Civil Aviation Authority of Singapore

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REPUBLIC OF SINGAPORE

AERONAUTICAL INFORMATION SERVICES
CIVIL AVIATION AUTHORITY OF SINGAPORE
SINGAPORE CHANGI AIRPORT
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AIP

AMENDMENT NR 1/15
8 JANUARY 2015

1. SIGNIFICANT INFORMATION AND CHANGES

1.1 Singapore FIR

a) Add FAA AC No. 20-165A - Airworthiness Approval of ADS-B to the list of certified equipment that aircraft must carry when operating in the ADS-B Out exclusive airspace within parts of the Singapore FIR — ENR 1.8-24

1.2 Singapore Changi Airport (WSSS)

a) Update on the hours of operations for Singapore Ground frequencies 121.85MHz and 121.725MHz — WSSS AD 2-18

2. HAND AMENDMENTS

a) Amend the magnetic variation to read as 26'E (2015) in the following charts:

ENR 3.6-7, ENR 3.6-9, WSSS AD 2-37, WSSS AD 2-39, WSSS AD 2-41, WSSS AD 2-51, WSSS AD 2-53, WSSS AD 2-55, WSSS AD 2-57, WSSS AD 2-63, WSSS AD 2-65, WSSS AD 2-67, WSSS AD 2-69, WSSS AD 2-71, WSSS AD 2-71-1, WSSS AD 2-73, WSSS AD 2-73-1, WSSS AD 2-75, WSSS AD 2-77, WSSS AD 2-81, WSSS AD 2-81-1, WSSS AD 2-83, WSSS AD 2-83-1, WSSS AD 2-85, WSSS AD 2-85-1, WSSS AD 2-87, WSSS AD 2-87-1, WSSS AD 2-89, WSSS AD 2-91, WSSS AD 2-91-1, WSSS AD 2-93, WSSS AD 2-93-1, WSSS AD 2-95, WSSS AD 2-97, WSSS AD 2-97-1, WSSS AD 2-99, WSSS AD 2-99-1, WSSS AD 2-101, WSSS AD 2-103, WSSS AD 2-105, WSSS AD 2-107, WSSS AD 2-109, WSSS AD 2-111, WSSS AD 2-113, WSSS AD 2-115, WSSS AD 2-117, WSSS AD 2-118, WSSS AD 2-119, WSSS AD 2-120, WSSS AD 2-121, WSSL AD 2-19, WSSL AD 2-21, WSSL AD 2-23, WSSL AD 2-25, WSSL AD 2-27, WSSL AD 2-29, WSSL AD 2-31, WSAP AD 2-11, WSAP 2-13, WSAP AD 2-15, WSAP AD 2-17, WSAP AD 2-19, WSAP AD 2-21, WSAP AD 2-23 AND WSAT AD 2-11

3. INSERT THE ATTACHED REPLACEMENT PAGES WHICH ARE MARKED WITH ASTERISKS IN THE CHECKLIST OF PAGES - GEN 0.4-1 TO GEN 0.4-4.

4. NEW OR REVISED INFORMATION IS INDICATED EITHER BY A HORIZONTAL ARROW OR A VERTICAL LINE.

5. RECORD ENTRY OF AMENDMENT ON PAGE GEN 0.2-1.

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 THIS AMENDMENT INCORPORATES INFORMATION CONTAINED IN THE FOLLOWING WHICH ARE HEREBY SUPERSEDED:

NOTAM:

AIP Supplement:
332/14 dated 30 OCT 14
344/14 dated 20 NOV 14

NOTAM:
A2235/14 dated 10 NOV 14

GEN 0.3 RECORD OF CURRENT AIP SUPPLEMENTS				
NR/ Year	*Subject*	*AIP section affected*	*Period of validity (from / to)*	*Cancellation record*
1/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 16	
2/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 16	
3/14	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 16	
4/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 16	
5/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 16	
11/14	Paya Lebar AP - Hammerhead Crane	AD	WIE / 1 DEC 15	
12/14	Paya Lebar AP - Luffer Crane	AD	WIE / 15 DEC 15	
13/14	Paya Lebar AP - Luffer Crane	AD	WIE / 27 DEC 15	
14/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 15	
15/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 15	
16/14	Paya Lebar AP - Tower Cranes	AD	WIE / 25 JUN 15	
17/14	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 30 JUN 15	
18/14	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 30 JUN 15	
19/14	Paya Lebar AP - Cranes	AD	WIE / 30 JUN 15	
20/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 JUN 15	
51/14	Paya Lebar AP - Cranes	AD	WIE / 31 DEC 15	
52/14	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 15	
53/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 15	
54/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 15	
55/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 15	
61/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 15	
62/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 15	
63/14	Paya Lebar AP - Cranes	AD	WIE / 31 DEC 15	
64/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 15	
65/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 15	
66/14	Paya Lebar AP - Saddle Cranes	AD	WIE / 30 DEC 15	
67/14	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 15	
68/14	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 15	
69/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 15	
70/14	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 31 DEC 15	
86/14	Singapore Changi AP - Work activities due to construction of new water retention pond at south end reservoir	AD	WIE / 31 MAR 15	
108/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 24 FEB 15	
109/14	Paya Lebar AP - Flat Top Cranes	AD	WIE / 28 FEB 15	
110/14	Paya Lebar AP - Luffer Crane	AD	WIE / 28 FEB 15	
111/14	Paya Lebar AP - Hammerhead and Luffer Cranes	AD	WIE / 28 FEB 15	
112/14	Paya Lebar AP - Topless Cranes	AD	WIE / 28 FEB 15	
124/14	Paya Lebar AP - Luffer Crane	AD	WIE / 31 JAN 17	
125/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 1 FEB 17	
126/14	Sembawang AD - Hammerhead Cranes	AD	WIE / 1 FEB 17	
127/14	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 28 FEB 17	
128/14	Paya Lebar AP - Tower Cranes	AD	WIE / 1 MAR 17	
134/14	Paya Lebar AP - Mobile Crane	AD	WIE / 11 MAY 15	
135/14	Paya Lebar AP - Tower and Topless Cranes	AD	WIE / 14 MAY 15	
136/14	Paya Lebar AP - Luffer Crane	AD	WIE / 20 MAY 15	
137/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 MAY 15	
138/14	Paya Lebar AP - Luffer Crane	AD	WIE / 31 MAY 15	
196/14	Singapore Changi AP - Introduction of compact parking area	AD	WEF 15 JUL 14 / 31 DEC 14	
213/14	Paya Lebar AP - Cranes	AD	WIE / 1 MAR 16	
214/14	Paya Lebar AP - Cranes	AD	WIE / 1 MAR 16	

GEN 0.3 RECORD OF CURRENT AIP SUPPLEMENTS				
NR/ Year	*Subject*	*AIP section affected*	*Period of validity (from / to)*	*Cancellation record*
215/14	Paya Lebar AP - Cranes	AD	WIE / 30 MAR 16	
216/14	Paya Lebar AP - Hammerhead and Luffer Cranes	AD	WIE / 31 MAR 16	
217/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 MAR 16	
218/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 DEC 17	
219/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 17	
220/14	Paya Lebar AP - Hammerhead and Luffer Cranes	AD	WIE / 31 DEC 17	
221/14	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 17	
222/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 17	
223/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 1 JUN 16	
224/14	Paya Lebar AP - Mobile Crane	AD	WIE / 1 JUN 16	
225/14	Paya Lebar AP - Crane	AD	WIE / 14 JUN 16	
226/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 JUN 16	
227/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 JUN 16	
233/14	Paya Lebar AP - Luffer Crane	AD	WIE / 14 FEB 15	
234/14	Paya Lebar AP - Cranes	AD	WIE / 1 MAR 15	
235/14	Paya Lebar AP - Mobile Crane	AD	WIE / 14 MAR 15	
236/14	Paya Lebar AP - Cranes	AD	WIE / 15 MAR 15	
237/14	Paya Lebar AP - Crawler Crane	AD	WIE / 15 MAR 15	
238/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 1 DEC 16	
239/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 16	
240/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 16	
241/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 16	
242/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 16	
243/14	Paya Lebar AP - Tower Cranes	AD	WIE / 3 JUL 15	
244/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 4 JUL 15	
245/14	Paya Lebar AP - Cranes	AD	WIE / 9 JUL 15	
246/14	Paya Lebar AP - Luffer Cranes and Tower Crane	AD	WIE / 28 JUL 15	
247/14	Paya Lebar AP - Saddle and Luffer Cranes	AD	WIE / 31 JUL 15	
273/14	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 29 APR 17	
274/14	Paya Lebar AP - Topless Cranes	AD	WIE / 10 MAY 17	
275/14	Paya Lebar AP - Topless Cranes	AD	WIE / 1 JUN 17	
278/14	Seletar AP - Construction of new aircraft stands, taxiways, ground run enclosure and Category I Approach Lighting System	AD	WIE / 31 JAN 15	
279/14	Singapore Changi AP - Construction of new aircraft stands and connecting taxiway at southern end	AD	WIE / 31 MAR 15	
286/14	Paya Lebar AP - Tower Cranes	AD	WIE / 31 JUL 15	
287/14	Paya Lebar AP - Saddle Cranes	AD	WIE / 1 AUG 15	
288/14	Paya Lebar AP - Cranes	AD	WIE / 31 AUG 15	
289/14	Paya Lebar AP - Luffer Crane	AD	WIE / 31 OCT 15	
291/14	Paya Lebar AP - Luffer Crane	AD	WIE / 7 JUL 17	
292/14	Paya Lebar AP - Tower Cranes	AD	WIE / 31 JUL 17	
293/14	Paya Lebar AP - Luffer Cranes and Saddle Cranes	AD	WIE / 19 AUG 17	
294/14	Paya Lebar AP - Mobile Cranes	AD	WIE / 1 JAN 17	
296/14	Paya Lebar AP - Luffer Crane	AD	WIE / 30 SEP 15	
297/14	Paya Lebar AP - Luffer Crane	AD	WIE / 30 SEP 15	
298/14	Paya Lebar AP - Topless Cranes	AD	WIE / 30 SEP 15	
299/14	Paya Lebar AP - Topless Cranes	AD	WIE / 30 SEP 15	
300/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 SEP 15	
302/14	Paya Lebar AP - Saddle Cranes	AD	WIE / 1 AUG 15	
303/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 OCT 15	
308/14	Sembawang AD - Luffer Cranes	AD	WIE / 28 FEB 16	

