AIP	20 FEB 25
	1:400 000	RWY 20L - RNP	AD-2-WSSS-IAC-14	In AIP	31 OCT 24
		Paya Lebar			
	1:400 000	RWY 20 - PU DVOR/DME	In AIP	In AIP	20 FEB 25
	1:400 000	RWY 02 - PU DVOR/DME	In AIP	In AIP	20 FEB 25
	1:400 000	RWY 20 - IPS ILS/DME	In AIP	In AIP	20 FEB 25
	1:400 000	RWY 02 - IPN ILS/DME	In AIP	In AIP	20 FEB 25
	1:400 000	RWY 02 - RNP	In AIP	In AIP	20 FEB 25
	1:400 000	RWY 20 - RNP	In AIP	In AIP	20 FEB 25
Visual Approach Chart ICAO (VAC)	1:400 000	**Singapore Changi**	AD-2-WSSS-VAC-1	In AIP	20 FEB 25
		Seletar			
	1:100 000	RWY 03	AD-2-WSSL-VAC-1	In AIP	05 SEP 24
	1:100 000	RWY 21	AD-2-WSSL-VAC-2	In AIP	05 SEP 24
	1:100 000	RWY 03	AD-2-WSSL-VAC-3	In AIP	05 SEP 24
	1:100 000	RWY 21	AD-2-WSSL-VAC-4	In AIP	05 SEP 24
Visual Departure Chart		**Seletar**			
	1:100 000	RWY 03	AD-2-WSSL-VDC-1	In AIP	20 FEB 25
	1:100 000	RWY 21	AD-2-WSSL-VDC-2	In AIP	20 FEB 25
Aerodrome Chart ICAO (AC)		**Singapore Changi**	AD-2-WSSS-ADC-2	In AIP	02 OCT 25
		Seletar	AD-2-WSSL-ADC-1	In AIP	26 DEC 24
		Paya Lebar	AD-2-WSAP-ADC-1	In AIP	16 JUL 20
Aerodrome Obstacle Chart ICAO Type A (AOC)		**Singapore Changi**			
	1:10 000	RWY 20R/02L	AD-2-WSSS-AOC-1	In AIP	12 JUN 25
	1:10 000	RWY 20C/02C	AD-2-WSSS-AOC-2	In AIP	05 SEP 24
	1:10 000	RWY 02R/20L	AD-2-WSSS-AOC-4	In AIP	08 SEP 22
		Seletar			
	1:10 000	RWY 03/21	AD-2-WSSL-AOC-1	In AIP	16 JUL 20
		Paya Lebar			
	1:20 000	RWY 20/02	AD-2-WSAP-AOC-1	In AIP	24 MAR 22
Aerodrome Obstacle Chart ICAO Type B (AOC)		**Singapore Changi**			
	1:20 000	RWY 02L/20R, 02C/20C and RWY 02R/20L	AD-2-WSSS-AOC-3	In AIP	02 OCT 25
		Seletar			
	1:20 000	RWY 03/21	AD-2-WSSL-AOC-2	In AIP	16 JUL 20
Precision Approach Terrain Chart ICAO (PATC)		**Singapore Changi**			
	1:2 500	RWY 02L	AD-2-WSSS-PATC-1	In AIP	10 OCT 19
	1:2 500	RWY 20C	AD-2-WSSS-PATC-2	In AIP	11 JUL 24
	1:2 500	RWY 02R	AD-2-WSSS-PATC-3	In AIP	31 OCT 24
	1:2 500	RWY 20L	AD-2-WSSS-PATC-4	In AIP	31 OCT 24
	1:2 500	RWY 02C	AD-2-WSSS-PATC-5	In AIP	11 JUL 24

3.2.6 INDEX TO THE WORLD AERONAUTICAL CHART (WAC) - ICAO 1:1 000 000



3.2.7 TOPOGRAPHICAL CHARTS

NIL

3.2.8 CORRECTIONS TO CHARTS NOT CONTAINED IN THE AIP

Identification of charts	Location on the chart where the correction has to be made	Precise details of the corrections to be made
NIL	NIL	NIL

GEN 3.3 AIR TRAFFIC SERVICES

3.3.1 RESPONSIBLE SERVICE

3.3.1.1 The Director of the Air Traffic Services Division of the Civil Aviation Authority of Singapore (CAAS) acting under the authority of the Director-General of Civil Aviation is the authority responsible for the overall administration of air traffic services within the Singapore FIR.

Post: Director (Air Traffic Services)
Air Traffic Services Division
Civil Aviation Authority of Singapore
60 Airport Boulevard, #04-01, Changi Airport Terminal 2
Singapore 819643

Tel: (65) 65412669
Fax: (65) 6441 0221
AFS: WSJCZQZX

3.3.1.2 The services are provided in accordance with the provisions contained in the following ICAO documents:

Annex 2 – *Rules of the Air*

Annex 11 – *Air Traffic Services*

Doc 4444 – *Procedures for Air Navigation Services - Air Traffic Management (PANS-ATM)*

Doc 8168 – *Procedures for Air Navigation Services - Aircraft Operations (PANS-OPS)*

Doc 7030 – *Regional Supplementary Procedures*

3.3.1.3 Differences to these provisions are detailed in subsection GEN 1.7.

3.3.2 AREA OF RESPONSIBILITY

3.3.2.1 Air traffic services are provided for the entire territory of Singapore, including its territorial waters as well as the airspace over the high seas within the Singapore FIR.

3.3.2.2 In some cases, in accordance with the regional air navigation agreement, air traffic services are provided, under the delegated authority, in the airspace within another bordering FIR. Details of such services are provided in section ENR 2.

3.3.3 TYPES OF SERVICES

3.3.3.1 The following types of services are provided:

- Flight Information Service (FIS) and Alerting Service (ALRS);
- Area Control (ACC); and
- Radar

3.3.3.2 With the exception of services provided at military air bases, the following types of services are provided at aerodromes:

- Aerodrome Control (TWR);
- Aerodrome Flight Information Service (AFIS); and
- Automatic Terminal Information Service (ATIS) at certain aerodromes

3.3.3.3 Air Traffic Control is exercised:

a) on airways covering the main ATS routes;
b) within the Singapore/Johor Airspace Complex and in control zones at controlled aerodromes equipped with approach and/or landing aids.

3.3.3.4 Flight information service and alerting service within the Singapore FIR and air traffic control services in control areas are provided by one centre (ACC Singapore). There is no distinction between upper and lower controlled airspace. The axis of each airway is constituted by a line connecting reference points identified normally by radio navigational facilities.

3.3.3.5 Air traffic control, flight information and alerting services are provided by:

a) ACC Singapore along the airways including those parts of the airways traversing the Singapore/Johor Airspace Complex;
b) the relevant aerodrome control tower in coordination with ACC Singapore as necessary, for arriving and departing aircraft.

3.3.3.6 Radar service is an integral part of the ATS system. A description of radar services and procedures is provided in subsection ENR 1.6. Additional procedures applicable within the Singapore/Johor Airspace Complex are contained in subsection ENR 1.1.

3.3.3.7 The description of the airspace designated for air traffic services purpose is found in several tables, all forming part of sub-section ENR 2.1.

3.3.3.8 In general, the air traffic rules and procedures in force and the organisation of air traffic services are in conformity with ICAO Standards, Recommended Practices and Procedures. The regional supplementary procedures and altimeter setting procedures are set out in full. Differences between the national and international rules and procedures are given in sub-section GEN 1.7.

3.3.3.9 A few prohibited areas, restricted areas and danger areas are established within the Singapore/Johor Airspace Complex. These areas are shown in sub-section ENR 5.1. Activation of areas subject to intermittent activity is notified well in advance by NOTAM, giving reference to the area only by its identification.

3.3.3.10 4D/15 service is provided to the following category of aircraft:

a) Aircraft operating within areas of Singapore FIR where radar services is provided by ATC;
b) ADS-B equipped aircraft operating in ADS-B airspace; and
c) ADS-C equipped aircraft logged on to WSJC on routes providing ADS/CPDLC service.

3.3.4 COORDINATION BETWEEN THE OPERATOR AND ATS

3.3.4.1 Coordination between the operator and air traffic services is effected in accordance with Chapter 2, paragraph 2.17 of ICAO Annex 11 - Air Traffic Services and Chapter 11, paragraphs 11.2.1.1.2,11.2.1.1.4 and 11.2.1.1.5 ICAO Doc 4444 - Procedures for Air Navigation Services - Air Traffic Management (PANS-ATM).

3.3.5 MINIMUM FLIGHT ALTITUDE

3.3.5.1 The minimum flight altitudes on the ATS routes listed in section ENR 3, have been determined to ensure at least 1,000ft (300m) vertical clearance above the highest known obstacle within the lateral limits of the route within Singapore FIR and the adjacent areas of adjoining FIRs.

3.3.6 ATS UNITS ADDRESS LIST

Unit Name	*Postal Address*	*Telephone Nr*	*Telefax Nr*	*Telex Nr*	*AFS Address*
1	2	3	4	5	6
SINGAPORE ACC / APP	Singapore Air Traffic Control Centre (SATCC) 60, Biggin Hill Road Singapore 509950	(65) 65412668 (ACC) (65) 65227002 (APP)	(65) 65457526 (ACC) (65) 65461790 (APP)	-	WSJCZQZX
SINGAPORE TOWER	Singapore Changi Control Tower Civil Aviation Authority of Singapore 60 Airport Boulevard, #04-01, Changi Airport Terminal 2 Singapore 819643	(65) 65956057 (65) 64227633	(65) 65459568 (65) 65456224	-	Nil
SELETAR TOWER	Seletar Control Tower Civil Aviation Authority of Singapore 60 Seletar Aerospace View Singapore 797561	(65) 64812893	(65) 64813510	-	WSSLZTZX

GEN 3.5 METEOROLOGICAL SERVICES

3.5.1 RESPONSIBLE SERVICE

3.5.1.1 The meteorological services for international air navigation are provided by the Meteorological Service Singapore of the National Environment Agency.

Post: THE DIRECTOR-GENERAL
Meteorological Service Singapore
Singapore Changi Airport,
P.O. Box 8
SINGAPORE819643
Tel: (65) 65457190 (HQ)
(65) 62446133 / (65) 65422837 (MET Office)
Fax: (65) 65457192 (HQ)
(65) 65425026 (MET Office)
AFS: WSSSYMYX
URL: www.weather.gov.sg

3.5.1.2 The service is provided in accordance with the provisions contained in the following ICAO documents:

Annex 3 – *Meteorological Service for International Air Navigation*
Doc 7030 – *Regional Supplementary Procedures Part 3 - Meteorology*

3.5.1.3 Differences to these provisions, if any, are detailed in subsection GEN 1.7.

3.5.2 AREA OF RESPONSIBILITY

3.5.2.1 Aeronautical meteorological services (MET) is provided for the Singapore FIR. For the following portions of Jakarta FIR, MET is jointly provided by Indonesia and Singapore:

The area bounded by 031727N 1052959E 012450N 1061648E 001030N 1045656E 000000N 1050340E 000000N 1044330E thence around the arc of a circle radius 90 NM centred on 011324N 1035124E to 013430N 1022353E 011300N 1033000E 011408N 1033142E 011200N 1033900E 011046N 1034015E 010800N 1034500E 011500N 1040000E 011800N 1043000E 012921N 1043441E 011947N 1044606E 021838N 1052205E 023641N 1051311E 024348N 1050854E 025010N 1051210E 031453N 1052619E 031727N 1052959E

Vertical limit: SFC to FL370

3.5.3 METEOROLOGICAL OBSERVATIONS AND REPORTS

Meteorological Observations and Reports					
Name of Station/ Location Indicator	*Type & Frequency of Observation/ Automatic Observing Equipment*	*Types of MET Reports & Supplementa-ry Information included*	*Observation System & Sites (s)*	*Hours of Operation*	*Climatological Information*
1	2	3	4	5	6
SINGAPORE/ Singapore Changi WSSS	Half hourly plus special observations	MET REPORT Special Report METAR SPECI TREND WS	a) Ultrasonic wind sensors at ends and middle of RWY 02L/20R (Runway 1), RWY 02C/20C (Runway 2) and RWY 02R/20L (Runway 3). Surface wind report in METAR and SPECI is taken from the wind sensor at the southern end of RWY 02L (with the sensor at the northern end of RWY 02C/20C as backup). b) Windsocks at ends of all runways. c) Transmissometers at both ends and in the middle of all runways. d) Low level wind shear observations made continuously by system of 15 surface wind sensors, located in the airport and its vicinity. e) Integrated and combination of MET Doppler X, C and S band weather radars and two wind lidars for detecting wind shear up to 20km and monitoring storms up to 480km.	H24	Climatological Summaries available at Meteorological Service Singapore of the National Environment Agency.
SINGAPORE/ Seletar WSSL	Hourly plus special observations	MET REPORT Special Report METAR SPECI WS	a) Ultrasonic wind sensors at the ends of runway (surface wind report in METAR and SPECI is taken from measurements of the ultrasonic wind sensor at RWY 03). b) Windsocks at both ends of RWY 03 and 21. c) Transmissometers at both ends of RWY 03 and 21. d) Low level wind shear observations made continuously by system of 6 surface wind sensors, located in its vicinity. e) Integrated and combination of MET Doppler C and S band weather radars for detecting wind shear within 20km and monitoring storms up to 480km.	H24	NIL
SINGAPORE/ Paya Lebar WSAP	Hourly plus special observations	METAR SPECI	a) Cup anemometers and wind vanes located at both ends of the runway, and an ultrasonic wind sensor located at 400m next to mid-runway. Surface wind report in METAR and SPECI is taken from the ultrasonic wind sensor.	H24	NIL

6.3 Search and Rescue Signals

6.3.1 The search and rescue signals to be used are those prescribed in ICAO Annex 12, Chapter 5, paragraph 5.8.

6.3.2 Ground/Air Visual Signal Codes for use by Survivors

GROUND/AIR VISUAL SIGNAL CODES FOR USE BY SURVIVORS			
Nr.	***Message***	***Code symbol***	***Instructions for use***
1	Require assistance	**V**	a) Make signals not less than 8ft(2.5m). b) Take care to layout signals exactly as shown. Provide as much colour contrast as possible c) between signals and background. Make every effort to attract attention by other d) means such as radio, flares, smoke, reflected light.
2	Require medical assistance	**X**	
3	No or Negative	**N**	
4	Yes or Affirmative	**Y**	
5	Proceeding in this direction	↑	

6.4 Rescue Units and Facilities

RESCUE UNITS AND FACILITIES				
NAME	**AIRCRAFT**	**MARINE CRAFT**	**OTHER UNITS**	**REMARKS**
Singapore / MINDEF	LRG VLR HEL-M HEL-H	RV		
Singapore / Police Coast Guard		RV RV RV		
Singapore / Changi AES		RB		
Singapore in coordination with USA (Pacific Region RCC, PAC RCC Honolulu)	LRG			USAF LRG available at opportunity basis
Singapore Civil Defence Force		Basic Task Force (BTF) - RB - RV		
Pacific Flight Services	LRG VLR VLR VLR ELR			No ADS-B for King Air C90

SEARCH AND RESCUE UNITS			
Name	*Location*	*Facilities*	*Remarks*
MINDEF	Singapore	LRG	One search and locate aircraft.
		VLR	One search and locate aircraft.
		Hel-M	One search and rescue aircraft.
		Hel-H	One search and rescue aircraft.
		RV	Two search and rescue ship.

SEARCH AND RESCUE UNITS			
CHANGI AIRPORT EMERG SERVICE	Singapore Changi Airport	RB	Additional maritime cover is provided by vessels of the Police Coast Guard and the Maritime and Port Authority of Singapore.
USAF PACIFIC RCC	Hickham Airforce Base	LRG	On opportunity basis. Singapore in coordination with USAF Pacific RCC.

6.5 Search and Rescue Frequencies

SEARCH AND RESCUE FREQUENCIES			
Purpose	*Frequency*	*Period*	*Watch Kept By*
International Distress Frequencies	121.5 MHz	24 hours watch	RSAF (SATCC) RCC Singapore
	243.0 MHz	24 hours watch	RSAF (SATCC)
	156.8 MHz (Channel 16)	24 hours watch	Maritime and Port Authority Ships at sea.
	156.525 MHz (DSC Channel 70)	24 hours watch	Maritime and Port Authority Ships at sea.
Scene of Search	2 182 KHz	As required	RCC Singapore
	282.8 MHz	As required	Search Aircraft RCC Singapore
	123.1 MHz	As required	RCC Singapore Merchant Shipping (if equipped)
	3 023 KHz	As required	RCC Singapore
	5 680 KHz	As required	RCC Singapore

Note:

Speech circuits exist between all ATS Units in Peninsular Malaysia and Singapore. Speech circuits also exist between Singapore ATS Unit and Kota Kinabalu ATS Unit in Sabah. Direct speech communications circuits exist between Singapore ATS Unit and Jakarta, Manila and Ho Chi Minh ATS Units and are available for relay of messages between Singapore RCC and the respective RCCs but may be subject to delays.

GEN 4.2 AIR NAVIGATION SERVICES CHARGES

ROUTE AIR NAVIGATION SERVICES (RANS) CHARGES

1 GENERAL

1.1 All civil aircraft operating in the following areas of the Jakarta FIR ("airspace concerned") will be levied a RANS charge, collected by the Government of the Republic of Singapore on behalf of and for the Government of the Republic of Indonesia:

The area bounded by 031727N 1052959E 012450N 1061648E 001030N 1045656E 000000N 1050340E 000000N 1044330E thence around the arc of a circle radius 90 NM centred on 011324N 1035124E to 013430N 1022353E 011300N 1033000E 011408N 1033142E 011200N 1033900E 011046N 1034015E 010800N 1034500E 011500N 1040000E 011800N 1043000E 012921N 1043441E 011947N 1044606E 021838N 1052205E 023641N 1051311E 024348N 1050854E 025010N 1051210E 031453N 1052619E 031727N 1052959E

Vertical limit: SFC to FL370 (refer to Chart A at page GEN 4.2–7), excluding the Tanjungpinang Terminal Control Area and Control Zone.

2 RANS CHARGES

2.1 The formula for computing RANS charges in the airspace concerned is as follows:

RANS Charge = Unit Rate X Route Unit

(a) The Unit Rate is: US$0.65

(b) The computation of the Route Unit is as follows:

Route Unit = Distance Factor (DF) X Weight Factor
where
Distance Factor = Great Circle Distance / 100 KM
Great Circle Distance below 100KM is computed as 1 Distance Factor

Weight Factor is based on the Weight Factor Table (refer to GEN 4.2–3).

3 EXEMPTION FROM RANS CHARGES

3.1 No charge will be levied for the following types of flights in Table 1 below. Operators should insert "STS/" with the reason for special handling in Item 18 of the ICAO flight plan per Table 1 below.