GEN 0.3 RECORD OF CURRENT AIP SUPPLEMENTS				
NR/ Year	*Subject*	*AIP section affected*	*Period of validity (from / to)*	*Cancellation record*
311/14	Paya Lebar AP - Luffer Crane	AD	WIE / 22 JUN 16	
312/14	Paya Lebar AP - Mobile Crane	AD	WIE / 29 JUN 16	
313/14	Paya Lebar AP - Luffer Crane	AD	WIE / 30 JUN 16	
314/14	Paya Lebar AP - Tower Crane	AD	WIE / 30 JUN 16	
315/14	Paya Lebar AP - Tower Cranes	AD	WIE / 10 SEP 17	
316/14	Paya Lebar AP - Topless Cranes	AD	WIE / 30 APR 15	
317/14	Paya Lebar AP - Topless Cranes	AD	WIE / 30 APR 15	
318/14	Paya Lebar AP - Luffer Crane	AD	WIE / 30 APR 15	
319/14	Sembawang AD - Luffer Cranes	AD	WIE / 1 MAY 15	
320/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 MAY 15	
325/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 MAR 16	
326/14	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 1 APR 16	
327/14	Paya Lebar AP - Luffer Crane	AD	WIE / 30 MAY 16	
328/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 AUG 16	
329/14	Paya Lebar AP - Luffer Crane	AD	WIE / 30 SEP 16	
330/14	Paya Lebar AP - Crane	AD	WIE / 30 NOV 16	
333/14	Singapore Changi AP - Work activities due to construction of new aircraft stands and new taxiways at West Cargo Area	AD	WIE / 31 AUG 16	
334/14	Paya Lebar AP - Crane	AD	WIE / 28 FEB 17	
335/14	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 4 MAR 17	
336/14	Paya Lebar AP - Tower Cranes	AD	WIE / 10 SEP 17	
337/14	Paya Lebar AP - Saddle Cranes	AD	WIE / 9 OCT 17	
33914	Paya Lebar AP - Tower Crane	AD	WIE / 15 JAN 15	
340/14	Paya Lebar AP - Crawler Cranes	AD	WIE / 31 AUG 15	
341/14	Paya Lebar AP - Luffer Crane	AD	WIE / 30 SEP 15	
342/14	Paya Lebar AP - Luffer Crane	AD	WIE / 30 NOV 15	
343/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 16	
347/14	Paya Lebar AP - Hammerhead and Luffer Cranes	AD	WIE / 31 JAN 15	
348/14	Paya Lebar AP - Luffer Crane	AD	WIE / 31 JAN 15	
349/14	Paya Lebar AP - Luffer Crane	AD	WIE / 31 JAN 15	
350/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 15 MAR 15	
351/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 15 MAR 15	
352/14	Paya Lebar AP - Luffer Crane	AD	WIE / 1 FEB 16	
353/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 MAR 15	
354/14	Paya Lebar AP - Luffer and Topless Cranes	AD	WIE / 31 MAR 15	
360/14	Paya Lebar AP - Topless Cranes and Luffer Cranes	AD	WIE / 1 DEC 15	
361/14	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 20 DEC 15	
362/14	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 15	
363/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 15	
364/14	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 15	
365/14	Paya Lebar AP - Hammerhead and Luffer Cranes	AD	WIE / 30 JUN 17	
370/14	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 1 JAN 16	
371/14	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 1 JAN 16	
372/14	Paya Lebar AP - Tower Cranes	AD	WIE / 25 JAN 16	
373/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 JAN 16	
374/14	Paya Lebar AP - Luffer Crane	AD	WIE / 31 JAN 16	
375/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 AUG 16	
376/14	Paya Lebar AP - Saddle Cranes and Luffer Crane	AD	WIE / 31 AUG 16	
377/14	Paya Lebar AP - Saddle Cranes	AD	WIE / 1 SEP 16	
378/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 10 SEP 16	
379/14	Paya Lebar AP - Topless Cranes	AD	WIE / 30 SEP 16	

GEN 0.3 RECORD OF CURRENT AIP SUPPLEMENTS				
NR/ Year	*Subject*	*AIP section affected*	*Period of validity (from / to)*	*Cancellation record*
380/14	Paya Lebar AP - Hammerhead and Topless Cranes	AD	WIE / 31 DEC 16	
381/14	Paya Lebar AP - Topless Cranes / A Frames	AD	WIE / 31 DEC 16	
382/14	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 16	
383/14	Paya Lebar AP - Luffer and Hammerhead Canes	AD	WIE / 31 DEC 16	
384/14	Paya Lebar AP - Topless and Hammerhead Cranes	AD	WIE / 31 DEC 16	
385/14	Singapore Changi AP - New Standard Terminal Arrival Route (STAR)	AD	WEF 5 MAR 15 / PERM	
1/15	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 1 JUN 15	
2/15	Paya Lebar AP - Mobile Crane	AD	WIE / 6 JUN 15	
3/15	Paya Lebar AP - Topless Cranes and Luffer Crane	AD	WIE / 30 JUN 15	
4/15	Paya Lebar AP - Crawler Crane	AD	WIE / 30 JUN 15	
5/15	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 JUN 15	
6/15	Paya Lebar AP - Luffer Crane	AD	WIE / 1 NOV 15	
7/15	Paya Lebar AP - Hammerhead Crane	AD	WIE / 1 NOV 15	
8/15	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 1 NOV 15	
9/15	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 NOV 15	
10/15	Paya Lebar AP - Topless Cranes and Luffer Crane	AD	WIE / 30 NOV 15	
11/15	Paya Lebar AP - Tower Cranes	AD	WIE / 30 DEC 15	
12/15	Paya Lebar AP - Luffer Crane	AD	WIE / 30 DEC 15	
13/15	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 15	
14/15	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 15	
15/15	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 15	
16/15	Paya Lebar AP - Luffer Crane and Saddle Crane	AD	WIE / 31 DEC 15	
17/15	Paya Lebar AP - Tower Crane	AD	WIE / 31 DEC 15	
18/15	Paya Lebar AP - Hammerhead and Luffer Cranes	AD	WIE / 31 DEC 15	
19/15	Paya Lebar AP - Topless Cranes and Luffer Cranes	AD	WIE / 31 DEC 15	
20/15	Paya Lebar AP - Crawler Crane and Mobile Crane	AD	WIE / 31 JAN 16	
21/15	Paya Lebar AP - Saddle Crane	AD	WIE / 4 DEC 17	
22/15	Paya Lebar AP - Luffer Cranes	AD	WIE / 9 DEC 17	
23/15	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 17	
24/15	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 17	
25/15	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 31 DEC 17	

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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.

2. CIVIL SCHEDULED FLIGHTS

2.1 GENERAL

2.1.1 Before a scheduled service is permitted to operate into the Republic of Singapore, it must be appropriately covered by either an air services agreement, a licence issued in accordance with the Air Navigation (Licensing of Air Services) Regulations or other aeronautical arrangements. All scheduled flights are subject to prior approval.

2.2 APPLICATION FOR TRAFFIC LANDINGS AND UPLIFTS (SCHEDULED FLIGHTS)

2.2.1 Only the airline operator may apply for permission to operate scheduled flights.

2.2.2 All airline operators are to submit their applications for scheduled flights for each IATA schedule season one month before the start of the season for approval by CAAS.

2.2.3 In addition, airline operators are also required to apply for CAAS' approval for any revisions to their schedule filings for the season, ad-hoc changes to flight schedules and flight cancellations. Such applications should reach CAAS 5 working days before flight changes take place.

2.2.4 All applications must be made in the prescribed forms (obtainable from CAAS Air Transport Division) and accompanied by a cover letter. If insufficient notice as specified in paras 2.2.2 and 2.2.3 is given, the application may not be considered.

2.2.5 Airline operators are to ensure that a copy of the following documents, which are to remain valid during the period of operations, are lodged with CAAS:

a) Certificate(s) of Registration(s) for aircraft used;
b) Certificate(s) of Airworthiness for aircraft used; and
c) Air Operator's Certificate

2.2.6 All applications should be submitted to:

Air Transport Division
Civil Aviation Authority of Singapore
Singapore Changi Airport
P.O. Box 1
Singapore 918141

Facsimile: (65) 65456515

GEN 1.2 ENTRY, TRANSIT AND DEPARTURE OF AIRCRAFT

2.3 DOCUMENTARY REQUIREMENTS FOR CLEARANCE OF AIRCRAFT

2.3.1 It is necessary that the undermentioned aircraft documents be submitted by airline operators for clearance on entry and departure of their aircraft to and from Singapore. All documents listed below must follow the ICAO standard format as set forth in the relevant appendices to ICAO Annex 9. They are acceptable in English only and must be completed in legible handwriting. No visas are required in connection with such documents.

2.3.2 *Aircraft Documents Requirements (arrival/departure)*

Required by	General Declaration	Passenger Manifest	Cargo Manifest
Immigration	2	2	-
Customs	1	1	1
Health	1	1	-

a) One copy of the General Declaration is endorsed and returned by Customs, signifying clearance.
b) If no passengers are embarking (disembarking) and no articles are laden (unladen), no aircraft documents except copies of the General Declaration need be submitted to the above authorities.

3. CIVIL NON-SCHEDULED FLIGHTS

3.1 PROCEDURES

3.1.1 *Overflights*

3.1.1.1 Prior notification is necessary. Subject to the observance of the terms of the Convention on International Civil Aviation, Singapore facilitates overflights by civil aircraft registered in any ICAO Contracting States with which Singapore has diplomatic relations provided adequate advance notification shall have been given.

3.1.1.2 Notification by flight plan addressed to the Singapore Air Traffic Control Centre (WSJCZQZX) if received at least 2 hours in advance of the aircraft's arrival into the Singapore Flight Information Region will normally be accepted as advance notification in this respect.

3.1.1.3 In all other cases, prior permission must be sought and obtained through diplomatic means from the Ministry of Foreign Affairs, Republic of Singapore.

3.1.2 *Non-Traffic or Technical Landings*

3.1.2.1 Prior notification is necessary. Subject to the observance of the terms of the Convention on International Civil Aviation, Singapore facilitates such non-traffic or technical landings by civil aircraft registered in any ICAO Contracting States with which Singapore has diplomatic relations provided adequate advance notification shall have been given.

3.1.2.2 Notification by flight plan addressed to the Singapore Air Traffic Control Centre (WSJCZQZX) if received at least 2 hours in advance of the aircraft's arrival at Singapore Changi Airport or Seletar Aerodrome or 2 hours prior to entering the Singapore Flight Information Region whichever is the earlier will normally be accepted as advance notification in this respect.

3.1.2.3 The operator of a business aviation aircraft or its appointed local ground handling agent may apply for permission for the aircraft to operate into Singapore Changi Airport for the purpose of non-traffic or technical landing. The following information should be submitted together with the application:

a) Name, address and nationality of operator;
b) Type, registration mark and carrying capacity of aircraft;
c) Purpose of flight and name of passengers;
d) Details of route, points of landing and final destination;
e) Date and time of arrival at, and departure from Singapore;
f) Name, address and telephone number of operator's local agent and ground handling agent;
g) Any other information that may be relevant to the proposed flight.

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3.1.2.4 All applications in para 3.1.2.3 above must be made in the prescribed form which can be downloaded from the website below. Applications must reach the Airside Operations of the Changi Airport Group via email or posted to the address below with sufficient notice prior to the aircraft's arrival or departure into/from Singapore Changi Airport. The application may not be considered if insufficient notice is given.

Address: Airside Operations
Singapore Changi Airport
P.O. Box 168
Singapore 918146

FAX: (65) 65453845
Email: changi.airside@changiairport.com
Website: www.changiairportgroup.com

3.1.2.5 All business aviation aircraft shall park in a nose-in position and be pushed back with the aid of an aircraft tow-bar and tow-tractor. Reverse thrust or variable pitch propellers shall not be used. The aircraft must carry its own tow-bar. The aircraft operator may make arrangements with the ground handling agent to provide the tow-bar. The aircraft shall be required to be towed to another aircraft stand should the need arise.

3.1.2.6 All passengers of the business aviation flight will have to clear CIQ via the Commercially-Important-Persons facility located at Terminal 2.

3.1.2.7 All business aviation flights must engage a ground handling agent at Singapore Changi Airport.

3.1.2.8 In all other cases, prior permission must be sought and obtained through diplomatic means from the Ministry of Foreign Affairs, Republic of Singapore.

3.1.3 ***Application for Traffic Landings and Uplifts (Non-Scheduled Flights)***

3.1.3.1 All non-scheduled flights are subject to prior approval.

3.1.3.2 Only the operator may apply for permission to operate a non-scheduled flight. The following information should be submitted together with the application:

a) Name, address and nationality of operator;
b) Name, address and business of charterer;
c) Type, registration mark and carrying capacity of aircraft;
d) Aircraft documents listed in para 2.2.5;
e) Nature of flight including details of whether the flight is to carry passengers or cargo or both;
   i) for passenger flights: points of origin and destination of passengers, purpose of flight e.g. special event charter, inclusive tours and own-use charter; and the names of passengers.
   ii) for cargo flights: the origin, destination, description, quantities and dimensions of cargo; outbound/inbound or transhipment, as well as whether any item is perishable or classified as dangerous, explosive or munitions of war. (Please see regulations concerning importation, transhipment and exportation of cargo in subsection GEN 1.4).
f) Details of route, points of landing and final destination;
g) Date and time of arrival at, and departure from Singapore *(Please see para 3.1.3.4 below)*;
h) Name, address and telephone number of operator's local agent and ground handling agent;
i) Name and address of consignees and consignors, where applicable;
j) Any other information that may be relevant to the proposed operations.

3.1.3.3 All applications must be made in the prescribed application form (CAAS AW/145) available at:
http://www.caas.gov.sg/caas/en/eServices_Forms/Application_of_commercial_flights_for_Foreign_Air_Operators.html?_locale=en
under the eServices & Forms section of the CAAS website.

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The complete application and its supporting documents must reach the Civil Aviation Authority of Singapore Air Transport Division at the address below, at least 3 working days prior to the aircraft's arrival or departure into/from Singapore to be considered for a "normal permit". Operators who wish to obtain a permit under 3 working days may submit their applications. Such applications must reach the Air Transport Division at least 24 hours before the proposed flight to be considered for an "express permit". Applicants for express permits should alert the Air Transport Duty Officer at +65 98331775. Applications will not be considered if insufficient notice is given (not applicable for emergency flights e.g. flights on humanitarian grounds).

Air Transport Division
Civil Aviation Authority of Singapore
Singapore Changi Airport
PO Box 1
Singapore 918141
Email: caas_air_transport@caas.gov.sg ***and*** Judy_Chin@caas.gov.sg
Tel: (65) 65413030 (Normal permits)
Tel: (65) 98331775 (Express permits)
Facsimile: (65) 65456515

3.1.3.4 Operators, other than operators of business aviation aircraft as stated in para 3.1.3.5, should schedule their arrivals and departures at Singapore Changi Airport outside the hours 0001 to 0200 UTC (0801-1000 LT) and 0900 to 1559 UTC (1700-2359 LT). Subject to approval (depending on aircraft stand availability), aircraft may be permitted to remain on the ground during the above times on condition that the aircraft vacates the aircraft stand if the need arises. *(Please see GEN 4.1 para 1.5 b) regarding off-peak discount of 40% on landing charges).*

3.1.3.5 All business aviation aircraft operating as executive jet charter and revenue flights may be permitted to remain on the ground or layover at Singapore Changi Airport.

3.1.3.6 All business aviation aircraft shall park in a nose-in position and be pushed back with the aid of an aircraft tow-bar and tow-tractor. Reverse thrust or variable pitch propellers shall not be used when parking or pushing back aircraft. The aircraft operator must ensure that an appropriate tow-bar for the aircraft type is available to facilitate push back operations from the aircraft stand. The aircraft operators may use their own tow-bar or approach ground handling agents in either Seletar or Changi Airport to secure the appropriate tow-bar.

3.1.3.7 All passengers of the business aviation flight will have to clear CIQ via the Commercially-Important-Persons facility located at Terminal 2.

3.1.3.8 All business aviation flights must engage a ground handling agent at Singapore Changi Airport.

3.1.3.9 The appropriate legislation dealing with non-scheduled flights for hire or reward is contained in PART III - *Permits For Journeys Other Than Scheduled Journeys* of the Air Navigation (Licensing of Air Services) Regulations. Any person who uses any aircraft in contravention of the provisions of Regulation 15 of the legislation shall be guilty of an offence and shall be liable on conviction to a fine not exceeding S$2,500 or to imprisonment for a term not exceeding 3 months or to both and in the case of a second or subsequent offence, to a fine not exceeding S$20,000 or to imprisonment for a term not exceeding 2 years or to both.

3.1.3.10 ***Permit Fees***

(a) Normal Permits

The following fees shall be paid to the Authority [in accordance with Regulation 18 of the Air Navigation (Licensing of Air Services) Regulations] to obtain a permit which must be applied at least 3 whole working days before the first flight:

i) S$84 for a single one-way or return flight;
ii) S$162 for 2 or more one-way or return flights but not more than 5 such flights;
iii) S$326 for 5 one-way or return flights but not more than 10 such flights; or
iv) S$810 for more than 10 one-way or return flights.

GEN 1.2 ENTRY, TRANSIT AND DEPARTURE OF AIRCRAFT

(b) Express Permits

Operators who wish to obtain a permit under 3 working days, but at least 24 hours before the flight, should contact the Duty Officer at +65 98331775 and submit a complete application to this email address: caas_air_transport@caas.gov.sg. The following fee shall be paid:

i) S$252 for a single one-way or return flight.

Note 1: "Working Day" means:
(a) a period that begins at 8.30am and ends at 6pm on any Monday to Thursday that CAAS is open for business; and
(b) a period that begins at 8.30am and ends at 5.30pm on any Friday that CAAS is open for business.

Note 2: Any application that is made after the close of business shall be deemed to have been made on the next working day.

Definitions:

Non-scheduled flight - a flight for the carriage of passengers, mail or cargo by air for hire and reward on journeys other than scheduled.