Table 1: Exemptions from RANS charges

	Types of flights exempted from RANS charges	**Indicator of reason for special handling by ATS in Item 18 of ICAO Flight Plan**
a.	All non-civil flights	STS/STATE
b.	State aircraft belonging to Republic of Indonesia and Republic of Singapore	STS/STATE
c.	VVIP flights such as aircraft used by a Head of State/ Government and his group	STS/HEAD
d.	Aircraft used for search and rescue purposes	STS/SAR
e.	Aircraft which have obtained exemption from the Directorate General of Civil Aviation, Indonesia	STS/DGCA EXR
f.	Aircraft which CAAS exempts from landing charges	STS/CAAS EXR
g.	Aircraft used for natural disaster management	STS/HUM

3.2 CAAS will not collect RANS charges for all flights between Indonesian airports.

4 COLLECTION OF RANS CHARGES

4.1 CAAS will collect the RANS charges and remit them to the Directorate General of Civil Aviation, Indonesia.

4.2 Operators will be billed by CAAS on a monthly basis. Payment must be made to CAAS within 14 days of the date of issuance of the invoice. Payment is to be made in United States Dollars and shall include all bank charges such as agent banks' charges.

5 PERSON LIABLE TO PAY RANS CHARGES

5.1 The person liable to pay the charges is the operator of the aircraft at the time of the flight concerned. If the operator of the aircraft is not known, the owner of the aircraft shall be liable.

6 QUERIES ON LEVYING/BILLING OF RANS CHARGES

6.1 Please direct any questions regarding the levying and billing of RANS charges to:

Civil Aviation Authority of Singapore
Finance Division (Revenue)
60 Airport Boulevard, #04-01, Changi Airport Terminal 2
Singapore 819643

TEL : (65) 65412069 or 65412042
FAX : (65) 65423952
EMAIL : caas_collection_office@caas.gov.sg

Chart A - Airspace in the Jakarta FIR where Singapore collects RANS charges on behalf of and for Indonesia - GEN 4.2-7

Appendix A: Weight factor table

No.	MTOW x 1,000 Kg			Weight Factor
1.	0	-	17.77	10
2.	17.78	-	20.02	11
3.	20.03	-	22.32	12
4.	22.33	-	24.67	13
5.	24.68	-	27.07	14
6.	27.08	-	29.51	15
7.	29.52	-	31.99	16
8.	32.00	-	34.51	17
9.	34.52	-	37.07	18
10.	37.08	-	39.66	19
11.	39.67	-	42.28	20
12.	42.29	-	44.94	21
13.	44.95	-	47.64	22
14.	47.65	-	50.36	23
15.	50.37	-	53.11	24
16.	53.12	-	55.89	25
17.	55.90	-	58.70	26
18.	58.71	-	61.54	27
19.	61.55	-	64.40	28
20.	64.41	-	67.29	29
21.	67.30	-	70.20	30
22.	70.21	-	73.14	31
23.	73.15	-	76.10	32
24.	76.11	-	79.08	33
25.	79.09	-	82.09	34
26.	82.10	-	85.12	35
27.	85.13	-	88.14	36
28.	88.15	-	91.24	37

ENR 1.9 AIR TRAFFIC FLOW MANAGEMENT (ATFM)

1 AIR TRAFFIC FLOW MANAGEMENT (ATFM)

1.1 ATFM is a service to complement the safe, orderly and efficient delivery of Air Traffic Services (ATS) by regulating air traffic flow to match the prevailing capacity at a given airport or airspace. Through ATFM, airspace users (AUs) and ATS units (ATSUs) can be made aware of predicted delays so that timely adjustment to operations and flight schedules could be made accordingly. ATFM measure such as Ground Delay Programme (GDP), Minimum Departure Interval (MDI) and Miles- in-Trail (MIT) are some of the methods to achieve the objectives of ATFM as defined in ICAO's Manual on Collaborative ATFM (Doc 9971).

1.2 For Singapore FIR and airspace where ATS is provided by Singapore (see ENR 2.1), ATFM services are provided by Civil Aviation Authority of Singapore (CAAS) from the Singapore ATFM Unit (ATFMU) operating on a 24-hour basis. The services comprise the planning and implementation of ATFM measures to balance demand and capacity. The review of the effectiveness of ATFM measures are carried out through the conduct of post operation analysis. The implementation of ATFM measures will be coordinated with AUs and ATSUs through Collaborative Decision Making (CDM) processes and agreed operating procedures.

2 ATFM OPERATIONS FOR FLIGHTS ARRIVING AT SINGAPORE CHANGI AIRPORT

2.1 Where necessary, ATFM measures will be applied for flights scheduled to arrive at Singapore Changi Airport (WSSS).

2.2 Flights departing from the following airports may be subjected to ATFM measures:

States/Adminstrations	Airport
Cambodia	VDPP, VDSA, VDSV
China	ZGGG, ZGSZ, ZJHK, ZJSY
Hong Kong	VHHH, VMMC
Indonesia	WIII, WADD, WARR
Malaysia	WBGG, WBKK, WMKI, WMKJ, WMKK, WMKL, WMKP, WMSA
Myanmar	VYMD, VYNT, VYYY
Philippines	RPLL, RPLC, RPVM, RPSP
Republic of Korea	RKSI, RKSS, RKPK, RKPC, RKTN, RKNW
Thailand	VTBS, VTSP, VTBD, VTBU, VTCC, VTCT, VTSB, VTSG, VTSM, VTSS, VTUD
Vietnam	VVTS, VVNB, VVDN, VVCI, VVCR, VVPQ, VVVD, VVVH, VVPB, VVCT, VVDL

2.3 When ATFM measures are applied, the Singapore ATFMU will assign Calculated Take-Off Times (CTOTs) to flights departing from the airports listed in paragraph 2.2 planning to arrive into Singapore Changi Airport.

2.4 AUs and ATSUs are advised to refer to the Air Traffic Flow Management (ATFM) Portal to access CTOTs and/or other pertinent ATFM information via the Civil Aviation Authority Singapore (CAAS) Webpage, link provided: http://www.caas.gov.sg/e-services/air-traffic-flow-management

2.5 Compliance to CTOT during the ATFM operation is important, it contributes to the realisation of the ATFM plan. It would assist in the reduction of the need for tactical airborne delay, promoting a safer and more efficient operating environment for AOs and AUs.

2.6 All AUs planning to arrive into WSSS shall:

a. file and submit FPLs at least 3 hours before the Estimated Off Block Time (EOBT);
b. transmit the appropriate ATS messages (CHG / DLA) when the EOBT changes by more than 15 minutes; and
c. transmit CNL message if the flight is cancelled after the submission of FPL.

2.7 FPLs and ATS messages shall be addressed to WSJCZQZX.

3 ATFM OPERATIONS FOR FLIGHTS PLANNING TO OPERATE WITHIN THE SINGAPORE FIR AND AIRSPACE WHERE ATS IS PROVIDED BY SINGAPORE (SEE ENR 2.1)

3.1 The Singapore ATFMU may implement ATFM measures to facilitate ATC of flow restrictions originated by downstream ATSUs, with the aim to provide a higher level of predictability for AUs and affected upstream ATSUs when operating in the Singapore FIR and airspace where ATS is provided by Singapore (see ENR 2.1). For example, flow restriction on a given ATS

route in a form of Minutes-in-trail MINIT at downstream segments would be converted into CTOT, and/or Calculated Time Over (CTO) at a given waypoint within the Singapore FIR and airspace where ATS is provided by Singapore (see ENR 2.1).

3.2 Procedures for flight plan submission for such ATFM facilitation would be coordinated tactically by the Singapore ATFMU with AUs and affected upstream ATSUs. The transmit of the appropriate ATS messages would take reference from para 2.6 in the above.

Note: In general, Singapore ATFMU would request for FPL to be filed and submitted within 1 hour from the notification of the activation of ATFM measure.

3.3 FPLs and ATS messages should be addressed to WSJCZQZX.

4 SINGAPORE ATFMU CONTACT INFORMATION AND WEB CONFERENCE

4.1 When ATFM measure are implemented, Singapore ATFMU will open a CDM channel for AUs and affected ATSUs through an active web conferencing facilities and ATFM helpdesk thereafter to facilitate operational queries from AUs relating to the ATFM measure.

4.2 The contact details of the Singapore ATFMU are as follows:
Email: CAAS_ATFMU@caas.gov.sg
Phone: (+65) 62414143, (+65) 62414142
Fax: (+65) 62414034

5 BAY OF BENGAL COOPERATIVE ATFM (BOBCAT)

5.1 INTRODUCTION

5.1.1 BOBCAT service is provided by Aeronautical Radio of Thailand LTD (AEROTHAI) from the Bangkok Air Traffic Flow Management Unit (ATFMU) for westbound flights intending to transit Kabul FIR between 2000 UTC and 2359 UTC daily. The service provided includes calculation, promulgation, and management of mandatory Calculated Take-Off Time (CTOT) and flight level, ATS route, and Calculated Time Over (CTO) at entry waypoint for entry into Kabul FIR for each affected flight.

5.1.2 The Bangkok ATFMU operates on a 24-hour basis and is responsible for westbound flights entering the Kabul FIR at specified times, flight levels and ATS routes in accordance with paragraph 5.2. The objectives of this ATFM service are to:

a. Reduce ground and en-route delays;
b. Maximise capacity and optimize the flow of air traffic through Kabul FIR;
c. Provide an informed choice of routing and flight level selection;
d. Alleviate unplanned in-flight re-routing and technical stops; and
e. Assist regional Air Navigation Service Providers (ANSPs) in planning for and managing workload in handling increased air traffic flow through Kabul FIR.

5.1.3 Bangkok ATFMU utilises the automated, web-based BOBCAT in providing ATFM service in Kabul FIR. These responsibilities will be managed in coordination with airspace users and Singapore ATC in the Singapore FIR and airspace where ATS is provided by Singapore (see ENR 2.1).

5.2 ATFM AFFECTED ATS ROUTES, FLIGHT LEVELS AND APPLICABLE HOURS

5.2.1 All westbound flights intending to enter Kabul FIR between 2000 UTC and 2359 UTC daily on ATS routes and flight levels specified in the Table below shall comply with the BOBCAT procedures. This includes a mandatory requirement for all flights to obtain a specific ATFM slot allocation - CTOT, CTO at Kabul FIR entry waypoint, allocated flight level and allocated ATS route from Bangkok ATFMU for entry into Kabul FIR.

Routing through the Kabul FIR	Metering Waypoint	Flight Level
M875 – TAPIS – L509	LAJAK	FL320, FL340, FL360, FL380, FL400
N644	DOBAT	FL320, FL340, FL360, FL380, FL400
L750	BIROS	FL320, FL340, FL360, FL380, FL400
P628	ASLUM	FL320, FL340, FL360, FL380, FL400
UL333	SERKA	FL320, FL340, FL360, FL380, FL400

Note: Flight Levels availability may be subject to changes. Stakeholders may access the BOBCAT website for updated information.

5.2.2 Flights that plan to enter Kabul FIR without an ATFM slot allocation will be accommodated only after flights with slots have been processed. Such flights should expect delayed pushback and start clearances, non- preferred routes and/or flight levels, enroute holding and/or diversion around Kabul FIR.

5.2.3 The following flights are exempted from the BOBCAT procedures:

a. Flights experiencing an emergency, including aircraft subjected to unlawful interference;
b. Flights on search and rescue or rescue and firefighting missions;
c. Urgent medical evacuation flights or humanitarian flights specifically declared by State medical authorities that flight delays would put the life of patients aboard at risk; and
d. Flights with “Head of State” status; or
e. Other flights specifically identified by State authorities.

Note: After medical flights have completed their mission, they should be subjected to ATFM measures. Scheduled patient transfer flights are, by their nature, non-urgent and should not be given priority under normal operational situation.

5.2.4 Flights exempted from ATFM procedures shall indicate the exemption in their flight plan as follows:
(Field 18 - STS-BOB ATFM EXMP).

5.3 MANDATORY CTOT AND KABUL FIR SLOT ALLOCATION

5.3.1 Affected flights shall obtain the mandatory Kabul FIR slot allocation - CTOT, CTO at Kabul FIR entry waypoint, allocated flight level and allocated ATS route from the BOBCAT system. The Kabul FIR slot allocation will enable ANSPs to tactically control westbound flights transiting the Kabul FIR at specified times by assigning minimum spacing requirements at specified FIR boundary waypoints of the Kabul FIR.

5.3.2 The application, calculation and distribution of CTOT and associated Kabul FIR entry waypoint slot allocations will be managed via internet access to the BOBCAT system in accordance with the BOBCAT operating procedures in paragraph 5.4.

5.4 BOBCAT OPERATING PROCEDURES

5.4.1 All affected flights are required to submit their slot requests to the BOBCAT system by logging onto https://www.bobcat.aero between 0000 UTC and 1159 UTC on the day of flight and completing the electronic templates provided.

5.4.2 Affected operators who do not have dedicated BOBCAT username/password access should contact Bangkok ATFMU for an account creation as soon as possible.

Slot Allocation Process

5.4.3 The slot allocation is divided into 3 phases, namely, the slot request submission, initial slot allocation, and slot distribution to aircraft operators and ANSPs.

a) Slot Request Submission

i. Includes preferred ATS routes, flight level and Maximum Delay (MAD). These should be lodged between 0000 UTC and 1159 UTC on the day of flight. Slot requests may subsequently be amended prior to the cut-off time of 1200 UTC. Aircraft operators are encouraged to submit additional slot request options in case their first choice is not available. This may include variations to ATS route, flight level and MADs.

ii. Slot requests shall be for flight parameters that are able to be met by the flight. For example, flights requesting a slot at FL360 must be able to enter Kabul FIR at FL360. Flight subsequently unable to meet slot parameters (flight level, ATS route, or CTO at Kabul FIR entry waypoint) should expect non-preferred routes and/or flight levels, enroute holding and/or diversion around Kabul FIR.

iii. Flights that were not allocated a slot in the initial slot allocation, are not satisfied with the allocated slot or did not submit a slot request should select slots from the listing of remaining unallocated slots available immediately after slot distribution has been completed.

b) Slot Allocation and Distribution

i. Slot allocation will commence at the cut-off time of 1200 UTC. BOBCAT will process and generate the slot allocation based on the information submitted in the slot requests. Notification of slot allocation will be made not later than 1230 UTC via the BOBCAT website and via AFTN using Slot Allocation Message (SAM) in accordance with the Asia/Pacific AFTN/AMHS-Based Interface Control Document.

ii. After the slot allocation has been published at https://www.bobcat.aero, airspace users can:

– Use the slot allocation result for ATS flight planning purposes;
– Cancel the allocated slot; and / or
– Change slot allocation to another available slot in the published list of unallocated slots.

5.5 SUBMISSION OF ATS FLIGHT PLAN

5.5.1 Once aircraft operators are in receipt of the slot allocation, they shall submit the ATS flight plan using the time, ATS route and flight level parameters of the BOBCAT allocated slot.

5.5.2 In addition to the normal AFTN addressees, operators should also address the flight plan (FPL) and related ATS messages (e.g. DLA, CNL, CHG) to the Bangkok ATFMU via AFTN address VTBBZDZX for all flights that have submitted a slot request.

5.6 AIRCRAFT OPERATOR / PILOT-IN-COMMAND AND ANSP RESPONSIBILITIES

Aircraft Operator / Pilot-in-Command

5.6.1 In accordance with ICAO PANS-ATM provisions, it is the responsibility of the Pilot-in-Command (PIC) and the airspace user to ensure that the aircraft is ready to taxi in time to meet any required departure time. PIC shall be kept informed by their aircraft operators of the CTOT, CTO at Kabul FIR entry waypoint and flight parameters (route, flight level) allocated by BOBCAT.

5.6.2 The PIC, in collaboration with ATC, shall arrange take-off as close as possible to the CTOT in order to meet the allocated CTO at Kabul FIR entry waypoint.

5.6.3 For flights with CTOTs from BOBCAT operating out of an A-CDM airport, where the CTOT is integrated into the A-CDM process, PIC is advised to comply with the local A-CDM procedures.

ANSPs

5.6.4 In accordance with ICAO PANS-ATM provisions, flights with an ATFM slot allocation should be given priority for take-off to facilitate compliance with the CTOT.

5.6.5 CTOT shall be included as part of the initial ATC clearance. In collaboration with PIC, Singapore ATC shall ensure that every opportunity and assistance is granted to a flight to meet the allocated CTOT and CTO at Kabul FIR entry waypoint.

5.6.6 Singapore ATC retains responsibility for the tactical management of flights that are subjected to this ATFM measure. In discharging tactical responsibilities, Singapore ATC will manage non-ATFM compliant flights using delayed pushback and start clearances, non-preferred routes and/or flight level.

5.6.7 CTOT compliance window for facilitation of BOBCAT flights is defined to be -5/+10 minutes. As far as practicable, ATC shall manage flights to depart as close to the CTOT as possible.

5.7 COORDINATION BETWEEN AIRCRAFT OPERATOR / PILOT-IN-COMMAND, ANSPs AND BANGKOK ATFMU

5.7.1 The PIC shall include the CTOT in the initial ATC clearance request.

5.7.2 PIC shall adjust cruise flight to comply with slot parameters at the Kabul FIR entry waypoint, requesting appropriate ATC clearances including speed variations in accordance with the published AIP requirements.

5.7.3 Prior to departure, in circumstances where it becomes obvious that the allocated Kabul FIR entry waypoint slot parameters will not be met, a new slot allocation should be obtained as soon as possible primarily via aircraft operators / flight dispatches. Early advice that the Kabul FIR slot parameters would be missed also enables the slots vacated to be efficiently reassigned to other flights.

5.7.4 A missed slot results in considerable increased coordination workload for ATC and PIC and should be avoided. To minimise coordination workload in obtaining a revised slot allocation, the following procedures are recommended:

a. If the flight is still at the gate, coordination should take place via aircraft operators / flight dispatchers to Bangkok ATFMU;
b. If the flight has left the gate, coordination to Bangkok ATFMU may also take place via the ATS unit presently communicating with the flight.

5.7.5 The Bangkok ATFMU (VTBBZDZX) shall be included in the list of AFTN addressees for NOTAMs regarding any planned activities that may affect slot availability (e.g. reservation of airspace / closure of airspace, non- availability of routes, etc.).

5.7.6 The Bangkok ATFMU (VTBBZDZX) shall be included in the list of AFTN addressees for ATS messages (e.g. FPL, DEP, DLA, CHG, CNL) relating to flights subject to ATFM procedures.

5.8 SYSTEM REQUIREMENT

5.8.1 Aircraft operators and Singapore ATC are required to have a device capable of connecting to the BOBCAT website https://www.bobcat.aero via the internet, using the following minimum web browser software (supported with security patches):

a) Microsoft Edge version 129 or newer; or
b) Google Chrome version 137 or newer; or
c) Safari version 18.5 or newer

5.9 ATFM USERS HANDBOOK

5.9.1 Supporting documentation, including detailed information in respect of the ATFM operations described above and other pertinent information has been included in the Bay of Bengal and South Asia ATFM Handbook (the “ATFM Users Handbook”), available at https://www.bobcat.aero

5.9.2 ANSPs and aircraft operators shall ensure that they are conversant with and able to apply the relevant procedures described in the ATFM Users Handbook.

5.10 CONTINGENCY PROCEDURES

5.10.1 In the event that an aircraft operator or Singapore ATC is unable to access the BOBCAT website, the Bangkok ATFMU shall be contacted via the alternative means (telephone, AFTN) described in paragraph 5.12.

5.10.2 Contingency procedures for submission of slot request, including activation of Contingency Slot Request Templates (CSRT), are included in the ATFM Users Handbook.

5.10.3 In the event of BOBCAT system failure, Bangkok ATFMU shall notify all parties concerned and advise that ATFM slot allocation procedures are suspended. In this event, all parties concerned will revert to the existing ATM procedures as applicable outside the daily period of ATFM metering.

5.11 BOBCAT SYSTEM FAULT REPORTING

5.11.1 An ATFM system fault is defined as a significant occurrence affecting an ATS unit, an aircraft operator or Bangkok ATFMU resulting from the application of ATFM procedures.

5.11.2 Aircraft operators and Singapore ATC experiencing an ATFM system fault should complete an ATFM System Fault Report Form from the ATFM Users Handbook and forward it to the Bangkok ATFMU at the address indicated on the form. The Bangkok ATFMU will analyse all reports, make recommendations / suggestions as appropriate and provide feedback to the parties concerned to enable remedial action.

5.12 BANGKOK AIR TRAFFIC FLOW MANAGEMENT UNIT (ATFMU) CONTACT INFORMATION

5.12.1 Bangkok ATFMU may be contacted as follows:

Unit Name	:	Bangkok ATFMU
Telephone	:	+66 2 287 8024
Contingency Mobile	:	+66 8 1829 5256
E-mail	:	atfmu@bobcat.aero
AFTN	:	VTBBZDZX

ENR 1.10 FLIGHT PLANNING

1 PROCEDURES FOR SUBMISSION OF A FLIGHT PLAN

1.1 REQUIREMENT FOR SUBMISSION OF A FLIGHT PLAN

1.1.1 The pilot-in-command or airline operator shall submit an ICAO flight plan to ATC via the AFS or the AIM-SG system (accessible by registration at https://aim-sg.caas.gov.sg) for the following flights:

a. Flights on airways, associated holding areas and all other controlled airspaces whether IFR or VFR;
b. Any flight or portion thereof to be provided with air traffic control service;
c. Any flight within or into designated areas, or along designated routes to facilitate co-ordination with appropriate military units or with air traffic service units in adjacent States in order to avoid the possible need for interception for the purpose of identification;
d. Any flight across international borders.

1.1.2 The pilot-in-command or the airline operator shall submit details of a functional check /training flight, planned to be conducted in the Seletar aerodrome circuit or in Light Aircraft Training Areas A, B and C, by electronic mail using the "Seletar Functional Check /Training Form" retrievable from webpage: https://aim-sg.caas.gov.sg

1.1.3 For a flight that will be operating within Singapore only (except for flights mentioned in paragraph 1.1.2, the pilot-in-command or the operator shall submit the ICAO flight plan using the automated AIM-SG system and to include Military ATC addressee WSARYWYX. If for any reason a flight plan is not approved, the pilot-in- command shall contact RSAF Air Operations Control (AOC) at 67683702 for clarification.

1.2 REQUIREMENT FOR SUBMISSION OF A FLIGHT PLAN FOR FUNCTIONAL CHECK FLIGHTS

1.2.1 Functional check flights shall be conducted on ATS route G580 between OBGET and NIMIX to minimise disruption to civil scheduled flight movements and to facilitate the functional check flight operations.

1.2.2 A flight plan shall be submitted for a functional check flight at least one hour before departure. The pilot-in- command or the operator shall include in Item 18 of the flight plan ‘RMK/TEST FLT APPROVED BY ATC’.

1.2.3 The pilot-in-command of the functional check flight shall adhere to ATC instructions at all times. Functional check flight manoeuvres are subject to ATC clearance, real-time coordination and traffic .

1.2.4 Procedures for application to conduct functional check flights are provided on GEN 1.2 section 6 .

1.3 LEAD TIME FOR FILING FLIGHT PLANS AND FLIGHT PLAN ASSOCIATED MESSAGES

1.3.1 Flight plan shall be filed 120 hours, or five days, at the earliest but no later than 60 minutes prior to departure (estimated off-block time).

1.3.2 In the event of a delay of 30 minutes in excess of the estimated off-block time, the flight plan should be amended or a new flight plan submitted and the old flight plan cancelled, whichever is applicable. To indicate a delay to a flight, a DLA or a CHG message may be used depending on the circumstances.

1.3.3 The old flight plan shall be cancelled and a new flight plan shall be submitted when changes are made to any one of the following fields:
7/Aircraft Identification, 15/Route and/or 16/Destination Aerodrome.

1.3.4 A flight plan submitted in flight on HF RTF shall be submitted at least 20 minutes (or if on VHF RTF at least 10 minutes) prior to the intended point of entry into a control zone, control area, advisory area or advisory route.

1.3.5 A pilot-in-command may change from an IFR flight plan to a VFR flight plan by reporting “CANCELLING MY IFR FLIGHT” when weather conditions indicate that the remainder of the flight can be conducted under VFR. [However, within Singapore, all flights whether IFR or VFR shall be regulated in accordance with instrument flight rules.] (see note 2 below).

1.3.6 ATC will acknowledge:

“IFR flight cancelled at.....(time)” or

if information is available which indicates the likelihood of IMC prevailing along the route, will notify these conditions as follows:

"Instrument MET conditions reported (or forecast) in the vicinity of....."

Note:
1) The fact that pilot flying in VMC does not by itself constitute cancellation of an IFR flight plan.
2) Within the Singapore/Johor Airspace Complex and Control Zones all flights are regulated in accordance with IFR separation standards.

1.4 PERSONS ON BOARD (POB)

1.4.1 The pilot-in-command or his representative is required to state the total number of persons on board (POB - i.e. passengers and crew) in the flight plan.

1.5 DATA LINK COMMUNICATION AND SURVEILLANCE

1.5.1 Aircraft using data link communications (see ENR 1.1 section 9) must insert one or more of the following letters in Item 10a of their flight plan to indicate serviceable COM aid equipment and capabilities available:

J1 CPDLC ATN VDL Mode 2
J2 CPDLC FANS 1/A HFDL
J3 CPDLC FANS 1/A VDL Mode A
J4 CPDLC FANS 1/A VDL Mode 2
J5 CPDLC FANS 1/A SATCOM (INMARSAT)
J6 CPDLC FANS 1/A SATCOM (MTSAT)
J7 CPDLC FANS 1/A SATCOM (Iridium)
P1 CPDLC RCP 400
P2 CPDLC RCP 240
P3 SATVOICE RCP 400
P4-P9 Reserved for RCP

1.5.2 Aircraft using data link surveillance (see ENR 1.1 section 9) must insert one or more of the following letters in Item 10b of their flight plan to indicate serviceable SUR equipment and capabilities available:

D1 ADS-C with FANS 1/A capabilities
G1 ADS-C with ATN capabilities

1.5.3 Additional surveillance equipment or capabilities are to be listed in Item 18 following the indicator SUR/ .

1.6 RNAV APPROVED AIRCRAFT

1.6.1 Aircraft flying on RNAV routes (see ENR 3.2) must be RNAV equipped and should annotate their flight plan as follows:

	Item 10	Item 15	Item 18
RNAV equipment is carried	**G** (GNSS) **I** (Inertial Navigation) **R** (PBN approved) Guidance material in the application of performance based navigation to a specific route segment, route or area is contained in the Performance Based Navigation Manual (Doc 9613).	True Mach NR and FL at entry and exit points	The types of external GNSS augmentation, if any, are specified following the indicator NAV/ and separated by a space. The performance based navigation levels that can be met shall be specified following the indicator PBN/.

1.6.2 Operators of aircraft approved for RNP 10 operations shall include the following information in their flight plan:

Item 10 - “R” where R = PBN approved
Item 18 - PBN/A1 where A1 = RNAV 10 (RNP 10)

1.6.3 Operators of aircraft approved for RNP 4 operations shall include the following information in their flight plan:

Item 10 - “R” where R = PBN approved
Item 18 - PBN/L1 where L1 = RNP 4

1.6.4 Operators of aircraft approved for RNP 1 (P-RNAV) operations shall include the following information in their flight plan:

Item 10 - “R” where R = PBN approved
Item 18 - PBN/O1 where O1 = Basic RNP1 all permitted sensors, or
PBN/O2 where O2 = Basic RNP1 GNSS, or
PBN/O3 where O3 = Basic RNP1 DME/DME, or
PBN/O4 where O4 = Basic RNP1 DME/DME/IRU

1.7 RVSM AND NON-RVSM APPROVED AIRCRAFT

1.7.1 Operators of RVSM approved or non-RVSM approved aircraft operating in RVSM airspace (see ENR 1.8 sub-section 1.9 and 1.10) shall annotate their flight plan as follows:

	Item 10	Item 18
RVSM approved aircraft	W	
Non-RVSM approved aircraft		STS/NONRVSM

1.8 OTHER DOCUMENTARY AND / OR PERMIT REQUIREMENTS

1.8.1 In addition to the flight planning requirements, all pilots-in-command and aircraft operators should consult the respective AIPs for other documentary and / or permit requirements for flights intending to enter, depart, and / or overfly the sovereign airspaces of States along the planned flight routes.

1.8.2 In particular, for Indonesian sovereign airspace within portions of airspace in which Singapore provides Air Traffic Services (ATS) (see ENR 2.1), aircraft operators should also consult AIP Indonesia GEN 1.2 Entry, Transit and Departure of Aircraft at https://iwish.kemenhub.go.id/ Indonesia's requirements for flights intending to enter, depart, and/or overfly its sovereign airspace. Please note that this AIP’s reference to these requirements is without prejudice to Singapore's legal position on such requirements.

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ENR 3 ATS ROUTES

ENR 3.1 CONVENTIONAL NAVIGATION ROUTES

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*	*Direction of cruising levels* ↓	*Direction of cruising levels* ↑	*Controlling unit Frequency {Airspace class} Remarks*
1		2	3	4	5	6	7	8	9	10
A224		*Route availability:* (1) H24								
▲	JOHOR BAHRU DVOR/DME (VJB)	013950N 1033939E								
		196°/016°	45.3NM		FL 460/5500 FT ALT	6000 FT	10	Odd(1)	Even(1)	[Class A - ABV FL150] [Class B - BLW FL150]
▼	MERSING DVOR/ DME (VMR) (58 DME PU)	022318N 1035218E								
Route remarks: - *Point/Segment Remarks:* -										

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*	*Direction of cruising levels* ↓	*Direction of cruising levels* ↑	*Controlling unit Frequency {Airspace class} Remarks*
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
A457	*Route availability:* (1) H24								
▲ JOHOR BAHRU DVOR/DME (VJB)	013950N 1033939E								
	296° 116°	25.0NM		FL 460 4500 FT ALT	5000 FT	20	Even(1)		[Class A - ABV FL150] [Class B - BLW FL150]
△ SABKA	015051N 1031713E								
	296° 116°	27.1NM		FL 460 4500 FT ALT	5000 FT	20	Even(1)		[Class A - ABV FL150] [Class B - BLW FL150]
△ MASBO	020248N 1025251E								
Route remarks: Flight Planning: Northbound flights landing at WMKK and WMSA are to flight plan via A457. Flights departing from Singapore FIR to destinations north of WMKK and WMSA, refer to Y339. Flights overflying Singapore FIR to destinations north of WMKK and WMSA, refer to Y342. Tolerances of airway infringe WMD222 ASAHAN (activated by NOTAM) – Military activities									

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*	*Direction of cruising levels* ↓	*Direction of cruising levels* ↑	*Controlling unit Frequency {Airspace class} Remarks*
1		**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
W534		*Route availability:* (1) H24								
△	TOPOR	014412N 1025330E								
		275° 095°	46.5NM		FL 460 4500 FT ALT	5000 FT	8	Odd(1)		[Class A - ABV FL150] [Class B - BLW FL150]
▲	JOHOR BAHRU DVOR/DME (VJB)	013950N 1033939E								

Route remarks:
-
Point/Segment Remarks:
-

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*	*Direction of cruising levels* ↓	*Direction of cruising levels* ↑	*Controlling unit Frequency {Airspace class} Remarks*
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
W651	*Route availability:* (1) H24								
▲ JOHOR BAHRU DVOR/DME (VJB)	013950N 1033939E								
	114°/294°	21.3NM		FL 200/2500 FT ALT	3000 FT	3	Odd(1)	Even(1)	[Class A - ABV FL150] [Class B - BLW FL150]
▲ OMKOM	013112N 1035910E								
Route remarks: - *Point/Segment Remarks:* -									

AD 0.6 TABLE OF CONTENTS TO PART 3

Note: The following sections in the chapter are intentionally left blank:
AD 0.1, AD 0.2, AD 0.3, AD 0.4 and AD 0.5

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Note: An 'authorised person' means any person authorised by the Minister either generally or in relation to a particular case or class of cases, and reference to an authorised person include references to the holder for the time being of any office designated by the Minister.

4 CAT II / III OPERATIONS AT AERODROMES

Refer to WSSS AD 2.22 paragraphs 1.1 to 1.7.

5 FRICTION MEASURING DEVICE USED AND FRICTION LEVEL BELOW WHICH THE RUNWAY IS DECLARED SLIPPERY WHEN IT IS WET

5.1 Responsibility

5.1.1 The Changi Airport Group (Singapore) Pte Ltd is responsible for maintaining the civil aerodromes in a satisfactory condition for flight operations.

5.2 Measurement of Runway Surface Friction

5.2.1 The friction of the runway is calibrated periodically by the use of a Surface Friction Tester using self- wetting features on a clean surface at a speed of 95 km/hr. The principle employed in this case is the measurement of the force acting on the measuring wheel along the distance travelled. The equipment provides a continuous register of the mean coefficient of friction values.

5.2.2 Friction tests will be made over the usable length of the runway, by sections of one third of the length, and at approximately 3, 6, and 9 metres each side of the centreline in such manner as to produce mean values for each runway.

5.2.3 Should the friction value fall to 0.34 or less, NOTAM will be promulgated to notify the runway as liable to be slippery when wet.

5.2.4 The following table would be adopted by Changi Airport Group (Singapore) Civil Maintenance when they report the friction values tested on the runways.

Friction Value (from friction test)	Changi Airport Group's Comment on values obtained
> 0.34	Normal
≤ 0.34	May be Slippery when wet (NOTAM would be issued)

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AD 1.2 RESCUE AND FIRE FIGHTING SERVICES, RUNWAY SURFACE CONDITION ASSESSMENT AND REPORTING AND SNOW PLAN

1 Introduction

1.1 Adequate rescue and fire fighting vehicles, equipment and personnel have been provided at all aerodromes available for use by international commercial air transport. The levels of rescue and fire fighting facilities available for use are shown in item AD 2.6 of each aerodrome.

2 RUNWAY SURFACE CONDITION ASSESSMENT AND REPORTING AND SNOW PLAN

2.1 SNOW PLAN

NIL (not applicable)

2.2 RUNWAY SURFACE CONDITION ASSESSMENT AND REPORTING

The following information are based on the implementation of the new ICAO methodology for assessing and reporting runway surface conditions, commonly known as the ICAO Global Reporting Format (GRF). Aircraft operators should utilize the information in conjunction with the performance data provided by the aircraft manufacturer to determine if landing or take-off operations can be conducted safely and provide runway braking action special air reports (AIREP) to ATC.

2.2.1 Assessment and Reporting

2.2.1.1 Runway surface conditions are assessed and reported in the ICAO GRF whenever water is present on an operational runway.

2.2.1.2 Runway Condition Report (RCR) is disseminated when there are significant changes in the runway surface condition.

2.2.1.3 The RCR contains Runway Condition Code (RWYCC) and information that describes the runway surface condition, i.e., type of contaminants, depth, coverage for each runway third. Other relevant information is reported in the situational awareness section of the RCR.

2.2.1.4 The RWYCC is derived from the Runway Condition Assessment Matrix (RCAM), which contains the information that is relevant to the current weather environment in Singapore.

Runway condition assessment matrix (RCAM)

Assessment criteria		Downgrade assessment criteria	
Runway condition code (RWYCC)	**Runway surface description**	**Aeroplane deceleration or directional control observation**	**Pilot report of runway braking action**
6	Dry	--	--
5	WET (The runway surface is covered by any visible dampness or water up to and including 3 mm depth)	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	Good
3	WET (“slippery wet” runway)	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	Medium
2	STANDING WATER (more than 3 mm depth)	Braking deceleration OR directional control is between Medium and Poor.	Medium to Poor

2.2.1.5 The RCR is disseminated via ATIS, SNOWTAM, and Air-Ground Voice Communications.

Communication Channels for RCR

Runway condition code (RWYCC)	Air-Ground Voice Communications	ATIS	SNOWTAM
6 (Dry)	Yes*	No	No**
5 (Wet)	Yes	Yes	No**
3 (Slippery Wet)	Yes	Yes	No**
2 (Standing Water more than 3 mm)	Yes	Yes	Yes

** Upon request*

*** Except when RWYCC 2 was previously reported*

2.2.2 Dissemination of Runway Condition Report (RCR)

2.2.2.1 **ATIS**

2.2.2.1.1 The RCR is communicated in addition to the MET REPORT elements. The information is communicated for each runway third in the direction of landing/take-off.

2.2.2.2 **SNOWTAM**

2.2.2.2.1 The SNOWTAM will be promulgated whenever RWYCC 2 is reported. The assessment and reporting of runway surface conditions continue until the runway is no longer contaminated. The RCR is communicated from the lowest runway designation number.

2.2.2.3 **Air-Ground Voice Communications**

2.2.2.3.1 Only the Runway Condition Code (RWYCC) for each runway third will be communicated through the frequency. The contamination type, contamination depth, and coverage will be provided upon request by the pilot. The information is communicated for each runway third in the direction of landing/take-off.

2.2.2.3.2 Pilots are to make special air reports (AIREP) whenever worse braking action than previously reported is experienced. Otherwise, the pilots may be asked by the ATC to report their assessment of the braking performance. The terms to describe braking action are provided in the RCAM in para 6.1.4.