Business aviation flight - a flight that is owned and operated privately by a business corporation or chartered privately by business or corporate executives for non-revenue purposes.

Charterer - a person, company or corporate body who charters the aircraft and whose name and address appear in the Aircraft Charter Agreement.

Operator - in relation to an aircraft, the person for the time being having the business management of that aircraft.

3.2 DOCUMENTARY REQUIREMENTS FOR CLEARANCE OF AIRCRAFT

3.2.1 Same requirements as for SCHEDULED FLIGHTS.

3.3 PERMIT CONDITIONS

3.3.1 The Director-General of Civil Aviation may attach such conditions to a permit as he considers necessary.

3.4 APPLICATION FOR DIPLOMATIC CLEARANCE FOR FOREIGN STATE AIRCRAFT

3.4.1 ***Procedures for Applying Diplomatic Clearance for Landing and Overflight for Foreign State Aircraft in Singapore***

3.4.1.1 Except where otherwise agreed, all Foreign State aircraft intending to land at or overfly Singapore are to obtain diplomatic clearance for such landing or overflight from the Ministry of Foreign Affairs, giving information as in para 3.4.2.

3.4.1.2 The application is to be made giving at least 14 days' notice.

GEN 1.2 ENTRY, TRANSIT AND DEPARTURE OF AIRCRAFT

3.4.2 ***Information to be provided when applying for Diplomatic Clearance***

3.4.2.1 All applications for diplomatic clearance should contain the following information:

a) Name of Mission/Organisation;
b) Liaison Officer;
c) Telephone Number;
d) Number and Type of Aircraft;
e) Callsign;
f) Aircraft Registration;
g) Full flight itinerary;
h) Route after entering and before leaving Singapore FIR;
i) Date of Arrival;
j) Time of Arrival;
k) Date of Departure;
l) Time of Departure;
m) Arrival from;
n) Departing to;
o) Airfield requested;
p) Name of Pilot;
q) Number of Crew;
r) Number of Passengers;
s) If VIP flight, Name of VIP and number of other officials;
t) Purpose;
u) Photograph and sensory equipment if any;
v) Nature of freight or cargoes carried if any;
w) Dangerous cargoes, if any (e.g. arms, ammunition, explosives, toxic chemicals);
x) Types of services required (e.g. type of fuel, APU/GPU, ground handling etc.);
y) Additional/Special request

Note: Aircraft used in military, customs or police services are deemed to be State aircraft.

4. APPLICATION FOR TEST FLIGHTS

4.1 All applications for test flights are subject to prior approval.

4.2 All applications are to be made at least 2 working days but not more than 2 weeks in advance. If notice is not complied with, the application may not be considered.

4.3 Applicants should provide details as listed in items a) to e) below and ensure that the documents as listed in items f) to h) of the aircraft undergoing test flights remain valid during the period of operation:

a) Aircraft Registration;
b) Aircraft Callsign;
c) Aircraft Type;
d) Date / Time / Duration of flight;
e) Point of Departure and Arrival;
f) Certificate of Registration;
g) Certificate of Airworthiness;
h) A Permit to Fly, issued by CAAS, in the absence of a valid Certificate of Airworthiness.

4.4 All applications should be submitted to:
Duty Manager, Singapore Air Traffic Control Centre
Civil Aviation Authority of Singapore
60 Biggin Hill Road, Singapore 509950
Email: caas_atsops@caas.gov.sg
Fax: 65457526

4.5 Details on flight planning for test flights are listed on page ENR 1.10-1.

5. AIRCRAFT BANNED FROM OPERATIONS AT SINGAPORE AERODROMES

5.1 The Antonov-12 aircraft is banned from all operations to/from Singapore aerodromes due to concerns over its continuing airworthiness.

NOTAM are published as and when necessary to disseminate information of direct operational significance which:

a) is of an ephemeral nature;
b) requires advance distribution; or
c) is appropriate to the AIP but needs immediate dissemination.

Each NOTAM is assigned a 4-digit serial number preceded by the letter 'A' indicating the series, followed by a stroke and 2 digits indicating the year of issue. The serial numbers begin with 0001 every year. A checklist of current NOTAM is issued every month via the AFS. Additionally, a printed plain-language NOTAM List is sent by airmail to those who had originally received the NOTAM via the AFS, as well as to others on request. The NOTAM list is also retrievable online at http://www.caas.gov.sg.

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

NOF	NOTAM Series		NOF	NOTAM Series		NOF	NOTAM Series	
	Received	Sent		Received	Sent		Received	Sent
Abu Dhabi	AB	A	Ho Chi-Minh	AC	A	Ottawa	AB	A
Addis Ababa	A	A	Hong Kong	A	A	Paris	A	A
Almaty	K	-	Jakarta	ABC	A	Phnom-Penh	AB	-
Amman	A	-	Jeddah	AW	A	Plaisance	A	A
Amsterdam	AM	A	Johannesburg	ABC	A	Port Moresby	A	A
Ankara	ABCN	A	Kabul	A	A	Praha	-	A
Antananarivo	AB	A	Karachi	A	A	Pyongyang	A	-
Athinai	A	A	Kathmandu	A	A	Riga	A	-
			Kenya	A	-	Rio de Janeiro	-	A
Baghdad	AB	A	Kobenhavn	AB	A	Roma	AW	A
Bahrain	A	A	Kolkata	ACD	A	Sanaa	A	A
Baku	A	-	Kuala Lumpur	A	A	Seoul	AG	A
Bangkok	AC	A	Kuwait	A	A	Shannon	ABD-	
Beijing	AEF	A	Kyiv	A	-		HJNV	A
Beograd	AK	A	Lisboa	A	-	Sofia	A	A
Brisbane	CDEF-		Ljubljana	A	-	Stockholm	ABC	A
	GHJN	A	London	ABDF-		Taipei	AC	A
Brunei	B	A		GHJMPV	A	Tehran	AB	A
Bruxelles	A	A				Tel Aviv	A	A
Bucuresti	ABM	A	Macao	A	A	Tokyo	ABCEJ	A
Budapest	A	A	Madrid	ABDE	A	Tripoli	A	-
Cairo	A	A	Mahé	A	A	Vientiane	A	A
Chennai	ACDG	A	Male'	ACD	A	Vilnius	A	-
Christchurch	B	A	Malta	A	-	Washington	A	A
Colombo	AC	A	Manila	BC	A	Wien	AB	A
Congo	AB	-	Mauritius	A	A	Windhoek	AB	-
Damascus	A	-	Moskva	AGOPV	A	Yangon	ABC	A
Dar es-Salaam	A	-	Mumbai	ABC	A	Zurich	A	A
Dhaka	A	A	Muscat	AB	A			
Timor-Leste	G	-	Nadi	AD	-			
Frankfurt	A	A	Nairobi	A	-			
Harare	A	-	New Delhi	ACDG	A			
Helsinki	A	A	Nicosia	A	A			
			Niew Milligen	M	-			

Pre-flight Information Bulletin (PIB) which contains a recapitulation of current NOTAM and other information of urgent character for the operator / flight crews can be retrieve from the following:

a) CAAS website: http://www.caas.gov.sg
b) AIM-SG URL page at http://aim.caasaim.gov.sg

3.6 *Aeronautical Information Circular (AIC)*

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

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

3.7 *Checklist and NOTAM List*

A checklist of current NOTAM is issued monthly via the AFS. Subsequently, a printed NOTAM List is prepared and distributed by mail to all recipients of the Integrated Aeronautical Information Package. It contains the plain language presentation of current NOTAM, information on the serial numbers of the latest AIP AMDT, AIP SUP and AIC issued and also includes the checklist for AIP SUP.

3.8 *Sale of publications*

AIP Singapore may be purchased from the Aeronautical Information Services, Civil Aviation Authority of Singapore, Singapore Changi Airport at S$435.00 per copy of the AIP (excluding postage).

The fee for the AIP AMDT service is S$130.00 per year per copy of the AIP (excluding postage which is to be paid in advance).

Additional AIP covers may be purchased at $12.00 each.

4. AIRAC SYSTEM

4.1 In order to control and regulate operationally significant changes requiring amendments to charts, route manuals, etc., such changes, whenever possible, will be issued on predetermined dates according to the AIRAC SYSTEM. This type of information will be published in an AIRAC AIP SUP. If an AIRAC AIP SUP cannot be issued due to lack of time, an AIRAC NOTAM will be issued. Such NOTAM will immediately be followed by an AIP SUP.

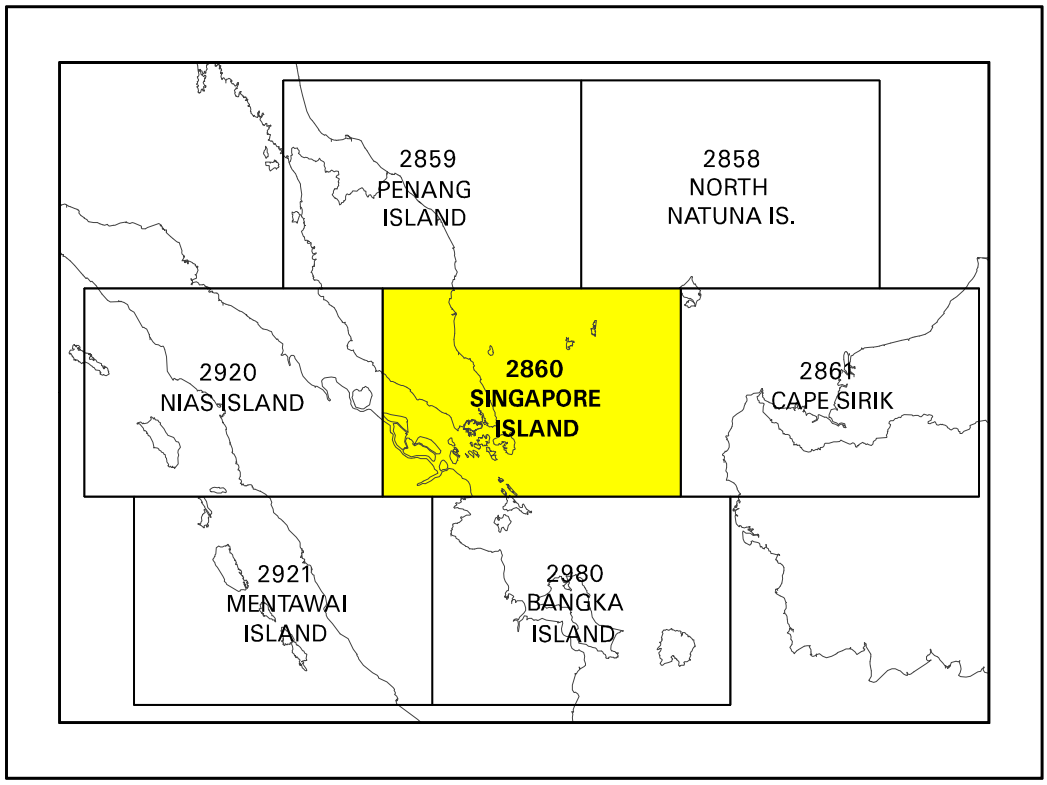
4.2 AIRAC information will be issued so that the information will be received by the user not later than 28 days, and for major changes not later than 56 days, before the effective date. The table below indicates AIRAC effective dates for Years 2015 to 2018:

AIRAC Effective Dates			
Year 2015	**Year 2016**	**Year 2017**	**Year 2018**
8 January	7 January	5 January	4 January
5 February	4 February	2 February	1 February
5 March	3 March	2 March	1 March
2 April	31 March	30 March	29 March
30 April	28 April	27 April	26 April
28 May	26 May	25 May	24 May
25 June	23 June	22 June	21June
23 July	21 July	20 July	19 July
20 August	18 August	17 August	16 August
17 September	15 September	14 September	13 September
15 October	13 October	12 October	11 October
12 November	10 November	9 November	8 November
10 December	8 December	7 December	6 December

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	15 JUL 99
→ **Enroute Chart** ICAO (ENRC)		ENR 6-1		In AIP	8 JAN 15
Instrument Approach Chart ICAO (IAC)		***Singapore Changi***			
	1:400 000	RWY 02L - ICW ILS/DME	WSSS AD 2-101	In AIP	10 MAR 11
	1:400 000	RWY 02C - ICE ILS/DME	WSSS AD 2-103	In AIP	10 MAR 11
	1:400 000	RWY 02C - VTK DVOR/DME	WSSS AD 2-105	In AIP	10 MAR 11
	1:400 000	RWY 02R - ICX ILS/DME	WSSS AD 2-107	In AIP	10 MAR 11
	1:400 000	RWY 20R - ICH ILS/DME	WSSS AD 2-109	In AIP	10 MAR 11
	1:400 000	RWY 20C - ICC ILS/DME	WSSS AD 2-111	In AIP	10 MAR 11
	1:400 000	RWY 20C - VTK DVOR/DME	WSSS AD 2-113	In AIP	10 MAR 11
	1:400 000	RWY 20L - ICZ ILS/DME	WSSS AD 2-115	In AIP	18 NOV 10
	1:400 000	RWY 02L - RNAV(GNSS)	WSSS AD 2-117	In AIP	10 MAR 11
	1:400 000	RWY 20R - RNAV(GNSS)	WSSS AD 2-119	In AIP	7 MAR 13
		Paya Lebar			
	1:400 000	RWY 20 - PU DVOR/DME	WSAP AD 2-17	In AIP	10 MAR 11
	1:400 000	RWY 02 - PU DVOR/DME	WSAP AD 2-19	In AIP	10 MAR 11
	1:400 000	RWY 20 - IPS ILS/DME	WSAP AD 2-21	In AIP	10 MAR 11
	1:400 000	RWY 02 - IPN ILS/DME	WSAP AD 2-23	In AIP	10 MAR 11
Visual Approach Chart ICAO (VAC)	1:400 000	***Singapore Changi***	WSSS AD 2-121	In AIP	10 MAR 11
		Seletar			
	1:100 000	RWY 03	WSSL AD 2-21	In AIP	12 DEC 13
	1:100 000	RWY 21	WSSL AD 2-23	In AIP	12 DEC 13
	1:100 000	RWY 03	WSSL AD 2-25	In AIP	12 DEC 13
	1:100 000	RWY 21	WSSL AD 2-27	In AIP	12 DEC 13
Visual Departure Chart		***Seletar***			
	1:100 000	RWY 03	WSSL AD 2-29	In AIP	12 DEC 13
	1:100 000	RWY 21	WSSL AD 2-31	In AIP	12 DEC 13
→ **Aerodrome Chart** ICAO (AC)		***Singapore Changi***	WSSS AD 2-31	In AIP	8 JAN 15
		Seletar	WSSL AD 2-13	In AIP	18 SEP 14
		Paya Lebar	WSAP AD 2-11	In AIP	18 SEP 14
Aerodrome Obstacle Chart ICAO TYPE A (AOC)		***Singapore Changi***			
	1:10 000	RWY 20R/02L	WSSS AD 2-37	In AIP	3 APR 14
	1:10 000	RWY 20C/02C	WSSS AD 2-39	In AIP	3 APR 14
		Seletar			
	1:10 000	RWY 03/21	WSSL AD 2 -17	In AIP	6 FEB 14
		Paya Lebar			
	1:20 000	RWY 20/02	WSAP AD 2-15	In AIP	18 SEP 14
Aerodrome Obstacle Chart ICAO TYPE B (AOC)		***Singapore Changi***			
	1:25 000	RWY 02L/20R and 02C/20C	WSSS AD 2-41	In AIP	3 APR 14
		Seletar			
	1:12 500	RWY 03/21	WSSL AD 2-19	In AIP	18 SEP 14
Precision Approach Terrain Chart - ICAO (PATC)		***Singapore Changi***			
	1:2 500	RWY 02L	WSSS AD 2-43	In AIP	25 APR 96
	1:2 500	RWY 02C	WSSS AD 2-45	In AIP	25 APR 96

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



4. TYPES OF SERVICES

4.1 The Meteorological Office and Meteorological Watch Office at Singapore Changi Airport operate H24 and provide the following services for civil aviation:

a) Full meteorological documentation and briefing for current operational planning for all flights operating out of Singapore Changi Airport;

b) Area meteorological watch over the Singapore FIR with the supply of meteorological information including SIGMET information to aircraft in flight through the Singapore ATS radio channels (see subsection AD 2.11);

c) HF RTF VOLMET broadcasts of meteorological information (see page GEN 3.5-7), Aviation weather report with trend statement, strong low level vertical wind shear report and aerodrome warnings are also included in VHF ATIS broadcasts for Singapore Changi Airport (see page GEN 3.4-3);

d) Meteorological information for ATS

4.2 Weather briefing by a forecaster is available H24 to qualified flight operations personnel at the Meteorological Office at Singapore Changi Airport or via telephone at (65)65425059 / (65)65422837. Weather information is available online via our Aviation Intranet at URL http://www.weather.gov.sg/ (see paragraph 9.2 for further details).

4.3 The Meteorological Office at Seletar Aerodrome operates H24 and provides meteorological documentation without briefing for international and general aviation flights operating out of Seletar Aerodrome.

4.4 Details of documentation supplied for each flight are determined by arrangement between the operator and the Meteorological Office. In general, the pilot-in-command is provided with documentation comprising one or more fixed-time prognostic streamline/istotach/spot temperature charts of standard isobaric surfaces appropriate to the cruising level (ICAO model IS), one of fixed-time prognostic significant weather chart code form. Alternatively, he may be provided with a tabular forecast of en-route conditions with wind and temperature conditions for climb and descent and for one or more standard levels appropriate to the cruising level (ICAO model TA), and appropriate aerodrome forecasts in TAF code form.

4.5 Routine aerodrome forecasts received from other Meteorological Offices are normally included in meteorological documentation without modification. When a required aerodrome forecast is not received, a provisional forecast may be issued by the Meteorological Office providing the documentation.

4.6 After documentation has been issued and until take-off (i.e. the latest ETD notified to the Meteorological Office), the Meteorological Office at Singapore Changi Airport makes available amendments to the documentation. It is the responsibility of the operator's local representative or the pilot-in-command to obtain any pre-departure amendment(s) from the Meteorological Office at Singapore Changi Airport. The pilot-in-command may request pre-departure amendment(s) through the Singapore Changi Airport Control Tower.

4.7 Climatological Summaries for Singapore Changi (WSSS-48698) are available from the Meteorological Service Singapore. For enquiry, please email to sales_climo@nea.gov.sg

4.8 OBSERVING SYSTEMS AND OPERATING PROCEDURES AT SINGAPORE CHANGI AIRPORT AND SELETAR AERODROME

4.8.1 SINGAPORE CHANGI AIRPORT

4.8.1.1 RWY 02L/20R (Runway 1)

4.8.1.1.1 Surface wind is measured by three cup anemometers and wind vanes located as follows:

		DIST FROM END OF RWY	DIST FROM RWY CENTRELINE
(i)	One set at	470 metres north of RWY 02L	130 metres
(ii)	One set at	middle of runway	130 metres
(iii)	One set at	470 metres south of RWY 20R	130 metres

4.8.1.1.2 RVR observations are made by means of three sets of transmissometers, located as follows:

	DIST FROM END OF RWY	DIST FROM RWY CENTRELINE
1st set	370 metres north of RWY 02L	110 metres
2nd set	Middle of runway	110 metres
3rd set	360 metres south of RWY 20R	110 metres

RVR is reported in steps of 25 metres between 0 and 400 metres, 50 metres between 400 and 800 metres and 100 metres between 800 and 1,500 metres.