AD 1.5 STATUS OF CERTIFICATION OF AERODROMES

Aerodrome Name and Location Indicator	Status of Certification	Date of Certificate	Validity of Certification	Remarks
Singapore Changi WSSS	Certified	1 July 2024	5 years from the date of certification	ARC: Code 4F ADG: V
Seletar WSSL	Certified	1 July 2024	5 years from the date of certification	ARC: Code 3C ADG: III
Paya Lebar WSAP	NA	NA	NA	Military Aerodrome Operator: Republic of Singapore Air Force Alternate/Emergency Diversionary Aerodrome for Singapore Changi Airport (See AIP section WSAP AD 2.20)

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AD 2 AERODROMES

WSSS SINGAPORE / SINGAPORE CHANGI INTL

WSSS AD 2.1 AERODROME LOCATION INDICATOR AND NAME

WSSS - SINGAPORE / SINGAPORE CHANGI INTL

WSSS AD 2.2 AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA

1	*ARP coordinates and site at AD*	012133.16N 1035921.57E (Control Tower)
2	*Direction and distance from (city)*	17.2km North-East from City Centre (The Fullerton Hotel, Singapore)
3	*Elevation/Reference temperature*	6.66m / 32.6 °C
4	*Geoid Undulation (AD elevation position)*	10.24 M
5	*MAG VAR /Annual change*	0°23' E (2020) / Negligible
6	*AD Administration, address, telephone, telefax, AFS*	
CHANGI AIRPORT GROUP (SINGAPORE) PTE LTD Singapore Changi Airport P.O.Box 168, SINGAPORE 918146 Tel: (65)65956868		
7	*Types of traffic permitted*	IFR
8	*Remarks*	
a. Not available to all non-scheduled civil aircraft types of 40-seater or below except in special circumstances. Aircraft larger than the above category shall not plan their arrival between 0900-1559UTC. b. Aircraft shall leave nose-in position (90 degrees) with the aid of aircraft tow tractors. Reverse thrust or variable pitch propellers shall not be used. Aircraft operators shall make suitable arrangements. c. Prior permission required for aircraft not equipped with radiotelephony. d. A subsonic jet aircraft, unless otherwise exempted, is not permitted to operate in Singapore unless it possesses a noise certificate stating that it meets the noise standards of ICAO Annex 16, Volume 1, Chapter 3, or equivalent. The noise certificate may also take the form of a suitable statement contained in another document approved by the State of Registry of the aircraft. e. RVR minima for CATII ILS operations is limited to 350m due to runway and taxiway light spacing requirements on the airfield. f. Frangible poles are installed for the purpose of identifying 90m away from the centreline of RWY 02L/20R and RWY 02C/20C		

WSSS AD 2.3 OPERATIONAL HOURS

		Operational Hours	
1	Aerodrome Administration:	RWY 02L/20R RWY 02C/20C RWY 02R/20L	H24
2	Customs and Immigration	H24	
3	Health and Sanitation	H24	
4	AIS Briefing Office	H24	
5	ATS Reporting Office	H24	
6	MET Briefing Office	H24	
7	Air Traffic Services	H24	

WSSS AD 2.4 HANDLING SERVICES AND FACILITIES

1	*Cargo Handling Facilities*	Cargo terminals equipped with advanced storage stacker, material and pallet container handling systems, computerised cargo information, data and documentation systems. By arrangement with airlines.
2	*Fuel / Oil Types*	JET A1(for aircraft). Oils: Various by arrangement with fuel companies.
3	*Fuelling Facilities / Capacity*	Hydrant refueling
4	*Hangar space for visiting aircraft*	By arrangement with SIA Engineering Company (SIAEC) or ST Aerospace Services Co.

5	*Repair facilities for visiting aircraft*	Maintenance and repairs for commercial aircraft up to and including A380 is by arrangement.
6	*Remarks*	a) Marshalling Service: No pilot shall taxi an aircraft on its own into a gate/stand without the aid of a docking system or a marshaller. b) Oxygen and related servicing: Oxygen for all cabin and aircraft system. No CO? recharging facilities.

WSSS AD 2.5 PASSENGER FACILITIES

1	*Hotels*	Transit area and adjacent to airport terminal.
2	*Restaurants*	Transit and public areas of terminal building.
3	*Transportation*	Buses, taxis, MRT train and car rental service.
4	*Medical Facilities*	Available at airport.
5	*Bank and Post Office*	Available at airport.
6	*Tourist Office*	Available at airport.
7	*Remarks*	Internet address: http://www.changiairport.com.sg for airport and flight information, shops and restaurants, facilities and services, flight connections and tourist information.

WSSS AD 2.6 RESCUE AND FIRE FIGHTING SERVICES

1	*AD category for fire fighting*	RWY 02L/20R, RWY 02C/20C and RWY 02R/20L CAT10 (No facilities for foaming of runways)
2	*Rescue equipment*	Adequately provided as recommended by ICAO.
3	*Capability for removal of disabled aircraft*	Specialised aircraft recovery equipment available for up to and including A380 size aircraft operation.
4	*Remarks*	All Airport Emergency Service personnel are trained in rescue and fire-fighting as well as medical first-aid.

WSSS AD 2.7 SEASONAL AVAILABILITY - CLEARING

There is no requirement for clearing. The aerodrome is available throughout the year.

WSSS AD 2.8 APRONS, TAXIWAYS AND CHECK LOCATIONS/POSITIONS DATA

1	*Apron surface and strength*	Aircraft stands C11, C16, C19, D30, D35, D38, E2, E6, E7, E10, F32, F36, F37, 301, 303, 304, 305, 307, 308, 309, 402, 403, 404, 605, 952, G1 to G17 and 471 to 487 – Concrete surface; strength PCR 680/R/B/W/U Aircraft stand 306 – Concrete surface; strength PCR 784/R/B/W/U All other aircraft stands – Concrete surface; strength PCR 1006/R/B/W/U

2	*Taxiway width, surface and strength*	Minimum width 23m for all taxiways TWY A1, A2, A11, A12, A (between A1 and A2, and between A11 and A12), B1, B2, B13, B14, B (between B1 and B2, and between B13 and B14), C1, C2, C13, C14, C (between C1 and C2) and L (between C13 and C14), D1, D2, D13, D14, D (between D1 and D2, and between D13 and D14), T1, T2, T4, T12, T13, T (between T11 and T13), U12, U13, U (between U12 and U13), W1, W9 – Concrete surface; strength PCR 1006/R/B/W/U TXL U2, TWY U7 (between TWY U and TXL U2), TWY U8 (between TWY U and TXL U2), TWY U9 (between TWY U and TXL U2), TXL S6, S8, S9, TWY S7 – Asphalt surface; strength PCR 530/F/B/X/U All other taxiways – Asphalt surface; strength PCR 710/F/B/X/U Note: Open-air drains, demarcated by frangible poles, are installed within non-graded TWY strips at least 30m from the TWY centrelines. 0.5m-high lateral restraint at 30m east of TWY P8 and TXL N5 centreline before the open drain. 0.8m-high lateral restraints, located at 43m from the centreline of TWY G and TWY H, on the taxiway bridges.
3	*Altimeter checkpoints location and elevation*	See AD-2-WSSS-ADC-2/ Chart (flip side) for coordinates and elevations of aircraft stands.
4	VOR checkpoint location	NIL
5	*INS checkpoints position*	See AD-2-WSSS-ADC-2/ Chart (flip side) for coordinates and elevations of aircraft stands.
6	*Remarks*	NIL

WSSS AD 2.9 SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS

1	Use of aircraft stand ID signs, TWY guidelines and visual docking/parking guidance system of aircraft stands.
	Taxiing guidance signs at all intersections with TWY and RWY at all holding positions. Apron markings at aircraft stands. Nose-in guidance at aircraft stands. For information on Safegate Aircraft Docking Guidance System, Taxiing Guidance System at Singapore Changi Airport, refer to WSSS AD 2.9.
2	RWY and TWY markings and LGT.
	RWY 02L RWY LGT: refer to WSSS AD 2.14 and WSSS AD 2.15. TWY LGT: BLUE lights on TWY curved edges. BLUE TWY edge markers along selected straight TWY edge sections. Red stop bar at TWY INT controllable on/off. Red stop bar lights at Pattern "A" RWY HLDG PSN entrances to RWY are controllable on/off and are supplemented with elevated RWY guard lights and RWY designation sign at the sides. Red stop bar lights at Pattern “B” RWY HLDG PSN before entry into the RWY ILS sensitive area on the west of RWY 02L/20R are controllable on/off with Category I RWY HLDG PSN sign. Internally lighted mandatory or information TWY signboards. "MIL" destination signs on the west of RWY 02L/20R indicate the direction to aircraft movement area for military use only. Alternate green and yellow taxiway centreline lights along taxiways within ILS sensitive zone in the vicinity of the runway and green taxiway centreline lights with selective controls along taxi-routes to/from main RWY and aprons. On the west of RWY 02L/20R, no taxiway centreline lights. MARKING AIDS: THR, touchdown zone, RWY centreline, RWY side stripe, RWY designations, aiming point markings, TWY centreline, taxi holding positions – all taxiways, apron markings.
	RWY 20R RWY LGT: refer to WSSS AD 2.14 and WSSS AD 2.15. TWY LGT: same as for RWY 02L and RWY 02C/20C. MARKING AIDS: Pre-threshold centreline, transverse stripe for displaced THR, THR, touchdown zone, RWY centreline, RWY side stripe, RWY designations, aiming point markings, TWY centreline, taxi holding positions – all taxiways, apron markings.

	RWY 02C/20C RWY LGT: refer to WSSS AD 2.14 and WSSS AD 2.15. TWY LGT: BLUE lights on TWY curved edges. BLUE TWY edge markers along selected straight TWY edge sections. Red stop bar lights at TWY INT are controllable on/off. Red stop bar lights at Pattern "A" RWY HLDG PSN entrances to RWY are controllable on/off and are supplemented with elevated RWY guard lights and RWY designation sign at the sides. Red stop bar lights at Pattern "B" RWY HLDG PSN before entry into the RWY ILS sensitive area are controllable on/off with Category I/II RWY HLDG PSN sign. Internally lighted mandatory or information TWY signboards. On the east and west of RWY 02C/20C, alternate green and yellow taxiway centreline lights along taxiways within ILS sensitive zone in the vicinity of the runway and green taxiway centreline lights with selective controls along taxi-routes to/from main RWY and aprons. On the east of RWY 02C/20C between Pattern "A" RWY HLDG PSN and Pattern "B" RWY HLDG PSN TWY, alternate green and yellow taxiway centreline lights along taxiways within ILS sensitive zone. Rapid Exit Taxiway Indicator LGT comprises a set of yellow unidirectional LGT positioned in a 3-2-1 sequence at 100m intervals prior to the point of tangency of the rapid exit taxiway centreline. MARKING AIDS: THR, touchdown zone, RWY centreline, RWY side stripe, RWY designations, aiming point markings, TWY centreline, taxi holding positions – all taxiways, apron markings.
	RWY 02R/20L RWY LGT: refer to WSSS AD 2.14 and WSSS AD 2.15. TWY LGT: Blue lights on TWY curved edges. Blue TWY edge markers along selected straight TWY edge sections. Red stop bar lights at TWY INT are controllable on/off. Red stop bar lights at Pattern “A” RWY HLDG PSN entrances to RWY are controllable on/off and are supplemented with elevated RWY guard lights and RWY designation sign at the sides. Red stop bar lights at Pattern “B” RWY HLDG PSN before entry into the RWY ILS sensitive area are controllable on/off with Category I/II RWY HLDG PSN sign. Internally lighted mandatory or information TWY signboards. “MIL” destination signs on the east of RWY 02R/20L indicate the direction to aircraft movement area for military use only. On the west of RWY 02R/20L, alternate green and yellow taxiway centreline lights along taxiways within ILS sensitive zone in the vicinity of the runway and green taxiway centreline lights with selective controls along taxi-routes to/from main RWY and aprons. On the east of RWY 02R/20L, no taxiway centreline lights. MARKING AIDS: THR, touchdown zone, RWY centreline, RWY side stripe, RWY designations, aiming point markings, TWY centreline, taxi holding positions – all taxiways, apron markings.
3	*Stop bars:* Stop bars where appropriate.
4	*Remarks:* Where Red stop bar is not present at the TWY INT, Yellow INTERMEDIATE HLDG PSN LGT will be used at TWY INT and switched on between sunset and sunrise or during periods of poor visibility.

1 ADB SAFEGATE AIRCRAFT DOCKING GUIDANCE SYSTEM - SAFEDOCK

1.1 INTRODUCTION

1.1.1 The ADB Safegate Aircraft Docking Guidance System (ADGS) - SAFEDOCK is a fully automatic aircraft docking guidance system installed at the contact aircraft stands at Terminals 1, 2, 3 and 4, and at the remote aircraft stands at South Apron and North Remote Apron (951 to 954) of Singapore Changi Airport.

1.2 DESCRIPTION OF SYSTEM

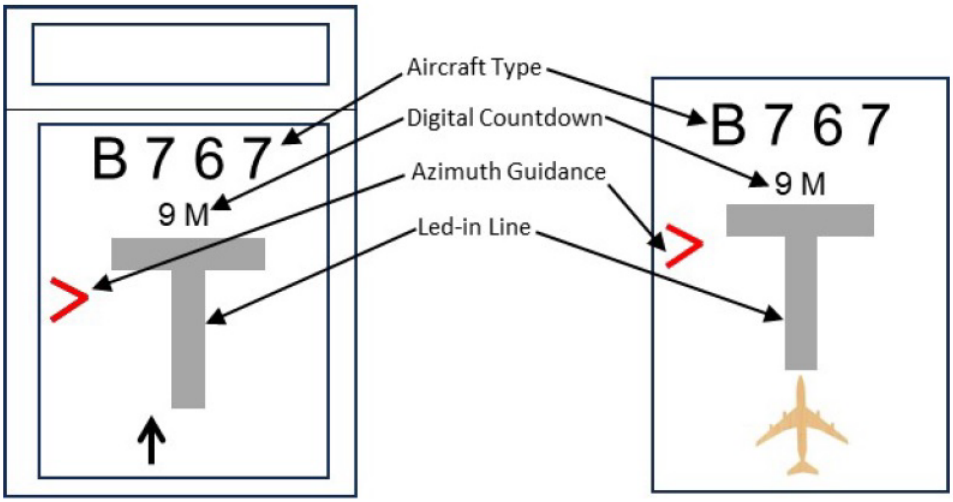
1.2.1 The system is based on a laser scanning technique and it tracks both the lateral and longitudinal position of the aircraft. This 3D technique allows the system to identify the incoming aircraft and check it against the one selected by the operator to ensure that the pilot is provided with the correct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

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

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

LED DISPLAY AND LASER SCANNING UNIT

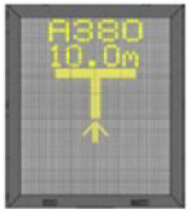
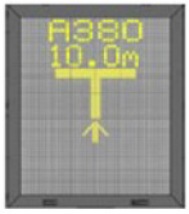
LED DISPLAY AND LASER SCANNING UNIT



Safedock Type 1
Figure A

Safedock FleX
Figure B

1.3 DOCKING PROCEDURES

Description	Display on ADGS
Checking of Aircraft Type – Check that the correct aircraft type is displayed. The scrolling arrows indicate that the system is activated. – Follow the lead-in line.	Safedock Type 1  Safedock FleX 
Capture of Correct Aircraft Type – When the aircraft has been caught by the scanning unit, the scanning unit checks that the aircraft is the correct type and the display provides azimuth guidance information. When the solid yellow closing rate bar appears, the aircraft is being tracked by the system.	Safedock Type 1  Safedock FleX 
Steering and Alignment of Aircraft – Look for the flashing red arrow and solid yellow arrow which provide azimuth guidance information. The flashing red arrow shows which direction to steer, while the solid yellow arrow gives an indication of how far the aircraft is off the centreline.	Safedock Type 1  Safedock FleX 
Distance of Aircraft from STOP Position – When the aircraft is 15m from the stop position, closing rate information is given. “Distance to go” is indicated by turning off one row of LEDs (Laser Electronic Displays) for every half metre that the aircraft advances towards the stop position. From 15m to the stop position, the display will indicate the distance from the stop position for every 1m. At 3m from the stop position, the display will indicate the distance from the stop position for every 0.2m.	Safedock Type 1  Safedock FleX 

Description	Display on ADGS
Safety Backup (SBU) Stop - When a non-recoverable error has occurred during the docking due to either 1. Hardware failure; 2. Aircraft more than +/- 0.5 meters off the centerline when two (2) meters or less to stop-position; or 3. System Failure - Pilot are to stop the aircraft immediately when seeing the “SBU STOP” display or when given the stop sign by the aircraft marshaller or is unsure of the information displayed during the docking process.	Safedock Type 1  Safedock FleX 
View Blocked - When the view towards the aircraft is hindered, the display will show “WAIT VIEW BLOCK” Pilot are to stop the aircraft immediately or when given the stop sign by the aircraft marshaller or is unsure of the information displayed during the docking process.	Safedock Type 1  Safedock FleX 
Gate Block - When an object is found to be blocking the view from the ADGS toward the aircraft, the display will show "WAIT GATE BLOCK". Pilot are to stop the aircraft immediately or when the stop sign by the aircraft marshaller or is unsure of the information displayed during the docking process.	Safedock Type 1  Safedock FleX 

2 PROCEDURES FOR START-UP AND PUSHBACK OF AIRCRAFT

2.1 Ground crew shall ensure that the area behind an aircraft is clear of vehicles, equipment and other obstructions before the start-up or pushback of aircraft commences.

2.2 When it becomes necessary to vary a procedure to expedite aircraft movements, Ground Movement Controller (“Singapore Ground”) shall issue specific instructions to the pilot.

2.3 When the pilot is ready for start-up and pushback, he shall seek confirmation from the ground crew that there is no hazard to his aircraft starting up. He shall then notify Singapore Ground that he is ready for pushback. On being told by Singapore Ground that pushback is approved, he shall co-ordinate with the ground crew for the start-up and pushback of the aircraft.

2.4 The lead-in lines are for aircraft nose-in guidance. For aircraft stands without dedicated pushback lines, ground crew may use the lead-in lines for pushback guidance.

2.5 For more information, refer to Airport Operations Centre System (AOCS) at https://aoc.changiairport.com/ for detailed pushback procedures.

3 ADVANCED MULTILATERATION SYSTEM

3.1 INTRODUCTION

3.1.1 The Multilateration System is a new surveillance system which is able to detect and identify all Mode S equipped aircraft and vehicles moving on the airport surface even during bad weather conditions such as heavy rain. It will integrate with the current radar-based ground surveillance system as part of the Advanced-Surface Movement Guidance and Control System (A-SMGCS) at Singapore Changi Airport. This will enhance the efficiency and safety at the airport.