4.8.1.2 RWY 02C/20C (Runway II)

4.8.1.2.1 Surface wind is measured by three cup anemometers and wind vanes located as follows:

		DIST FROM END OF RWY	DIST FROM RWY CENTRELINE
(i)	One set at	450 metres north of RWY 02C	130 metres
(ii)	One set at	middle of runway	130 metres
(iii)	One set at	450 metres south of RWY 20C	130 metres

4.8.1.2.2 RVR observations are made by means of three sets of transmissometers, located as follows:

	DIST FROM END OF RWY	DIST FROM RWY CENTRELINE
1st set	400 metres north of RWY 02C	110 metres
2nd set	Middle of runway	110 metres
3rd set	400 metres south of RWY 20C	110 metres

RVR is reported in steps of 25 metres between 0 and 400 metres, 50 metres between 400 and 800 metres and 100 metres between 800 and 1,500 metres.

4.8.1.2.3 Surface wind is also measured by an ultrasonic wind sensor located at the meteorological station, which is situated at 345 metres west of middle of RWY 02L/20R. Surface wind report in METAR and SPECI is taken from this measurement.

4.8.1.3 Wind Shear Observations (Singapore Changi Airport)

4.8.1.3.1 Horizontal low level wind shear observations are measured continuously by a system of 13 wind sensors located in Singapore Changi airport and its vicinity.

4.8.1.3.2 ATC will pass to all aircraft taking off or landing for the next $^{1}/_{2}$ hour from the time of report whenever microburst or wind shear of intensity 15 knots or greater is observed/reported.

4.8.1.3.3 The phraseology used by ATC to warn pilots of the presence of wind shear of intensity between 15 and 30 knots is:

> "..... (callsign) WIND SHEAR WARNING
> STRONG LOW LEVEL WIND SHEAR OBSERVED IN THE VICINITY OF CHANGI AIRPORT AT ..... (time)"

4.8.1.3.4 The phraseology used by ATC to warn pilots of the presence of wind shear of intensity greater than 30 knots is:

"".....(callsign) WIND SHEAR WARNING
SEVERE LOW LEVEL WIND SHEAR OBSERVED IN THE VICINITY OF
CHANGI AIRPORT AT .....(time)"

4.8.1.3.5 The presence of wind shear will also be broadcast in the ATIS for the next half an hour.

4.8.2 SELETAR AERODROME

4.8.2.1 Surface wind is measured by cup anemometers and wind vanes at ends of runway. Surface wind report in METAR and SPECI is taken from measurements of cup anemometer and wind vane at RWY 03.

4.8.2.2 Wind Shear Observations (Seletar Aerodrome)

4.8.2.2.1 ATC will pass to all aircraft taking off or landing for the next $^1/_2$ hour from the time of report whenever microburst or wind shear of intensity 15 knots or greater is observed/reported.

4.8.2.2.2 The phraseology used by ATC to warn pilots of the presence of wind shear of intensity between 15 and 30 knots is:

"".....(callsign) WIND SHEAR WARNING
STRONG LOW LEVEL WIND SHEAR OBSERVED IN THE VICINITY OF
SELETAR AIRPORT AT .....(time)"

4.8.2.2.3 The phraseology used by ATC to warn pilots of the presence of wind shear of intensity greater than 30 knots is:

"".....(callsign) WIND SHEAR WARNING
SEVERE LOW LEVEL WIND SHEAR OBSERVED IN THE VICINITY OF
SELETAR AIRPORT AT .....(time)"

5. NOTIFICATION REQUIRED FROM OPERATORS

5.1 It is the responsibility of the operator or the pilot-in-command to notify the meteorological office of any flight for which meteorological documentation is required (ref. ICAO Annex 3, paragraph 2.3). As much prior notice as possible should be given, and at least one hour notice at Singapore Changi Airport and two hours at Seletar Aerodrome would be required for non-scheduled flights.

6. AIRCRAFT REPORTS REQUIRED FROM OPERATORS

6.1 AIREP

6.1.1 Routine aircraft meteorological observations shall be made and the reports transmitted at ATS/ MET reporting points listed on page GEN 3.5-6 and as indicated in subsection ENR 3.1 - ATS ROUTES.

6.1.2 Special aircraft observations and aircraft observations during climb-out and approach shall be made and the reports transmitted as necessary.

6.1.3 Special aircraft observations of pre-eruption volcanic activity, volcanic eruption or volcanic ash cloud shall be recorded on the special Air-Report of Volcanic Activity form which can be downloaded from URL https://fpl-1.caasaim.gov.sg/. A copy of the completed Volcanic Activity Report shall be delivered by the operator or a flight crew member, without delay, either personally or by telephone facsimile (TEL: 65425026 or 65429978) to the Meteorological Office, Singapore Changi Airport.

6.2 REPORTING OF LOW LEVEL WIND SHEAR

6.2.1 Pilots encountering wind shear shall report to ATC as soon as possible.

6.2.2 When reporting wind shear on radiotelephony, the information should be transmitted in this order:

a) Aircraft callsign;
b) WIND SHEAR report;
c) Time (of wind shear occurrence);
d) Position (of wind shear);
e) Intensity (moderate, strong or severe);
f) Average height of wind shear layer.

6.2.3 On receipt of a wind shear report from a pilot, ATC will pass it to other aircraft in the vicinity. The following phraseology will be used:

"WIND SHEAR WARNING
ARRIVING (or DEPARTING) ..... (type of aircraft)
REPORTED ..... (moderate, strong, severe)
WIND SHEAR IN APPROACH (or DEPARTURE)
RUNWAY ..... (number) AT ..... (time)
HEIGHT OF WIND SHEAR LAYER ..... (feet)"

6.2.4 The presence of wind shear as reported by a pilot will also be broadcast in the ATIS for the next half an hour unless subsequent reports indicate that wind shear no longer exists.

6.3 AIRCRAFT ATS/MET REPORTING POINTS IN THE SINGAPORE FIR

6.3.1. Aircraft Meteorological Observations shall be made in relation to and transmitted in flight by all aircraft at the following selected Air Traffic Services position reporting points within the Singapore FIR except when:

a) The flight duration is less than 2 hours, or
b) The altitude of the flight path is less than 5 000ft, or
c) The aircraft is less than 1 hour's flying time from the next intended point of landing.

6.3.2. The aircraft ATS/MET reporting points listed below are indicated in chart page ENR 3.1-17.

6.3.3. The position of the mean wind or spot wind, to the nearest whole degree latitude and longitude, shall be recorded and transmitted in flight.

ATS ROUTE	AIRCRAFT ATS/MET REPORTING POINTS IN THE SINGAPORE FIR
G580	NIMIX
L642	ESPOB
L644	KIKOR
M635	SURGA
M758/M767	TERIX
M767	TEGID
M774	KADAR
M774/L504	BAVUS
N875	ARUPA
N892	MELAS

5. STRATEGIC LATERAL OFFSET PROCEDURES

5.1 INTRODUCTION

5.1.1 Studies and safety analyses conducted by the ICAO Separation and Airspace Safety Panel (SASP) have shown that the application of a strategic lateral offset by aircraft from route centre line would result in an overall increase in safety of operations in remote and oceanic airspace.

5.2 STRATEGIC LATERAL OFFSETS IN EN-ROUTE AIRSPACE

5.2.1 Offsets may be applied outside surveillance cover in en-route airspace within the Singapore FIR.

5.2.2 Offsets may only be applied by aircraft with automatic offset tracking capability.

5.2.3 The following requirements may apply to the use of the offset:

a) The decision to apply a strategic lateral offset is the responsibility of the flight crew;

b) The offset shall be established at a distance of one or two nautical miles to the right of the centre line relative to the direction of flight. Offsets are not to exceed two nautical miles right of centre line;

c) The strategic lateral offset procedure has been designed to include offsets to mitigate the effects of wake turbulence of preceding aircraft. If wake turbulence needs to be avoided, offsets to the right of the centreline relative to the direction of flight in tenths of a nautical mile up to a maximum of 3.7km (2nm) shall be used.

Pilots may contact other aircraft on the air to air frequency, 123.45MHz, as necessary, to coordinate the best wake turbulence offset option. As noted below, it is not necessary to notify air traffic control of approved offsets;

d) In airspace where the use of lateral offsets has been authorized, ATC clearance is not required for this procedure and pilots are not required to inform ATC that an offset is being applied;

e) Position reports are based on the current ATC clearance and not the exact coordinates of the offset position.

An example of a position report made by a pilot when passing reporting point TODAM while being offset from track is:

“Singapore Radio, Singapore 871, position TODAM 0930 Flight Level 380, estimate.....etc”.

6. CHANGI FLOW MANAGEMENT PROCEDURES

6.1 INTRODUCTION

6.1.1 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.