3.2 CARRIAGE OF MODE-S SSR TRANSPONDER

3.2.1 Carriage and operation of Mode-S transponder is required for all civil aircraft operating at Singapore Changi Airport. The Mode-S transponder shall comply, at least, to the requirements of Level 2 as prescribed in ICAO Annex 10 Volume IV (Amendment 77 or later) Standards and Recommended Practices.

3.3 MULTILATERATION SYSTEM OUTLINE

3.3.1 The Multilateration System uses multiple receivers to pick up “squitters” transmitted by aircraft or vehicle Mode S transponders. It calculates the position of an aircraft or a vehicle by comparing the time its “squitter” arrives at each receiver.

3.3.2 The System will derive the identity of an aircraft by selectively interrogating its transponder to receive its assigned Mode A code or extracting its aircraft identification [that is, the ICAO callsign used in flight and inserted in the Flight Management System (FMS) or the Transponder Control Panel], if available, from its squitter. For transponder equipped vehicles, the system will derive their respective identities from the unique Mode S addresses contained in their squitters.

3.4 AIRCRAFT REQUIREMENTS

3.4.1 The Multilateration System is essentially passive. It relies on aircraft transponders squittering at all times when moving on the airfield. At present, some aircraft checklist procedures instruct pilots to turn off the transponder shortly after leaving the runway on arrival and, not to switch it on until reaching the runway holding point for departure. This is in line with the requirement that Mode A/C transponders should not transmit on the ground, which does not apply to Mode S transmissions.

3.4.2 For the Multilateration System to work effectively, all aircraft Mode S transponders need to transmit Mode S squitters at all times when moving on the airfield, starting immediately prior to the request for pushback, and for arrival aircraft until they are stationary at the aircraft stands. The Mode S transponders should not respond to All-Call interrogations, but should respond to addressed interrogations.

3.5 PROCEDURES/ACTIONS REQUIRED BY PILOTS

3.5.1 The Multilateration System needs to receive squitters and to acquire the Mode A code of a Mode S equipped aircraft at all times when it is on the ground. This is to enable detection and identification of the aircraft (from its Mode A code or ICAO callsign) as soon as pilot initiates the request for pushback. Hence, the following actions from pilots are required.

3.5.2 Pre-Pushback / Taxi

a) Pilots will be required to enter an assigned Mode A code at start-up. This code will be either a discrete or non-discrete code (a conspicuity code, e.g. 1000).
b) Pilots shall ensure that the aircraft transponder is operating (that is, XPNDR or the equivalent according to specific installation, AUTO if available, not OFF or STBY) and the assigned Mode A code is selected prior to the request for pushback or taxi, whichever is earlier.
c) Whenever the aircraft is capable of reporting aircraft identification, the aircraft identification must also be entered prior to the request for pushback or taxi, whichever is earlier, through the FMS or the Transponder Control Panel. Flight crew must use the 3-letter ICAO designator of the operator, followed by flight identification number (for example, BAW123, SIA002).

3.5.3 After Landing

a) Pilots shall ensure that the aircraft transponder is operating (that is, XPNDR or the equivalent according to specific installation, AUTO if available, not OFF or STBY) after landing, and continuously until the aircraft is stationary at the aircraft stand.
b) Pilots shall ensure that the assigned Mode A code is not changed until the aircraft is stationary at the aircraft stand. (The system requires it for identification of the aircraft).

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

23 CHANGI FLOW MANAGEMENT PROCEDURES

23.1 INTRODUCTION

23.1.1 The objectives of the procedures are to improve the efficiency of Singapore's air traffic service by minimising radar vectoring as well as improving airspace capacity.

23.1.2 The procedures require the holding of Changi arrivals over established holding areas.

23.2 ENTRY AND EXIT GATES

23.2.1 'Entry gates' and 'Exit gates' are established to ensure segregation between arriving and departing aircraft operating at Singapore Changi Airport. These gates (waypoints) are incorporated in the RNAV SIDs/STARs which have been implemented to support the flow management procedures. The 'entry' and 'exit' gates are shown below:

Entry Gate	Coordinates
KEXAS	011019.00N 1044818.00E
PASPU	015915.00N 1040618.00E
REMES	004342.00N 1035735.00E
VAMPO	005833.00N 1032525.00E

23.3 ARRIVING AIRCRAFT TO SINGAPORE CHANGI AIRPORT

23.3.1 STANDARD INSTRUMENT ARRIVAL (STAR)
IFR flight should expect a Standard Instrument Arrival (STAR).

23.3.2 ENTRY GATE TIME
To regulate the flow of traffic into the Approach airspace, ATC will issue, when necessary, a time restriction at an entry gate associated with the inbound route of the flight into Singapore Changi Airport.

23.3.3 DESCENT PROFILE
Pilots shall plan their descent profile in accordance with the published STAR procedures.

23.3.4 SPEED CONTROL
Speed control restrictions are incorporated into the STARs to enhance predictability and planning of air traffic in the Approach airspace. Pilots shall adhere to the speed control restrictions published in the STAR procedures unless otherwise advised. ATC may issue further speed adjustment during the different phases of the flight if traffic situation warrants.

23.4 APPROACH AIRSPACE HOLDING PROCEDURES

23.4.1 ENTRY PROCEDURE
The entry into the holding patterns shall be in accordance with the three-sector entry procedure as prescribed in ICAO Doc 8168 - OPS/611 Edition 1993.

23.4.2 RATE OF TURN
All turns are to be made at a bank angle of 25° or at a rate of 3° per second, whichever requires the lesser bank.

23.4.3 DESCENT PROCEDURE
When instructed to join a holding pattern, pilots shall reach their assigned altitudes prior to arriving at the holding point. This will allow appropriate traffic sequencing and the reduction of step-descents in the holding pattern.

23.4.4 DETAILS OF APPROACH AIRSPACE HOLDING AREAS

Holding Fix / ID / Co-ordinates	Inbound Track °M	Direction of Turn	MAX HLDG Speed (IAS)	Time (MIN)	MNM-MAX HLDG Level	Controlling Unit and Frequency
1	2	3	4	5	6	7
NYLON 013657N 1040624E	203°	Left	220 knots	1	FL140 3,000ft	Singapore Approach 124.05MHz (PRI) 132.15MHz (SRY)
KEXAS 011019N 1044818E	268°	Left	220 knots	1	FL160 11,000ft	Singapore Approach 124.05MHz (PRI) 132.15MHz (SRY)

Holding Fix / ID / Co-ordinates	Inbound Track °M	Direction of Turn	MAX HLDG Speed (IAS)	Time (MIN)	MNM-MAX HLDG Level	Controlling Unit and Frequency
REMES 004342N 1035735E	348°	Left	220 knots	1	FL140 6,000ft	Singapore Approach 124.6MHz (PRI) 132.15MHz (SRY)
BOBAG 010230N 1032954E	082°	Right	220 knots	1	FL140 6,000ft	Singapore Approach 124.6MHz (PRI) 132.15MHz (SRY)
VAMPO 005833N 1032525E	149°	Right	220 knots	1	FL180 6,000ft	Singapore Approach 124.6MHz (PRI) 132.15MHz (SRY)

23.4.5 ALTERNATE HOLDING AREAS
In the event of inclement weather or capacity constraints rendering a specific holding area unusable, arrivals may be cleared to an alternate holding area for re-sequencing. To ensure smooth transition to alternate holding area, all arrivals bound for Singapore Changi Airport shall have their FMS programmed with all the four promulgated holding areas (paragraph 23.4.4).

23.5 EXPECTED TIME TO LEAVE HOLDING AREA

23.5.1 If arrival delay is processed by means of holding, pilots will be informed of the expected time to leave the respective holding area.

23.5.2 The expected time to leave is issued to serve as an early notification of the probable holding duration as well as for unforeseen circumstance such as radio failure (see ENR 1.6). Subsequently, a specified time to leave the holding area will be issued to pilots to resume the flight according to the assigned RNAV STARs.

23.6 DEPARTING AIRCRAFT FROM SINGAPORE CHANGI AIRPORT

23.6.1 DEPARTURE SPEED CONTROL
Departing aircraft shall not exceed IAS 230 knots below 4,000 feet AMSL or at the waypoints specified in the SID and not exceed IAS 250 knots below 10,000 feet AMSL. Pilots shall also comply with speed control restrictions according to published SIDs.

24 SIMULTANEOUS INDEPENDENT PARALLEL APPROACHES

24.1 INTRODUCTION

24.1.1 Simultaneous independent parallel approaches will be implemented daily between 0000UTC and 1500UTC to optimize runway utilization and enhance air traffic efficiency.

24.2 PROCEDURES FOR SIMULTANEOUS INDEPENDENT PARALLEL APPROACHES

24.2.1 To ensure safe operations between aircraft on parallel approaches, Normal Operating Zones (NOZs) are established for each extended runway centreline and a No Transgression Zone (NTZ) is established between the NOZs.

24.2.2 ATC will vector arriving flights into Singapore Changi Airport from the final waypoint of the respective STARs to the respective NOZs.

24.2.3 Within the NOZ, ATC shall provide a minimum vertical separation of 1,000ft or 3NM surveillance separation between pairs of aircraft until both aircraft are established on the ILS Localizer course.

24.2.4 ATC is not required to provide separation between aircraft on adjacent ILS Localizers and will monitor aircraft for deviation from the approach path.

24.2.5 Aircraft can expect to maintain altitude 2,500ft till Glide Path Interception for Runway 20R / 02L and 3,500ft till Glide Path Interception for Runway 20C / 02C. This is to ensure the necessary vertical separation prior to establishing on the respective ILS Localizer course.

24.2.6 Aircraft can expect the following radiotelephony phraseology to intercept the Localizer before clearing for ILS:

“TURN LEFT (RIGHT) HEADING (three digits) MAINTAIN (altitude) REPORT ESTABLISHED ON THE LOCALIZER RUNWAY (number) LEFT (CENTRE / RIGHT)”

followed by ...

"MAINTAIN (altitude), CLEARED FOR ILS APPROACH RUNWAY (number) LEFT (CENTRE/RIGHT)"

24.2.7 Aircraft can expect to maintain speed 180 knots at base turn or earlier till 8NM from touchdown.

24.3 BREAK-OUT MANOEUVRE

24.3.1 When an aircraft is observed to have not established on the appropriate Localizer course or deviated from its course towards the NTZ, ATC will instruct the aircraft to return immediately to the correct Localizer course with the following radiotelephony phraseology:

"YOU HAVE CROSSED THE LOCALIZER, TURN LEFT (or RIGHT) IMMEDIATELY AND RETURN TO THE LOCALIZER"

or

"TURN LEFT (or RIGHT) TO RETURN TO LOCALIZER COURSE"

24.3.2 When ATC observed aircraft to be penetrating or will penetrate the NTZ, ATC will instruct the aircraft on the adjacent Localizer course to alter course to avoid the deviating aircraft with the following radiotelephony phraseology:

"TRAFFIC ALERT, TURN LEFT (or RIGHT) IMMEDIATELY HEADING (degrees), CLIMB AND MAINTAIN (altitude)"

24.4 PILOT NOTIFICATION AND CONDITIONS FOR OPERATIONS

24.4.1 Simultaneous approaches to parallel runways operation will be broadcasted on ATIS during the active period.

24.4.2 Simultaneous approaches to the parallel runways will be suspended in the event of adverse weather or any other conditions that may affect the safe conduct of such approaches to the parallel runways.

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 400g each)
- intermediate egrets (weighing approximately 500g each)
- brahminy kites (weighing approximately 600g each)
- grey herons (weighing approximately 1500g each)
- white-bellied sea eagle (weighing approximately 2900g each)

1.2 There could be an increase in bird activities during the migratory months of September to March. During this period, migratory birds may use the airport as their feeding ground.

1.3 Various active dispersal devices generating light, sound or cracking effects are used for bird dispersal to mitigate wildlife hazards where necessary within Singapore Changi Airport (such as handheld laser device, long range acoustic device, scarecrow, stock-whip, pyrotechnic, etc.).

WSSS AD 2.24 CHARTS RELATED TO AN AERODROME

LOCATIONS OF RUNWAY 02L/20R, RUNWAY 02C/20C AND RUNWAY 02R/20L AT WSSS	AD-2-WSSS-ADC-1
AERODROME CHART - ICAO	AD-2-WSSS-ADC-2
AERODROME ADVISORY CHART - ICAO	AD-2-WSSS-ADC-3
AERODROME OBSTACLE CHART - ICAO TYPE A (OPERATING LIMITATIONS)	AD-2-WSSS-AOC-1
AERODROME OBSTACLE CHART - ICAO - TYPE A - RWY 02C/20C	AD-2-WSSS-AOC-2
AERODROME OBSTACLE CHART - ICAO - TYPE B	AD-2-WSSS-AOC-3
AERODROME OBSTACLE CHART ICAO - TYPE A - RWY 02R/20L	AD-2-WSSS-AOC-4
PRECISION APPROACH TERRAIN CHART - ICAO - RWY 02L	AD-2-WSSS-PATC-1
PRECISION APPROACH TERRAIN CHART - ICAO - RWY 20C	AD-2-WSSS-PATC-2
PRECISION APPROACH TERRAIN CHART - ICAO - RWY 02R	AD-2-WSSS-PATC-3
Precision Approach Terrain Chart - ICAO - RWY 20L	AD-2-WSSS-PATC-4
PRECISION APPROACH TERRAIN CHART - ICAO - RWY 02C	AD-2-WSSS-PATC-5
RNAV (GNSS) SID - RWY 02C - ANITO 7A	AD-2-WSSS-SID-1
RNAV(GNSS) SID - RWY 20C - ANITO 8B	AD-2-WSSS-SID-2
RNAV(GNSS) SID - RWY 02R - ANITO 1C	AD-2-WSSS-SID-3

WSSS AD 2.25 VISUAL SEGMENT SURFACE (VSS) PENETRATION

NIL (not applicable).

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AERODROME CHART - ICAO

01 21' 33"N
103 59' 22"E

AERODROME ELEVATION 6.66m

TWR	118.6 / 118.25 / 131.4
GND	124.3 / 121.85 / 121.725 / 127.275
DELIVERY	121.65 / 119.6

RAMP TWR	
GND	122.55 (GMC 4 EAST)
	125.65 (GMC 4 WEST)

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	02R	20L
2 White lights and 2 red lights	20.0m	19.5m	19.8m	19.8m	19.7m	19.7m
3 White lights and 1 red light	24.0m	23.3m	23.7m	23.7m	23.6m	23.6m
4 White lights	26.4m	25.7m	26.2m	26.2m	26.0m	26.0m

* MEHT Minimum Eye Height Over the Threshold.

Note Aircraft with eye-to-wheel height greater than 8 metres are advisable 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 56.27N 103 58 38.82E	10.23m	PCR 710/F/B/X/U
20R (DISP THR)	203°	01 22 34.02N 103 59 20.09E	10.26m	
02C	023°	01 19 43.51N 103 59 05.86E	10.27m	
20C	203°	01 21 43.37N 103 59 56.46E	10.30m	
02R	023°	01 19 20.59N 103 59 59.45E	10.32m	
20L	203°	01 21 20.45N 104 00 50.05E	10.36m	

TAXIWAYS

BEARING STRENGTH

PCR 1006/R/B/W/U - TWY A1, A2, A11, A12, A (between A1 and A2, and between A11 and A12), B1, B2, B13, B14, B (between B1 and B2, and between B13 and B14), C1, C2, C13, C14, C (between C1 and C2) and L (between C13 and C14), D1, D2, D13, D14, D (between D1 and D2, and between D13 and D14), T1, T2, T4, T12, T13, T (between T11 and T13), U12, U13, U (between U12 and U13), W1, W9

PCR 530/F/B/X/U - TXL U2, TWY U7 (between TWY U and TXL U2), TWY U8 (between TWY U and TXL U2), TWY U9 (between TWY U and TXL U2), TXL S6, S8, S9, TWY S7

PCR 710/F/B/X/U - All other taxiways.

APRONS

BEARING STRENGTH

PCR 680/R/B/W/U - Aircraft stands C11, C16, C19, D30, D35, D38, E2, E6, E7, E10, F32, F36, F37, 301, 303, 304, 305, 307, 308, 309, 402, 403, 404, 605, 952, G1 to G17 and 471 to 487

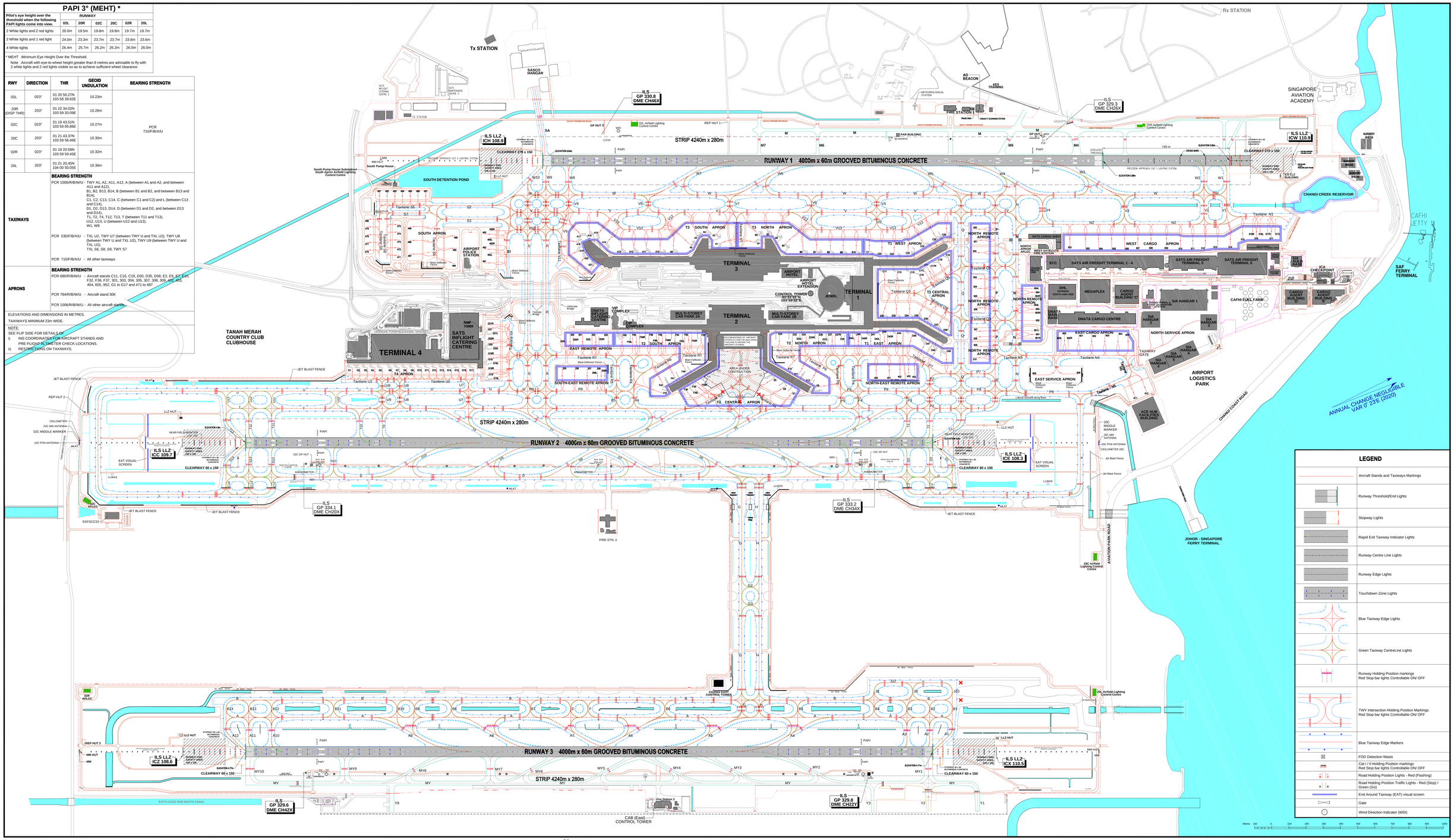
PCR 784/R/B/W/U - Aircraft stand 306

PCR 1006/R/B/W/U - All other aircraft stands.