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

6.2 ENTRY GATES

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

Entry Gate Coordinates

BOBAG	010230N 1032954E
PASPU	015915N 1040618E
REMES	004342N 1035735E
LAVAX	010950N 1042714E

6.3 ARRIVING AIRCRAFT TO SINGAPORE CHANGI AIRPORT

6.3.1 STANDARD INSTRUMENT ARRIVAL (STAR)
IFR flight should expect a Standard Instrument Arrival (STAR). Changi arrivals via ATS route A464 shall flight plan BOBAG 1 Alpha or BOBAG 1 Bravo as STAR route. BOBAG 1 Kilo, BOBAG 1 Lima and LELIB 2 Bravo STAR would be issued to pilots when traffic permits.

6.3.2 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.

6.3.3 DESCENT PROFILE
Pilots shall plan their descent profile in accordance to the published STAR procedures.

6.3.4 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.

6.4 APPROACH AIRSPACE HOLDING PROCEDURES

6.4.1 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.

6.4.2 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.

6.4.3 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.

6.4.4 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)
LAVAX 010950N 1042714E	269°	Left	220 knots	1	FL140 7,000ft	Singapore Approach 124.05MHz (PRI) 132.15MHz (SRY)
REMES 004342N 1035735E	348°	Right	220 knots	1	FL140 6,000ft	Singapore Approach 124.6MHz (PRI) 132.15MHz (SRY)
BOBAG 010230N 1032954E	083°	Right	220 knots	1	FL140 6,000ft	Singapore Approach 124.6MHz (PRI) 132.15MHz (SRY)

6.4.5 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 6.4.4)

6.5 EXPECTED TIME TO LEAVE HOLDING AREA

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

6.5.2 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 page ENR 1.6-4). Subsequently, a specified time to leave the holding area will be issued to pilots to resume the flight according to the assigned RNAV STARs.

6.6 DEPARTING AIRCRAFT FROM SINGAPORE CHANGI AIRPORT

6.6.1 DEPARTURE SPEED CONTROL

Departing aircraft shall fly at IAS 220 knots or less below 4000 feet or at the waypoints specified in the SID and thereafter IAS 250 knots or less below 10000 feet AMSL. Pilots shall also comply with speed control restrictions according to published SIDs.

7. AUTOMATIC DEPENDENT SURVEILLANCE BROADCAST (ADS-B) OUT EXCLUSIVE AIRSPACE WITHIN PARTS OF THE SINGAPORE FIR

7.1 ADS-B BASED SURVEILLANCE AIRSPACE AND AIRCRAFT OPERATOR APPROVAL

7.1.1 Aircraft that operates on ATS routes L642, M771, N891 M753, L644, N892 and M904 within airspace bounded by 073605N 1090045E, 040713N 1063543E, 041717N 1061247E (MABLI), 044841N 1052247E (DOLOX), 045223N 1041442E (ENREP), 045000N 1034400E, thence north along the Singapore FIR boundary to 070000N 1080000E at or above FL290 must comply with the following:

a) aircraft must carry serviceable ADS-B transmitting equipment that has been certified as meeting EASA AMC 20-24, or FAA AC No. 20-165A - Airworthiness Approval of ADS-B, or meets the equipment configuration standards in Appendix XI of Civil Aviation Order 20.18 of the Civil Aviation Safety Authority of Australia.

7.1.2 Aircraft that does not comply with the requirements stipulated in paragraphs 7.1.1 a) and b) will not be accorded priority in the delineated airspace and flight level assignments would be subjected to air traffic conditions.

7.1.3 If an aircraft carries ADS-B transmitting equipment but does not comply with the requirements stipulated in paragraphs 7.1.1 a) and b), the aircraft must not fly in the delineated airspace unless the equipment is deactivated or set to transmit only a value of zero for the Navigation Uncertainty Category (NUCp) or Navigation Integrity Category (NIC).

7.1.4 Flights operating in the delineated airspace are to contact Singapore Radar on 134.35MHz (primary frequency) and 133.6MHz (secondary frequency).

7.2 FLIGHT PLANNING REQUIREMENTS

7.2.1 Aircraft operators complying with the requirements stipulated in paragraphs 7.1.1 a) and b) are to indicate the appropriate ADS-B designator in Item 10 of the ICAO flight plan:

B1 ADS-B with dedicated 1090 MHz ADS-B “out” capability
B2 ADS-B with dedicated 1090 MHz ADS-B “out” and “in” capability

7.2.2 Aircraft operators are to include the aircraft address (24 Bit Code) in hexadecimal format in Item 18 of the ICAO flight plan as per the following example:

CODE/7C432B

7.2.3 Aircraft Identification (ACID) not exceeding 7 characters must be accurately indicated in Item 7 of the ICAO flight plan and replicated exactly when set in the aircraft avionics (for transmission as Flight ID) as follows:

either

a) The three-letter ICAO designator of the aircraft operator followed by the flight number (e.g. SIA123, MAS123, GIA123), when radiotelephony callsign consists of the associated ICAO telephony designator for the aircraft operator followed by the flight number (e.g. SINGAPORE 123, MALAYSIAN 123, INDONESIA 123).

or

b) The aircraft registration (e.g. N555AB, 9VABC) when the radiotelephony callsign consists of the aircraft registration.

Important: ACID entered should not have any leading zeros unless it is part of the flight number as indicated in Item 7 of the ICAO flight plan. Hyphens, dashes or spaces are NOT to be used.

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 the operator shall submit a flight plan to ATC in respect of the following flights via the AFS and / or Internet:

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 operator shall use the ICAO flight plan form except for where a flight is planned to be conducted in the Seletar aerodrome circuit or departing Seletar Aerodrome for Light Aircraft Training Areas A, B and C. Details of the flight shall be submitted by electronic mail using a standard format and submission procedure can be found in the following webpage: http://www.caas.gov.sg/caasWeb2010/export/sites/caas/en/eServices_Forms/Aeronautical_Information_Services.html?_locale=en

1.1.3 For a flight that will be operating within Singapore only (except for flights mentioned in paragraph 1.1.2 b), 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 AOC at 67683702 for clarification.

1.1.4 The pilot-in-command or the operator of IFR flight operating out of Seletar is required to file via KK.

1.1.5 VFR flight operating between Seletar and Johor Bahru shall route via Point X (012830N1034954E), Tebrau City Mall (013259N1034748E), Felda Ulu Tebrau (013751N1034510E) and vice versa.

1.2 Requirement for submission of a Flight Plan for Test Flights

1.2.1 Test flights shall be conducted on Airway G580 between HOSBA and NIMIX to minimise disruption to civil scheduled flight movements and to facilitate the test flight operations.

1.2.2 A flight plan shall be submitted for a test 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 shall maintain a 2-way VHF communication with Singapore ATC on the assigned VHF frequency at all times.

1.2.4 The pilot-in-command of the test flight shall adhere to ATC instructions at all times. Test flight manoeuvres are subject to ATC clearance, real-time coordination and traffic.

1.2.5 Procedures for application to conduct test flights are provided on page GEN 1.2-6 paragraph 4.

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.
Note 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

1.5.1 Aircraft using data link communications (page ENR 1.1-15) 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 4A
J4 CPDLC FANS 1/A VDL Mode 2
J5 CPDLC FANS 1/A SATCOM (INMARSAT)
J6 CPDLC FANS 1/A SATCOM (MTSAT)

1.6 RNAV Approved Aircraft

1.6.1 Aircraft flying on RNAV routes A464, A576, B348, B470, G334, L625, L642, L644, M751, M753, M758, M761, M767, M768, M771, M772, M774, N875, N884, N891 and N892 (see page ENR 1.8-13) 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 Aircraft flying on RNAV routes L642(CHEUNG CHAU-MERSING), L644(DUDIS-KIKOR), M771(MERSING-CHEUNG CHAU), M772(ASISU-LAXOR), N892(HENGCHUN-MERSING), L625(LUSMO-MEVIN), N884(MERSING-MANILA) and M767(JOMALIG-TOMAN) (see page ENR 1.8-17) must be RNP 10 approved and shall indicate 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 unable to meet the RNP 10 requirements (see page ENR 1.8-17) and wishing to operate at or above FL290 on RNAV routes specified in paragraph 1.6.2 shall annotate their flight plan as follows:

Item 18 - insert "RMK/REQ FL (insert level)" where FL = the preferred flight level (subject to ATC co-ordination)

1.6.4 Operators of aircraft approved for RNP 1 (P-RNAV) operations shall also 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 page ENR 1.8-6) 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.