ELEVATIONS AND DIMENSIONS IN METRES.

TAXIWAYS MINIMUM 23m WIDE.

NOTE:
SEE FLIP SIDE FOR DETAILS OF:
i) INS COORDINATES FOR AIRCRAFT STANDS AND PRE-FLIGHT ALTIMETER CHECK LOCATIONS.
ii) RESTRICTIONS ON TAXIWAYS.



Changes : Addition of SATS BUP Centre near SATS Airfreight Terminal 6
Updated aircraft stand A5 and A9 lead-in lines.

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 55.67	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	5.13m (16.83ft)
	B9	01 21 42.19	103 59 16.16	5.13m (16.83ft)
	B10	01 21 44.47	103 59 17.12	5.15m (16.90ft)
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	5.09m (16.70ft)
	C13	01 21 49.63	103 59 24.75	5.03m (16.50ft)
	C15	01 21 51.89	103 59 25.70	5.06m (16.60ft)
	C16	01 21 53.47	103 59 26.62	4.86m (15.94ft)
	C17	01 21 55.50	103 59 26.20	5.01m (16.44ft)
	C17L	01 21 54.75	103 59 26.22	4.96m (16.27ft)
	C17R	01 21 56.01	103 59 25.68	5.12m (16.80ft)
	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	5.08m (16.67ft)
	D32	01 21 46.75	103 59 31.08	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 34.62	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	5.11m (16.77ft)
	D40L	01 21 37.38	103 59 32.83	5.09m (16.70ft)
	D40R	01 21 38.77	103 59 32.84	5.13m (16.83ft)
	D41	01 21 40.30	103 59 33.81	5.07m (16.63ft)
	D42	01 21 42.77	103 59 34.58	5.15m (16.89ft)
	D42L	01 21 42.00	103 59 34.47	5.12m (16.79ft)
	D42R	01 21 43.45	103 59 34.44	5.21m (17.09ft)
	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 24.12	103 59 32.64	4.75m (15.58ft)
	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 33.56	103 59 30.96	5.07m (16.62ft)
	E27L	01 21 32.79	103 59 30.86	5.03m (16.48ft)
	E27R	01 21 34.20	103 59 30.91	5.12m (16.80ft)
	E28	01 21 35.74	103 59 31.89	5.08m (16.67ft)

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

LOCATION	STAND NR	NORTH LAT	EAST LONG	ELEVATION
T2 CENTRAL APRON	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)
	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 06.60	103 59 29.55	4.91m (16.11ft)
	F35L	01 21 06.06	103 59 30.13	4.74m (15.55ft)
	F35R	01 21 06.96	103 59 29.05	5.04m (16.54ft)
	F36	01 21 04.34	103 59 29.67	4.82m (15.81ft)
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 59.91	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	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 48.21	103 59 19.01	4.74m (15.55ft)
	208	01 20 50.68	103 59 20.05	4.75m (15.58ft)
	208L	01 20 50.01	103 59 19.76	4.74m (15.55ft)
	208R	01 20 51.25	103 59 20.29	4.73m (15.42ft)
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)
	951	01 22 09.35	103 59 45.23	5.15m (16.90ft)
	951L	01 22 08.91	103 59 44.27	5.00m (16.40ft)
	951R	01 22 08.35	103 59 45.58	5.00m (16.40ft)
	952	01 22 09.94	103 59 42.65	4.89m (16.04ft)
	953	01 22 11.22	103 59 40.85	4.98m (16.34ft)
	953L	01 22 10.78	103 59 39.89	4.83m (15.85ft)
	953R	01 22 10.41	103 59 41.28	4.87m (15.98ft)
	954	01 22 12.46	103 59 37.95	4.84m (15.88ft)
	954L	01 22 12.02	103 59 36.99	4.70m (15.42ft)
	954R	01 22 11.65	103 59 38.38	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)

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

LOCATION	STAND NR	NORTH LAT	EAST LONG	ELEVATION
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	600	01 22 14.12	103 59 48.10	4.25m (13.94ft)
	600L	01 22 13.28	103 59 48.27	4.22m (13.83ft)
	600R	01 22 14.58	103 59 48.81	4.15m (13.60ft)
	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 07.00	103 59 52.53	2.41m (7.91ft)
	609	01 22 12.95	103 59 55.04	2.85m (9.35ft)
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)
SOUTH APRON	461	01 20 39.67	103 58 52.75	5.28m (17.32ft)
	462	01 20 40.69	103 58 50.37	5.75m (18.86ft)
	462L	01 20 40.41	103 58 51.02	5.48m (17.98ft)
	462R	01 20 40.97	103 58 49.71	5.71m (18.73ft)
	463	01 20 41.80	103 58 47.76	5.97m (19.59ft)
	463L	01 20 41.52	103 58 48.42	5.82m (19.10ft)
	463R	01 20 42.06	103 58 47.17	5.82m (19.10ft)
	464	01 20 32.33	103 58 49.39	4.98m (16.34ft)
	465	01 20 33.81	103 58 47.20	5.01m (16.44ft)
	466	01 20 34.53	103 58 45.05	5.01m (16.44ft)
	467	01 20 27.32	103 58 45.73	5.01m (16.44ft)
	468	01 20 28.34	103 58 43.34	5.00m (16.41ft)
	469	01 20 29.36	103 58 40.96	5.02m (16.47ft)
	471	01 20 23.76	103 58 44.49	5.16m (16.93ft)
	472	01 20 24.55	103 58 43.24	5.16m (16.93ft)
	473	01 20 25.12	103 58 41.90	5.16m (16.93ft)
	474	01 20 25.70	103 58 40.56	5.16m (16.93ft)
	475	01 20 26.27	103 58 39.22	5.16m (16.93ft)
	476	01 20 19.16	103 58 41.47	5.16m (16.93ft)
	477	01 20 19.74	103 58 40.13	5.16m (16.93ft)
	478	01 20 20.31	103 58 38.79	5.16m (16.93ft)
	479	01 20 20.88	103 58 37.45	5.16m (16.93ft)
	480	01 20 21.45	103 58 36.11	5.16m (16.93ft)
	481	01 20 25.27	103 58 32.56	5.22m (17.13ft)
	482	01 20 26.62	103 58 33.13	5.22m (17.13ft)
	483	01 20 27.96	103 58 33.70	5.22m (17.13ft)
	484	01 20 29.31	103 58 34.27	5.22m (17.13ft)
	485	01 20 30.66	103 58 34.84	5.22m (17.13ft)
	486	01 20 32.01	103 58 35.41	5.22m (17.13ft)
	487	01 20 33.36	103 58 35.98	5.22m (17.13ft)
T4 APRON	G1	01 20 07.58	103 59 00.97	3.95m (12.96ft)
	G2	01 20 08.88	103 59 01.52	3.95m (12.96ft)
	G3	01 20 10.18	103 59 02.07	3.95m (12.96ft)
	G4	01 20 11.48	103 59 02.62	3.94m (12.93ft)
	G5	01 20 12.77	103 59 03.17	3.94m (12.93ft)
	G6	01 20 14.49	103 59 03.89	3.93m (12.89ft)
	G7	01 20 15.70	103 59 04.57	3.89m (12.76ft)
	G8	01 20 17.01	103 59 05.12	3.85m (12.63ft)
	G9	01 20 18.31	103 59 05.67	3.85m (12.63ft)
	G10	01 20 19.60	103 59 06.22	3.86m (12.66ft)
	G11	01 20 20.90	103 59 06.77	3.84m (12.60ft)
	G12	01 20 22.20	103 59 07.31	3.83m (12.57ft)
	G13	01 20 23.50	103 59 07.86	3.82m (12.53ft)
	G14	01 20 24.79	103 59 08.41	3.83m (12.57ft)
	G15	01 20 26.09	103 59 08.96	3.88m (12.73ft)
	G16	01 20 27.39	103 59 09.50	4.05m (13.29ft)
	G17	01 20 28.69	103 59 10.05	4.00m (13.12ft)
	G18	01 20 31.53	103 59 11.86	4.36m (14.30ft)
	G18L	01 20 32.05	103 59 12.85	4.34m (14.24ft)
	G18R	01 20 31.65	103 59 11.26	4.43m (14.53ft)
	G19	01 20 32.64	103 59 09.25	4.56m (14.96ft)
	G19L	01 20 33.17	103 59 10.25	4.47m (14.67ft)
	G19R	01 20 32.77	103 59 08.66	4.56m (14.96ft)
	G20	01 20 33.75	103 59 06.65	4.52m (14.83ft)
	G20L	01 20 34.13	103 59 07.58	4.44m (14.57ft)
	G20R	01 20 33.99	103 59 06.10	4.52m (14.83ft)
	G21	01 20 34.87	103 59 04.04	4.51m (14.80ft)
	G21L	01 20 35.24	103 59 04.98	4.52m (14.83ft)
	G21R	01 20 35.10	103 59 03.49	4.55m (14.93ft)

RESTRICTIONS ON TAXIWAYS

1) Pilots are advised to apply minimum thrust when
   i) turning into TWY P2, P4, P5 and Taxilane P6 while taxiing either northwards or southwards on Taxilane P7, and
   ii) thereafter when taxiing along TWY P2 up to and including the TWY P8/P2 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) Taxiway Q (between TWY V and TWY P7) can only be used by aircraft with maximum wingspan 65m.

4) Taxiway centreline along TWY T between TWY R1 and R3 offset eastward by 2.5m away from aircraft stands E7 and F36

5) Pilots are advised to apply minimum thrust when turning into Taxiway V from Taxilane V7.

6) Taxilane V11 (behind aircraft stands A18 to A21) can only be used by aircraft with maximum wingspan 61m.

7) Taxilane Q1 (behind aircraft stands C16 to C19 and between TWY P and TWY Q),
   Taxilane Q2 and Taxilane Q3 (behind aircraft stands D35 to D38 and between TWY P and TWY Q)
   can only be used by aircraft with maximum wingspan 65m.

8) Taxilane P7 (behind aircraft stands E20 to E22) and Taxilane R7 (behind aircraft stands F50 to F54) can only be used by aircraft with maximum wingspan 65m (towing and pushback exempted).

9) Taxilane U2 can only be used by aircraft with maximum wingspan 36m.

10) Taxiway U7 (between Taxilane U2 and Taxiway U), Taxiway U8 (between Taxilane U2 and Taxiway U) and Taxiway U9 (between Taxilane U2 and Taxiway U) can only be used by aircraft with maximum wingspan 36m.

11) Pilots are advised to exercise caution when taxiing near Taxilane U2, Taxiway U, U7, U8 and U9.

12) Pilots are advised to apply speed limit of 20 knots when taxiing along TWY R and TWY S.

13) Pilots turning aircraft into aircraft stand A2 or aircraft stand B2 are advised to wait for any aircraft holding at Taxilane V7, 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, located western side of RWY 02L/20R, are solely for use by Republic of Singapore Air Force (RSAF) aircraft.

15) TWY MY, MY1, MY2, MY3, MY4, MY5, MY6, MY7, MY8, MY9 and MY10, located eastern side of RWY 02R/20L, are solely for use by Republic of Singapore Air Force (RSAF) aircraft.

16) Taxiway S2, S3 and Taxilane S4 can only be used by aircraft with maximum wingspan 65m.

17) Taxilane S6, S8, S9 and Taxiway S7 can only be used by aircraft with maximum wingspan 36m.

18) Pilots are advised to apply minimum thrust when taxiing on Taxilane N4 turning into Taxilane N5 (and vice versa), due to potential jet blast issues affecting Bays 603, 604, 611 and 612. Aircraft shall not stop on TXL N5 between aircraft stands 604 and 611.

NOTE:
Pilots to follow stand lead-in line and taxi through white hatched apron markings of the following aircraft stands:
A5, A9, B5, B6, C17, D40, D42, E24, E27, F35, F52, F56, F59, G18, G19, G20, G21, 200, 202, 208, 462, 463, 600, 516, 517, 951, 953, 954.

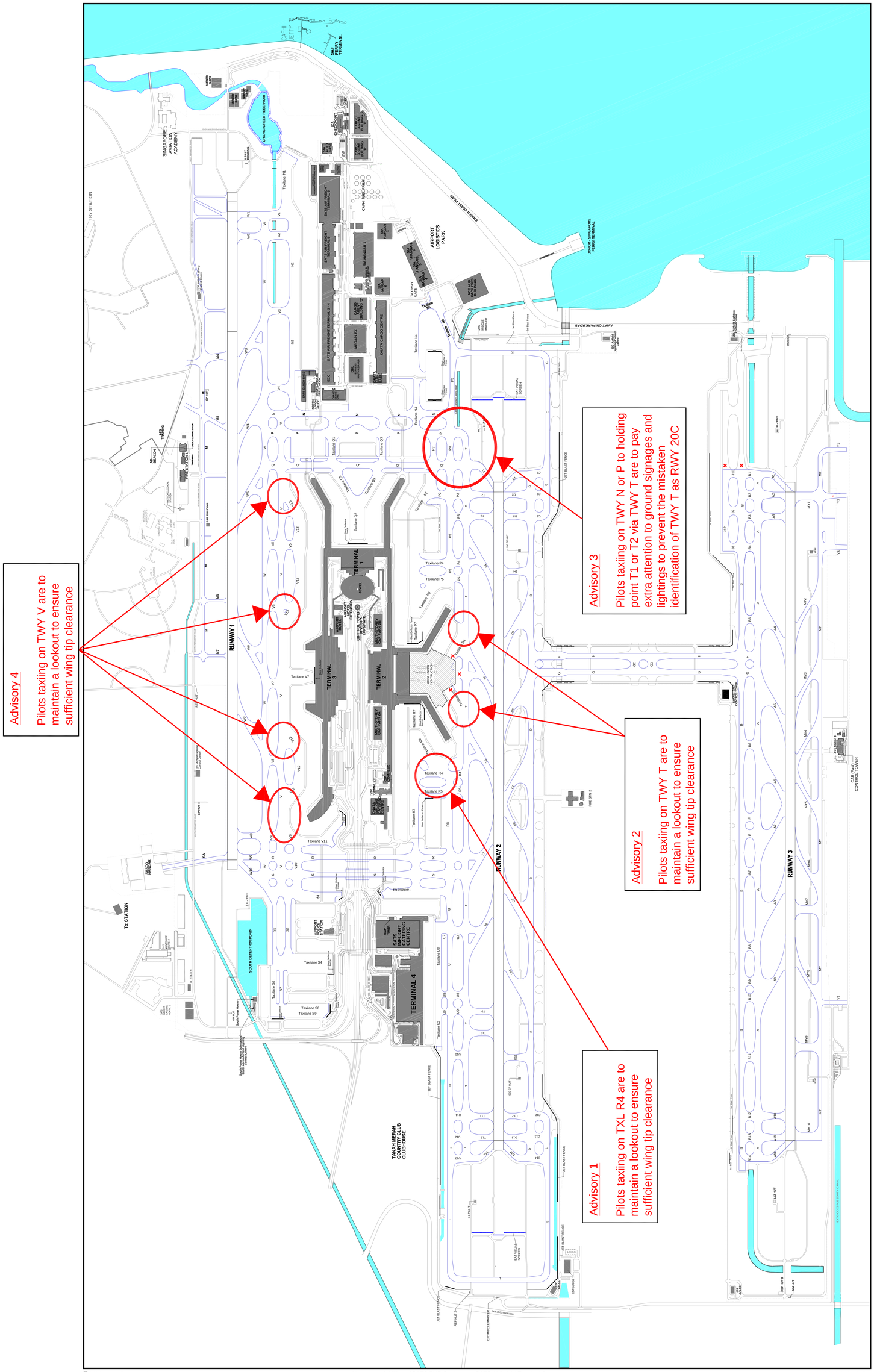
RADIO ALTIMETER OPERATIONS AREA

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

AIRCRAFT STANDS WITH SAFEGATE AIRCRAFT DOCKING GUIDANCE SYSTEM.

Changes : NIL.

AERODROME ADVISORY CHART



Changes : Addition of SATS Airfreight Terminal 6 near SATS BUP Centre

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AERODROME OBSTACLE CHART - ICAO
TYPE B

SINGAPORE / Singapore Changi

AERODROME ELEVATION 7m

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

103°56'E 103°57'E 103°58'E 103°59'E 104°0'E 104°1'E 104°2'E 104°3'E 104°4'E

1°27'N 1°26'N 1°25'N 1°24'N 1°23'N 1°22'N 1°21'N 1°20'N 1°19'N 1°18'N 1°17'N

JOHOR STRAIT

FIR KUALA LUMPUR
FIR SINGAPORE

APPROACH SURFACE SLOPE 1:40

TAKE-OFF CLIMB SURFACE SLOPE 1:50

Pulau Ubin

Pulau Tekong Kechil

Pulau Tekong Reservoir

Pulau Tekong

TAKE-OFF CLIMB SURFACE SLOPE 1:50

APPROACH SURFACE SLOPE 1:40

WSD34
GND - 500 ft ALT

Possible Maritime Vessels of Variable Height

CENTRE-LINE OF SHIPPING CHANNEL

APPROACH SURFACE SLOPE 1:50

R 20

CAFHI Jetty

Jetty

RESA 240m

CWY 270m

SWY 60m BITUMINOUS CONCRETE

203°

Displaced Threshold

TRANSITIONAL SURFACE SLOPE 1:7

Changi Ferry Terminal

C 20

APPROACH SURFACE SLOPE 1:50

CENTRE-LINE OF SHIPPING CHANNEL

CONICAL SURFACE Slope 1:20

MRT

TWR 81m

RESA 240m

CWY 60m

SWY 60m BITUMINOUS CONCRETE

023°

L 20

RESA 240m

CWY 60m

SWY 60m GROOVED BITUMINOUS CONCRETE

203°

TRANSITIONAL SURFACE SLOPE 1:7

Bedok Reservoir

SWY 60m BITUMINOUS CONCRETE

RESA 240m

CWY 270m

02 L

APPROACH SURFACE SLOPE 1:50

TRANSITIONAL SURFACE SLOPE 1:7

TRANSITIONAL SURFACE SLOPE 1:7

CONICAL SURFACE Slope 1:20

SWY 60m BITUMINOUS CONCRETE

RESA 240m

CWY 60m

023°

02 C

INNER HORIZONTAL SURFACE 49m

CWY 60m

RESA 240m

SWY 60m GROOVED BITUMINOUS CONCRETE

02 R

APPROACH SURFACE SLOPE 1:50

Tanah Merah Ferry Terminal

Restricted Waters
(Prior permission required
for vessels over 15m AMSL)

Bedok Jetty

APPROACH SURFACE SLOPE 1:40

TAKE-OFF CLIMB SURFACE SLOPE 1:50

Possible Maritime Vessels of Variable Height

Restricted Waters
(Prior permission required
for vessels over 30m AMSL)

Restricted Waters
(Prior permission required
for vessels over 49m AMSL)

TAKE-OFF CLIMB SURFACE SLOPE 1:50

APPROACH SURFACE SLOPE 1:40

Obstacles which penetrate the surfaces specified in Annex 14, Chapter 4 are shown with elevations.
Other obstacles which may penetrate these surfaces are possible ships and oil rigs. These maritime vessels may not have obstruction lightings.

180 0 30 60 90 120 150 210 240 270 300 330

VAR 0°23' E (2020)
ANNUAL CHANGE
NEGLIGIBLE

LEGEND	
AERODROME REF POINT 01° 21' 33.16"N LAT 103° 59' 21.60"E LONG	
ANTENNA, CHIMNEY, MAST, POLE, SPIRE or CRANE	
SPOT HEIGHT IN METRES	
BUILDING or STRUCTURE	
TREE	
ROAD	
BUILD - UP AREA	

AMENDMENT RECORD		
NO	DATE	ENTERED BY

HORIZONTAL SCALE 1 : 20,000

Meters 1000 500 0 1000 2000 3000 4000 5000

Feet 1000 0 5000 10000 15000 19000

CHANGES : Hatched area markings near end of RWY 20C removed.

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

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WSSL SINGAPORE / SELETAR

WSSL AD 2.1 AERODROME LOCATION INDICATOR AND NAME

WSSL - SINGAPORE / SELETAR

WSSL AD 2.2 AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA

1	*ARP Coordinates and Site at AD*	012501.04N 1035203.52E
2	*Direction and distance from (city)*	006°, 14.6km from city centre (The Fullerton Hotel , Singapore)
3	*Elevation/Reference Temperature*	14 M(46ft) / 33.3°C
4	*Geoid Undulation*	9.78 M
5	MAG VAR	0°23' E (2020)
6	*AD Administration, Address, Telephone, Telefax, AFS*	Address: CHANGI AIRPORT GROUP (S) PTE LTD SELETAR AIRPORT 21 Seletar Aerospace Road 1 Singapore 797405 TEL: (65)64812909, Fax: (65)64833044 (AIS) TEL: (65)64812893, Fax: (65)64831656 (Control Tower) TEL: (65)64815077, 97533361 FAX: (65)64831754 (Airside Operations) AFS: WSSLYDYX
7	*Types of Traffic Permitted*	IFR and VFR
8	*Remarks*	a) Scheduled Closure Periods for RWY 03/21: see AIP section WSSL AD 2.12 item 14 i). b) Night flight restriction for noise abatement purpose (see AIP section WSSL AD 2.21). c) PPR for aircraft not equipped with RTF. d) A subsonic jet aircraft, unless otherwise exempted, is not permitted to operate in Singapore unless it possesses a noise certificate stating that it meets the noise standards of ICAO Annex 16, Volume 1, Chapter 3, or equivalent. The noise certificate may also take the form of a suitable statement contained in another document approved by the State of Registry of the aircraft. e) Direct transit area. Overnight transit in Singapore city. f) All arriving and departing aircraft are required to appoint a licensed Ground Handling Agent (GHA). List of Seletar GHAs can be downloaded from URL - http://www.seletarairport.com/ ground-handling-agents-at-seletar-airport.html g) For non-scheduled flights, all passengers and crews are required to clear Customs and Immigration at Seletar Business Aviation Centre (SBAC)

WSSL AD 2.3 OPERATIONAL HOURS

1	*Aerodrome Administration*	H24	5	*ATS Reporting Office*	H24
2	*Customs and Immigration*	H24	6	*MET Briefing Office*	H24
3	*Health and Sanitation*	H24	7	*Air Traffic Services*	H24
4	*AIS Self-Briefing Office*	H24	8	*Apron Control Office*	H24

WSSL AD 2.4 HANDLING SERVICES AND FACILITIES

1	*Cargo Handling Facilities*	Provided by handling agent.
2	*Fuel / Oil Types*	AVGAS 100LL, JET A1

3	*Fuelling Facilities / Capacity*	SUN/MON to THU/FRI BTN 2330-1400; SAT, SUN and Public holidays BTN 0030-0930 Contact during operating hours: TEL: (65)68538320 (Operations Room) Contact after operating hours: TEL: (65)82009899 (H24 Operations Mobile) FAX: (65)64839246 Group email: GX-SAV-Seletar-Operations24by7@shell.com PPP link: http://www.shell.com/business-customers/aviation/ppp.html
4	*Hangar space for visiting aircraft*	By arrangement with handling agent.
5	*Repair facilities for visiting aircraft*	By arrangement with handling agent.
6	*Remarks*	NIL

WSSL AD 2.5 PASSENGER FACILITIES

1	*Hotels*	NIL
2	*Restaurants*	Public area of terminal building
3	*Transportation*	Handling agent provides its own transport service for passengers and crew between airport and city. Public buses and private hired taxis are available at airport terminal.
4	*Medical Facilities*	NIL
5	*Bank and Post Office*	NIL
6	*Tourist Office*	NIL
7	*Remarks*	Internet address : http://www.seletarairport.com / for airport and flight information, facilities and services.

WSSL AD 2.6 RESCUE AND FIRE FIGHTING SERVICES

1	*AD category for fire fighting*	CAT7 (No facilities for foaming of runways).
2	*Rescue equipment*	Adequately provided as recommended by ICAO.
3	*Capability for removal of disabled aircraft*	Up to B757-200. Contact Seletar Airside Operations at: +65 64815077 or +65 97533361
4	*Remarks*	All Airport Emergency Service personnel are trained in rescue and fire-fighting as well as medical first-aid.

WSSL AD 2.7 SEASONAL AVAILABILITY - CLEARING

The aerodrome is available throughout the year

WSSL AD 2.8 APRONS, TAXIWAYS AND CHECK LOCATIONS/POSITIONS DATA

1	*Apron surface and strength*	Surface: Concrete (all other aircraft stands) Strength: PCR 432 / R /C/ W / U	
2	Taxiway width, surface and strength	Width:	23 M (75.5ft), 18 (59.1ft)TWY EC4, EC5 AND EC6
			8 M (26.2ft) TWY WS1 and WS2
		Surface: Bituminous concrete	
		Strength: PCR 423/F/C/X/U	
3	*Remarks : NIL*		

WSSL AD 2.9 SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS

SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS		
1	*Use of aircraft stand ID signs, TWY guidelines and visual docking/parking guidance system of aircraft stands*	Taxiing guidance signs at all intersections with TWY and RWY at all holding positions. Guidelines at apron. Nose-in guidance at aircraft stands.
2	*RWY and TWY markings and LGT*	RWY LGT: refer to page WSSL AD 2-5 for details. RWY Turn Pad LGT / Markings: Only AVBL at THR RWY 03. Yellow turnpad centreline. TWY LGT: TWY Edge LGT: Blue LGT, inset, elevated and omni-directional. TWY Centreline LGT: Green LGT, fixed. Intermediate Holding Position LGT: Yellow LGT, fixed, unidirectional. TWY markings: Yellow TWY centreline. The fixed green taxiway centreline lights and fixed unidirectional yellow intermediate holding position lights shall be switched on between sunset and sunrise or during periods of poor visibility. ATC will continue to verbalise the taxi route as per current practice. Pilots shall continue to adhere strictly to the taxi clearances issued by ATC at all times. In the event that the fixed green taxiway centreline lights and fixed unidirectional yellow intermediate holding position lights become unserviceable, pilots shall taxi following the single continuous yellow taxiway centreline markings and intermediate holding position markings (single broken line laid across the entire width of the taxiway) as per mode of operations during VMC daylight hours. MARKING AIDS: Threshold, touchdown zone, centreline stripes and RWY designation. RWY width outline from bituminous concrete surface by white lines. AIMING POINT MARKINGS: RWY 03: coincident with PAPI origin located 423.542m from THR respectively. RWY 21: coincident with PAPI origin located 271.279m from THR respectively.
3	*Stop Bars*	Stop Bars: Red LGT across taxiways W1, W2, W3, E1, E2, E3 and E4, flushed with TWY surface and are supplemented with elevated RWY guard LGT at the sides. By default, red stop bar lights remain on unless deselected by the runway controller. When deselected, these stop bar lights will re-activate automatically after 45 seconds. Pilots shall not cross any lighted red stop bar lights. Pilots and drivers shall enter / cross the runway only when both the following conditions are met: The crew have a) received positive ATC clearance to enter / cross the runway or taxiway, and b) observed that the red stop bar lights are turned off. Crash Alarm Stop Bars: Red LGT across junctions of EP, EC4 and EH2 TWY, flushed with TWY surface. (Note to pilots and tow-crew: Slow down when taxiing / towing on TWY EP between TWY EC4 and abeam the Control Tower. Keep a lookout for emergency vehicles that may cross the taxiway to respond to emergency on the RWY.)

SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS		
4	Remarks	a) Aircraft operators/ground handlers shall be responsible for the safe and smooth operations of aircraft at the aircraft stands. b) A ground handler shall be at the aircraft stand when the aircraft is ready to depart and ensure that the area around the aircraft is clear of vehicles, equipment and personnel before aircraft engines are started. When the pilot signals that he is ready to taxi, the ground handler shall marshal the aircraft out of the aircraft stand. All personnel, tow tugs and equipment shall be cleared from the aircraft stand and red chevron markings on the adjacent aircraft stands before self-power out can commence. c) All arriving aircrafts will be assigned an aircraft stand. Aircraft with wingspan larger than 15m shall be marshalled into the aircraft stand by a ground handler. d) Code A, Code B and Code C aircraft can taxi into aircraft stands C1, C2, C3, C4, C5 and C6 from the north or the south via TWY WA. e) Only Code A aircraft, Code B aircraft, aircraft type Global Express (GLEX), Global 5000 (GL5T), Global 6000 (GL6T), Global Express XRS (GLEX), Global 7500 (GL7T), Fokker 50 (F50), Fokker 70 (F70), Fokker 100 (F100), Gulfstream 500 (GLF5), Gulfstream 550 (GLF5), Gulfstream 650 (GLF6), ATR 42 (AT45 & AT46), ATR 72 (AT75 & AT76), DASH 7 (DNC7), Falcon 7X (FA7X) and Falcon 8X (FA8X) are allowed to taxi out from aircraft stands C1, C2, C3, C4, C5 and C6 subjected to (g), (h) or (i). f) All other aircraft not listed in (e) departing from C1, C2, C3, C4, C5 and C6 are required to push back onto TWY WA or tow forward onto TWY WP. g) Aircraft departing stand C6 shall taxi out towards the south only. h) Aircraft departing stands C1, C2, C3, C4 and C5 are allowed to taxi out towards the south or the north. i) Aircraft types up to B757-200 (no winglets) can taxi into aircraft stands D50, D51, D52, D53, D54, D55 and D56. j) Only Code A aircraft, Code B aircraft and Code C aircraft, Airbus A320 family (A318, A319, A320, A321), ATR 42 (AT45 & AT46), ATR 72 (AT75 & AT76), DASH 7 (DNC 7), Embraer 190STD (E190), Embraer ERJ 135 (E135), Falcon 7X (FA7X), Falcon 8X (FA8X), Fokker 50 (F50), Fokker 70 - all, Fokker 100 - all, Global Express (GLEX), Global 5000 (GL5T), Global 6000 (GL6T), Global Express XRS (GLEX), Global 7500 (GL7T), Gulfstream 500 (GLF5), Gulfstream 550 (GLF5), Gulfstream 650 (GLF6) and Q400 (DH8) are allowed to taxi out from aircraft stands D50, D51, D52, D53, D54, D55 and D56. k) Aircraft type C130 is restricted to tow in operations at aircraft stand D1, D2 and D50. Aircraft is required to shut down at designated shut down area and be towed to aircraft stand D1, D2 and D50. l) Only aircraft type ATR72 (AT75 & AT76) and aircrafts with wingspan less than 27.2m can be parked at aircraft stands C60, C61 and C62.

1 PROCEDURES FOR START-UP AND PUSHBACK OF AIRCRAFT

1.1 1.1 For more detailed information on Seletar Aerodrome pushback procedures, please refer to Seletar Airport website at https://www.seletarairport.com/resources.html.

WSSL AD 2.10 AERODROME OBSTACLES

IN APPROACH / TKOF AREAS				IN CIRCLING AREA AND AT AD	
RWY/Area affected	Obstacle type Elevation Markings/LGT	Coordinates		Obstacle type Elevation Markings/LGT	Coordinates
a	b	c		a	b

IN APPROACH / TKOF AREAS				IN CIRCLING AREA AND AT AD	
RWY/Area affected	**Obstacle type Elevation Markings/LGT**	**Coordinates**		**Obstacle type Elevation Markings/LGT**	**Coordinates**
RWY 03 TKOF RWY 21 APCH	1) Mast HGT ranging from 98ft AMSL and above in shipping channel	Approximately 1525m from THR RWY 21		1) Power station chimney 407ft AMSL	012656.8N1035251.7E
	2) Steel structure 300ft AMSL	012709.78N1035318.74E		2) Radio mast 217ft AMSL	012258.8N1035113.8E
	3) Chimney 276ft AMSL	012700.18N1035321.93E		3) Radio masts 184ft AMSL	012454N 1035300E
	4) Chimney 273ft AMSL	012651.81N1035330.23E		4) Radar tower 177ft AMSL marked/LGTD	012537.79N1035306.74E (reclaimed land north of RWY)
	5) Chimney 286ft AMSL	012646.99N1035331.46E		5) Mobile cranes 420ft AMSL	within area bounded by 012711.78N1035223.74E 012729.78N1035223.74E 012729.78N1035247.74E 012656.78N1035247.74E
	6) Mobile cranes 330ft AMSL	within area bounded by 012627.24N1035313.00E 012607.79N1035333.95E 012614.23N1035337.07E 012623.93N1035316.02E		6) Glide Path Antenna 72ft AMSL	012512N1035215E
	7) Silo, 342 ft AMSL, mark and lighted	012659.1N1035325.3E			
Obstacles in the approach / TKOF areas, circling area and at the aerodrome are shown on the AOC and VAC					

WSSL AD 2.11 METEOROLOGICAL INFORMATION PROVIDED

1	*Associated MET Office*	Seletar
2	*Hours of service*	H24
3	*Office responsible for TAF preparation, Periods of validity*	Singapore Changi, 30 hours
4	*Type of landing forecast, Interval of issuance*	METAR, SPECI and AD warning of adverse weather (H24). TREND NIL.
5	*Briefing/consultation provided*	NIL
6	*Flight documentation, Language(s) used*	Tabular forms, English
7	*Charts/other information available for briefing or consultation*	NIL
8	*Supplementary equipment available for providing information*	MDWR (Meteorological Doppler Weather Radar), Automated Weather Observing System (AWOS), Low Level Wind Shear Alert System (LLWAS)
9	*ATS units provided with information*	NIL
10	*Additional information*	TEL: 64815978 (MET Office)

WSSL AD 2.12 RUNWAY PHYSICAL CHARACTERISTICS

Designations RWY NR	TRUE BRG	Dimensions of RWY (m)	Strength (PCR) and Surface of RWY and SWY	THR coordinates and RWY end coordinates (THR GEOID Undulation)	THR Elevation and highest elevation of TDZ of precision APCH RWY
1	2	3	4	5	6
03	033.33°	1836 x 46	423/F/C/X/U Grooved Bituminous Concrete	THR: 012430.85N 1035143.79E RWY end: 012520.79N 1035216.43E (9.78M)	THR: 14m TDZ: Not applicable
21	213.33°	1836 x 46	423/F/C/X/U Grooved Bituminous Concrete	THR: 012520.79N 1035216.43E RWY end: 012430.85N 1035143.79E (9.78M)	THR: 5m TDZ: Not applicable

Slope of RWY – SWY Transverse / Longitudinal	SWY Dimensions (m)	CWY Dimensions (m)	STRIP Dimensions (m)	Dimensions of RESA (m)	Locations and description of ARST system
7	8	9	10	11	12
RWY 03 1.21 / 0.49% SWY: Not Applicable	Not Applicable	60 X 150	1956 X 150	RWY 03-240 X 92	Not Applicable
RWY 21 1.21 / 0.49% SWY: Not Applicable	Not Applicable			RWY 21-240 X 150	Not Applicable

OFZ	Remarks
13	14
Not Applicable	**i) Scheduled closure period for RWY 03/21** a) BTN 1600-2300 on first and third FRI of every month or the following FRI if the first or third FRI is a public holiday. RWY CLSD to all TFC except medevac and EMERG flights. Advance notice of 30 minutes is required for EMERG reopening of RWY. b) BTN 0500-0630, 1030-1200, 1300-1430 and 2300-0030 daily for 15-minute RWY inspection. Aircraft to expect delay. **ii)** A lighted RWY turn pad with centreline marking is provided at the threshold of RWY 03 which is able to serve aircraft up to B757-200. **iii)** Orange frangible posts are positioned along the boundary 90m on either sides of the RWY centreline demarcating the boundary for grass cutting and other maintenance works. **iv)** Wind Direction Indicators (WDIs) are located at both northern and southern ends of the RWY.

WSSL AD 2.13 DECLARED DISTANCES

RWY Designator	TORA (m)	TODA (m)	ASDA (m)	LDA (m)	Remarks
1	2	3	4	5	6
03	1836	1896	1836	1836	NIL
21	1836	1896	1836	1836	NIL

WSAP AD 2.18 ATS COMMUNICATION FACILITIES

Service designation	Call sign	Frequency	Hours of operation	Remarks
APP	SELETAR APPROACH	126.025 MHz	0000-1500	TAR – Intermediate approach to Seletar Airport
	SINGAPORE APPROACH	124.05 MHz 124.6 MHz 126.3 MHz	H24	TAR – flow control service provided for ARR/DEP ACFT. Intermediate approach to Singapore Changi AP and other airports in Singapore. DEP from all airports in Singapore.
	PAYA LEBAR APPROACH	119.9 MHz 298.0 MHz *255.8 MHz #127.7 MHz	BTN 2300-1100 SUN-MON to THU-FRI On SAT-SUN, public holidays and outside the above times PPR from RSAF Headquarters via Paya Lebar Base Command Post.	* 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 263.1 MHz		NIL
GND	PAYA LEBAR GROUND	130.8 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
Flight Information Service	SINGAPORE RADAR	119.1 MHz	H24	NIL

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	H24	012224.00N 1035451.00E	030° MAG 2.375km from ARP. Maint Period: BTN 0001-0900 Second SAT of EV month For homing purposes only.
PAPA UNIFORM DVOR/DME	PU	115.1MHz CH98X	H24	012524.00N 1035600.00E	020° MAG 9km from THR RWY 02 Antenna Hgt: 190ft AMSL. Coverage 200NM. Maint Period: BTN 0200-0600 Third WED of EV month

Type of Aid and MAG Variation	IDENT	FREQ	OPR Hour	Position of transmitting Antenna Coordinates	DME transmitting Antenna Elevation / Remarks
SINJON DVOR/DME	SJ	113.5MHz CH82X	H24	011321.34N 1035115.22E	201° MAG 14.5km from THR RWY 02 (Paya Lebar). Antenna HGT: 190ft 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
ILS GP RWY 02	-	332.00MHz	H24	012050.42N 1035410.11E	GP angle 3 DEG.
ILS DME RWY 02	IPN	CH30X	H24	012050.42N 1035410.11E	DME co-located with GP
ILS LLZ RWY 20	IPS	111.5MHz	H24	012027.24N 1035404.48E	LOC 462m from THR RWY 02 along centreline of RWY. Course width 3 deg. Maint Period: BTN 0001-0900 Second SUN of EV month
ILS GP RWY 20	-	332.90MHz	H24	012227.29N 1035451.29E	GP angle 3 deg.
ILS DME RWY 20	IPS	CH52X	H24	012227.29N 1035451.29E	DME co-located with GP

WSAP AD 2.20 LOCAL AERODROME REGULATIONS - DESIGNATION OF PAYA LEBAR AIRPORT AS AN ALTERNATE AD FOR SINGAPORE CHANGI AIRPORT

1 INTRODUCTION

1.1 Paya Lebar Airport is designated as an alternate aerodrome to Singapore Changi Airport.

1.2 As Paya Lebar Airport is a joint civil/military aerodrome, its use as a planned alternate aerodrome for Singapore Changi Airport is subjected to certain restrictions and limitations. It also has limited ground, baggage and passenger handling facilities for civilian aircraft operations, such as passenger boarding bridges.

2 MANNING OF PAYA LEBAR AIRPORT

2.1 The airport is open from 2300-1100 on SUN-MON to THU-FRI. It is closed on Saturdays, Sundays and Public Holidays. Outside the stipulated operating hours and during airport closure, Paya Lebar Airport will be opened at 30 minutes' notice to accept diversion flights into the aerodrome.

2.2 Airline operators are requested to inform the Airport Manager and the Duty Tower Controller or SATCC Watch Manager at Singapore Changi Airport as soon as it is known that their service will require the use of Paya Lebar Airport. Revised ETAs and/or ETDs are to be notified as soon as known.

2.3 The airport will hold off all departures and arrivals when the aerodrome visibility falls below 3km, or when the aerodrome prevailing cloud base is lower than 500ft. This is a safety consideration to avoid aircraft from carrying out a missed approach under an adverse weather condition. For maintenance/functional check flights scheduled to depart and arrive back to the airport, such departures may be held off when the aerodrome visibility falls below 6km, or when the aerodrome prevailing cloud base is lower than 1,000ft.

3 OPERATIONAL SERVICES

3.1 Air-ground-air communications maintained by Paya Lebar Airport for aerodrome/approach control service are listed in page WSAP AD 2-7.

4 PASSENGER CLEARANCE

4.1 All Customs, Health and Immigration clearances will be carried out at Singapore Changi Airport.

4.2 The diverting aircraft Airline's Coordinator and its ground handling agency staff shall be present to provide assistance when an aircraft is required to land at Paya Lebar Airport.

5 SECURITY

5.1 All airline personnel, including ground handlers and support staff who have to proceed to Paya Lebar Airport must wear their Singapore Changi Airport passes at a prominent position for entry to the aircraft parking area. All personnel not in possession of the laminated Singapore Changi Airport pass will be denied entry into Paya Lebar Airport by the RSAF Security Guard. Entry into the airport by both the airline personnel and service equipment is via the main gate. The Airline Engineering Coordinator shall be responsible for the proper positioning of the ground servicing equipment and vehicles in the Apron Area where arriving aircraft are to be parked.

5.2 The security of civil aircraft parked in the Apron is the responsibility of the aircraft owner and any security service obtained shall first be cleared with the Paya Lebar Airport flight security.

6 AIRCRAFT STAND ALLOCATION

6.1 Nine aircraft parking positions in Apron C and on taxiway fillets are available for civil aircraft. A separation of 40 feet between wing-tips should be maintained.

6.2 Aircraft parking positions will be issued by the Paya Lebar Tower and the Airline Engineering Coordinator shall provide the marshalling services. Close coordination between the Airline Engineering Coordinator and the Tower Controller is essential in regard to aircraft parking and positioning of servicing equipment in and around the parking apron.

7 AIRCRAFT REFUELLING

7.1 ST Airport Services Pte Ltd (STARS) is the assigned aircraft fuelling agency. However, prior arrangement must be made between the airline and STARS for such services. The refuelling rate available is 350 imperial gallons per minute (IGPM).

8 GROUND OPERATIONS

8.1 Singapore Airport Terminal Services (SATS) and DNATA Singapore Pte Ltd (DNATA) will provide all ground services at one hour's prior notice except engineering services which will be provided by Singapore Airlines.

9 FULL EMERGENCY/CRASH PROCEDURE

9.1 In the event of a Full Emergency being declared on a civil aircraft diverted to Paya Lebar AP, Full Emergency/Crash Procedures applicable to Singapore Changi AP will equally apply to Paya Lebar AP.

9.2 Alerting of all outside organisations such as the Singapore Civil Defence Force, Police, MINDEF and ambulance services shall be carried out by the Singapore Changi AP Tower Controller.

10 METEOROLOGICAL AND AERONAUTICAL INFORMATION SERVICE

10.1 Meteorological service is available 24 hours at the 6th floor of the building where Paya Lebar Air Traffic Control Tower is located.

10.2 Aeronautical Information Service is available at Singapore Changi Airport.

11 ATC SERVICE OUTSIDE STIPULATED OPERATING HOURS

11.1 Radar service will not be available at Paya Lebar Airport outside its stipulated operating hours.

WSAP AD 2.21 [NIL] NOISE ABATEMENT PROCEDURES

NIL (not applicable).

WSAP AD 2.22 FLIGHT PROCEDURES

1 DEPARTURE AND ARRIVAL PROCEDURES

1.1 The designated runway for departures is RWY 02 and for arrivals is RWY 20.

1.2 The airport will hold off all departures and arrivals when the aerodrome visibility falls below 3km, or when the aerodrome prevailing cloud base is lower than 500ft. This is a safety consideration to avoid aircraft from carrying out a missed approach and overflying the populace under an adverse weather condition.

2 STANDARD INSTRUMENT DEPARTURES

November 1 Departure - Climb to maintain 3,000ft on RWY heading for PU DVOR/DME. At PU DVOR/ DME, turn left heading 010. Contact Seletar APP on 126.025 MHz or as instructed by ATC.

November 2 Departure - Climb to maintain 3,000ft on RWY heading for PU DVOR/DME. At PU DVOR/ DME, maintain heading 020. Contact Seletar APP on 126.025 MHz or as instructed by ATC.

November 3 Departure - Climb to maintain 3,000ft on RWY heading for PU DVOR/DME. At PU DVOR/ DME, turn left heading 360. Contact Seletar APP on 126.025 MHz or as instructed by ATC.

3 STANDARD ARRIVALS

When Paya Lebar is VMC - Expect radar vector to RWY 20 for visual straight-in approach.

When Paya Lebar is IMC - Expect radar vector to RWY 20 for ILS or PU DVOR/DME approach.

WSAP AD 2.23 ADDITIONAL INFORMATION

1 OUTDOOR LIGHT AND WATER SHOW

1.1 An outdoor light and water show will take place between 1200-1215, 1300-1315, 1400-1415 Friday to Saturday and 1200-1215, 1300-1315 Sunday to Thursday at 011704N 1035130E (within Paya Lebar Control Zone). GND - UNL.

WSAP AD 2.24 CHARTS RELATED TO AN AERODROME

Aerodrome Chart	AD-2-WSAP-ADC-1
Location of Aircraft Stands for Civil Aircraft	AD-2-WSAP-ADC-2
Aerodrome Obstacle Chart - ICAO - TYPE A	AD-2-WSAP-AOC-1
Instrument Approach Chart - ICAO - RWY 20 - PU DVOR/DME	AD-2-WSAP-IAC-1
Instrument Approach Chart - ICAO - RWY 02 - PU DVOR/DME	AD-2-WSAP-IAC-2
Instrument Approach Chart - ICAO - RWY 20 - IPS ILS/DME	AD-2-WSAP-IAC-3
Instrument Approach Chart - ICAO - RWY 02 - IPN ILS DME	AD-2-WSAP-IAC-4
Instrument Approach Chart - ICAO - RWY 02 - RNP	AD-2-WSAP-IAC-5
Instrument Approach Chart - ICAO - RWY 20 - RNP	AD-2-WSAP-IAC-6

WSAP AD 2.25 VISUAL SEGMENT SURFACE (VSS) PENETRATION

NIL (not applicable).

WSAT TENGAH

Note: The following sections in this chapter are intentionally left blank:
AD 2.9, AD 2.11, AD 2.16, AD 2.21, AD 2.22, AD 2.23

WSAT AD 2.1 AERODROME LOCATION INDICATOR AND NAME

WSAT - TENGAH

WSAT AD 2.2 AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA

1	*ARP coordinates and site at AD*	012315.40N 1034229.80E
2	*Direction and distance from (city)*	-
3	*Elevation/Reference temperature*	15.24 (50ft) / 31.5^{0}C
4	*MAG VAR*	0^{0}23'(2020)
5	*AD Administration, address, telephone, telefax, telex, AFS*	RSAF TENGAH AIRBASE CHOA CHU KANG ROAD SINGAPORE669638 Telephone: (65)67612222 AFS: WSATYWYX
6	*Types of traffic permitted*	IFR
7	*Remarks*	Emergency Diversion Aerodrome for Singapore Changi Airport (see page WSAT AD 2-7)

WSAT AD 2.3 OPERATIONAL HOURS

1	*Aerodrome Administration*	2300-1100 SUN/MON to THU/FRI. Public holidays and outside the above stipulated operating hours, prior permission required from RSAF Headquarters via Tengah Operations. For EMERG diversions AD AVBL at 2 hours notice. Only Aerodrome Control Service provided. No radar service AVBL outside aerodrome OPR hours.
2	*Customs and Immigration*	by prior arrangement
3	*Health and Sanitation*	by prior arrangement
4	*AIS Briefing Office*	-
5	*ATS Reporting Office*	-
6	*MET Briefing Office*	-
7	*Air Traffic Services*	-
8	*Remarks*	-

WSAT AD 2.4 HANDLING SERVICES AND FACILITIES

1	*Cargo Handling Facilities*	-
2	*Fuel / Oil Types*	JET A1, F3
3	*Fuelling Facilities / Capacity*	2300-1100 SUN/MON to THU/FRI; Public holidays & outside OPR HR PPR from RSAF HQ via Tengah Operations.
4	*Hangar space for visiting aircraft*	-
5	*Repair facilities for visiting aircraft*	-
6	*Remarks*	Nil

WSAT AD 2.5 PASSENGER FACILITIES

1	*Hotels*	-
2	*Restaurants*	-

3	*Transportation*	-
4	*Medical Facilities*	-
5	*Bank and Post Office*	-
6	*Tourist Office*	-
7	*Remarks*	Nil

WSAT AD 2.6 RESCUE AND FIRE FIGHTING SERVICES

1	AD category for fire fighting	CAT8
2	*Rescue equipment*	Adequately provided as recommended by ICAO
3	*Capability for removal of disabled aircraft*	Sufficient salvage equipment provided by Airfield Ground Services section at Military bases.
4	*Remarks*	All Airport Emergency Services personnel are trained in rescue and fire-fighting as well as medical first-aid.

WSAT AD 2.7 SEASONAL AVAILABILITY - CLEARING

The aerodrome is available throughout the year.

WSAT AD 2.8 APRONS, TAXIWAYS AND CHECK LOCATIONS/POSITIONS DATA

1	*Apron surface and strenght*	-
2	*Taxiway width, surface and strength*	Strength: PCR 573/F/B/X/U (Taxiway E) Surface: ASPH
3	*Remarks*	Nil

WSAT AD 2.10 AERODROME OBSTACLES

In approach / TKOF areas	*In circling area and at aerodrome*
RWY 18/36 APCH / TKOF Areas ILS LLZ co-located with LLZ antenna, HGT 21m AGL, 004 degrees MAG 260m from THR RWY 18 ILS LLZ co-located with LLZ antenna, HGT 15m AGL, 184 degrees MAG 290m from THR RWY 36	2 masts, HGT 6m, located on eastern shoulders of RWY 36, 233m from THR, 100m from RWY centreline and RWY 18,273m from THR, 100m from RWY centreline. Masts LGTD at NGT. PAR hut co-located with GP antenna mast, HGT 16m AGL, 074 degrees MAG, 100m from WSAT ARP. ILS GP huts co-located with GP antenna mast, HGT 19m AGL, at 029 degrees MAG, 322m from THR RWY 36 and 123 degrees MAG, 303m from THR RWY 18. 1 Monopole located at 012432N 1034035E, HGT 117.5m AMSL, 304 degrees MAG, 4255m from WSAT ARP. 1 Lightning rod located at 012135N 1034425E, HGT 64.04m AMSL, 131 degrees MAG, 4719m from WSAT ARP. 1 Lightning rod located at 012133N 1034426E, HGT 64.17m AMSL, 131 degrees MAG, 4783m from WSAT ARP. 2 Lightning rod located at 012051N 1034419E, HGT 60.23m AMSL, 142 degrees MAG, 5591m from WSAT ARP.

WSAT AD 2.12 RUNWAY PHYSICAL CHARACTERISTICS

Designation RWY NR	*TRUE &MAG BRG*	*Dimensions of RWY (m)*	*Strength (PCR) and surface of RWY and SWY*	*THR coordinates*	*THR elevation and highest elevation of TDZ of precision APCH RWY*
1	2	3	4	5	6
18	184.5	2743 x 46	PCR 573/F/B/X/U	-	50 FT

Designation RWY NR	*TRUE &MAG BRG*	*Dimensions of RWY (m)*	*Strength (PCR) and surface of RWY and SWY*	*THR coordinates*	*THR elevation and highest elevation of TDZ of precision APCH RWY*
1	2	3	4	5	6
36	004.5	2743 x 46	PCR 573/F/B/X/U	-	50 FT

12	*Remarks*	a) Intensive fixed wing flying operation east of runway. b) Helizone adjacent east of runway up to 800ft QNH. c) Arrestor Barrier both ends of runway. d) Hookwire cable installed 366m inwards from each end of runway. e) Intense bird activity after rain, and up to 2 hour after dusk and dawn.

WSAT AD 2.13 DECLARED DISTANCES

RWY Designator	*TORA (m)*	*TODA (m)*	*ASDA (m)*	*LDA (m)*	*Remarks*
1	2	3	4	5	6
18 36	2743 2743	3115 3030	2743 2743	2743 2743	Nil Nil

WSAT AD 2.14 APPROACH AND RUNWAY LIGHTING

RWY	*APCH LGT Type, LEN INTST*	*THR LGT colour WBAR*	*VASIS (MEHT) PAPI*	*TDZ LGT LEN*	*RCL LGT, LEN,spacing , colour, INTST*	*RWY edge LGT, LEN, spacing, colour,INTST*	*RWY End LGT, colour WBAR*	*SWY LGT, LEN colour*	*Remarks*
1	2	3	4	5	6	7	8	9	10
18	High INTST white centreline and two bars, PAPI, Sequenced flashing lights	GREEN	4 units PAPI on each side of RWY at 3 Glide Slope	Nil	Nil	High INTST omni-directional white variable INTST	RED	Nil	Distance to run markers illuminated
36	High INTST white centreline and five bars, PAPI, Sequenced flashing lights	GREEN	4 units PAPI on each side of RWY at 3 Glide Slope	Nil	Nil	High INTST omni-directional white variable INTST	RED	Nil	Distance to run markers illuminated

WSAT AD 2.15 OTHER LIGHTING, SECONDARY POWER SUPPLY

TWY Lighting	blue edge lights
IBN	012400.00N 1034254.00E012400.00N 1034254.00E, FLG R 'TN', operating hours HN and IMC.
Remarks	WDI lighted. Dispersal area floodlights

WSAT AD 2.17 ATS AIRSPACE

1	*Designation and Lateral Limits*	**TENGAH ATZ** 010842N 1034336E thence clockwise around the arc of radius 14 NM centred on 012242N 1034203E to 011351N 1033117E thence east along the Singapore - Kuala Lumpur FIR boundary to 012728N 1034302E 012620N 1034544E 012150N 1034524E 011845N 1034414E 010842N 1034336E.
2	*Vertical Limits*	SFC to 3000 FT ALT

3	*Airspace Classification*	D
4	*ATS Unit Callsign* *Language(s)*	TENGAH APPROACH English
5	*Transition altitude*	11000 FT (3,350m)
6	*Remarks*	Controlling Authority: Tengah Approach During Aerodrome operating hours: Contact Tengah APP on 130.0 MHz, 263.4 MHz or 122.0 MHz Outside Aerodrome operating hours: Contact SATCC (RSAF element) on 123.4MHz or 288.2MHz

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.	Nil
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		
Flight Information Service	SINGAPORE RADAR	119.1 MHz	H24	Nil
APP	SINGAPORE APPROACH	P124.05 MHz S124.6 MHz S126.3 MHz	H24	TAR – flow control service provided for ARR/DEP ACFT. Intermediate approach to Singapore Changi AP and other airports in Singapore. DEP from all airports in Singapore.

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
SINJON DVOR/DME	SJ	113.5 MHZ CH82X	H24	011321.34N 1035115.22E 011321.34N 1035115.22E	201° MAG 14.5km from THR RWY 02 (Paya Lebar) Antenna HGT: 190ft AMSL. Coverage 200NM Maint Period: 0200-0600 third THU of EV month