INTENTIONALLY

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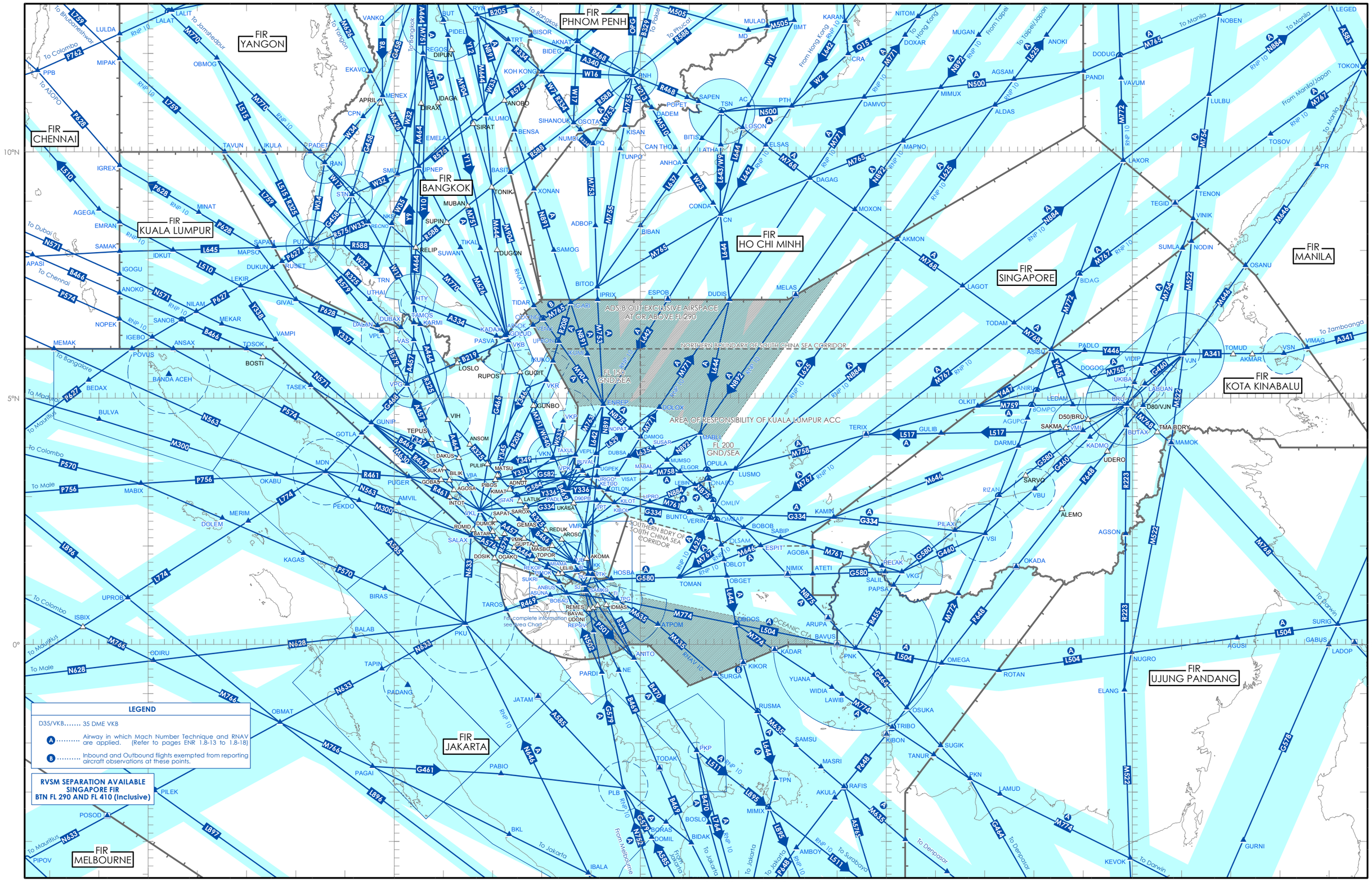
AIR TRAFFIC SYSTEM CHART



CHANGES : Kerteh Control Zone revised.

ENROUTE CHART - ICAO

LEGEND

Aerodrome

Flight Information Region (FIR)
Name of FIR — FIR SINGAPORE
Upper Limit — UNL
Lower Limit — GND/WATER
Unit providing service — ACC SINGAPORE

Terminal Control Area (TMA)
Name of TMA — TMA KUCHING
Airspace Classification — C
Upper Limit — FL 250
Lower Limit — 3 000ft
Radio Frequency (ies) — 134.5 120.2

Control Zone (CTR)
Name of CTR — CTR KUCHING
Airspace Classification — C
Upper Limit — 3 000ft
Radio Frequency (ies) — 120.2

ATS route
Route designator — L642
Magnetic track — 032° / 212
Distance in nautical miles
Minimum flight altitude (ITI)/flight level — 7 000/FL 140
Required navigation performance — RNP 10

ATS route reporting point by-pass
(No report is required on this route)

Reporting Point (REP)
Compulsory
On Request

ATS/MET reporting point (MRP)
Compulsory
On Request

Restricted Airspace
(P-Prohibited, R-Restricted, D-Danger)
Identification of area — W5D8
Nationality letter
Vertical limits — FL 400 / WATER

Note : Restricted airspace outside Singapore FIR are not shown

Collocated VOR and DME navigation aids (VOR/DME)
Compass rose orientated on the chart to Magnetic North

Identification for radio navigation aids (NAVAID)
Name — SINJON
NAVAID, frequency, identification or call sign — DVOR/DME 113.5
Geographical coordinates in WGS-84 — 01°13'21"N 103°51'13"E
Elevation of DME site (to the nearest 30m) — 60ft

COP at mid-point between VOR are not shown

Area Minimum Altitude (AMA)

Each 2° quadrilateral contains an area minimum altitude (AMA) which represents the lowest altitude which may be used under instrument meteorological conditions (IMC). The AMA provides a minimum clearance of 1 000 feet (300m) above all terrains and obstacles in the quadrilateral. It is represented in thousands and hundreds of feet above mean sea level.

Example : 3 500 feet **35**

Ⓐ Airway in which Mach Number Technique and RNAV are applied (Refer to pages ENR 1.8-13 to 1.8-18)

Ⓑ Inbound and Outbound flights exempted from reporting aircraft observations at these points.

WSJC/WMFC FIR BDRY REPORTING POINTS	
TAXUL	**MANIM**
03 50.35N	03 14.31N
103 40.37E	104 05.53E
BUVAL	**KETOD**
03 36.22N	03 10.44N
103 43.41E	104 09.43E
DOVOL	**RAXIM**
03 30.47N	03 03.18N
103 49.23E	104 17.13E
IDSEL	**KIBOL**
03 24.32N	02 52.29N
103 55.44E	104 28.05E
EGOLO	**LENDA**
03 19.34N	02 41.24N
104 00.47E	104 39.32E

RVSM SEPARATION AVAILABLE
SINGAPORE FIR
BTN FL 290 AND FL 410 (Inclusive)

AIRSPACE CLASSIFICATION IN THE SINGAPORE FIR

Airspace		Levels	Classification
Controlled airspace		FL 150 to FL 460	A
		Surface to FL 150	B
Controlled airspace more than 100 nm seaward from the shoreline		Lower limit to FL 460	A
Control Zones (CTRs)	Changi CTR	Surface to upper limit	C
	Paya Lebar CTR		D
	Seletar CTR		C
ATZs		Surface to upper limit	D
Uncontrolled airspace			G*

* Aircraft operating in Light Aircraft Training Areas A, B and C (please refer to AIP Singapore page ENR 5.2-1) are required to have continuous two-way communications with the appropriate ATS authority.

CAUTION

Consult respective NOTAMs and AIPs of States concerned for the latest information and the Civil Aviation Authority of Singapore does not accept responsibility for any errors or omissions in the information shown outside of Singapore FIR

MAGNETIC INFORMATION FOR THE YEAR 2015

COMMUNICATION FACILITIES

SINGAPORE (ACC) SINGAPORE RADAR	P123.7 S127.3 133.8 (0000-1430)		For Awy B469, G219, G334, L629, L635, L642, M751, M758, M761, M763, M771, N884, N891 & N892 in the vicinity of VMR and VPK.
	P133.25	S135.8	For Awy A457, A464, A576, B466 R325 (all northbound) and R469
	P134.2	S133.35	For Awy B348, G580, L644 & M767.
	P134.4 255.4	S128.1	For Awy A464, A576, G579 (all southbound), B470, L644, N875 and in area in the immediate vicinity of Singapore.
SINGAPORE RADIO	6 556, 11 297 5 655, 8 942, 11 396 6 556.		SEA 1 SEA 2 SEA 3
SINGAPORE APPROACH	APP	P120.3 S124.6	TAR - 1) Intermediate approach to Singapore Changi Airport and other airports in Singapore. 2) Dep from all airports in Singapore.
SINGAPORE ARRIVAL	APP	119.3	TAR - Intermediate and final approach to Singapore Changi Airport.
SINGAPORE/ Singapore Changi (WSSS)	D-ATIS TWR	128.6 118.6	Data Link Service available H24. For Take-off/Landing

P - Primary ; S - Secondary

NOTE : Information on radio communication facilities outside Singapore FIR are not included. See respective AIPs of States concerned.

CONICAL CONFORMAL PROJECTION

3.4 Passengers embarking from this aerodrome will also have to pay the passenger service charge, where applicable. Foreign military aircraft are normally exempted by MINDEF Singapore from the airport charges. If exemption has not been granted, charges will be levied on foreign military aircraft.

3.5 Liability will not be accepted by the controlling Authority, its servants or agents, or by any agent or servant of the Government for the loss or damage, by accident, fire, flood, tempest, explosion of any other cause, to aircraft; or for loss or damage, from whatever cause arising to goods, mail or other articles, or for loss or injury from whatever cause, arising to passengers or other persons (including pilots, engineers or other personnel of aircraft), landing at, departing from, or accommodated in or at any service aerodrome; even if such loss, damage or injury is caused by or arises from negligence on the part of the Authority's servants or agents or of any servant or agent of the Government.

3.6 The use of any apparatus such as tractors, cranes, chocks, starter trolleys, etc., belonging to or under the charge of the controlling authority by the personnel of aircraft or other persons making use of the aerodrome, will be entirely at the risk of the person using such apparatus, and no liability will be accepted for any loss, damage or injury caused by or arising from the use of any such apparatus (whether under the control or management of any servant or agent of the controlling authority of the Government or otherwise) which may result to the user thereof or to any other person or thing. The use of such apparatus will be permitted only upon the understanding that the controlling authority and the Government will be held indemnified against all claims which may result from such use. It must, further be clearly understood that the controlling authority does not in any way guarantee the safety or fitness of any such apparatus or of any equipment, petrol or oil, or similar products, supplied.

3.7 Production of Documents for Inspection

3.7.1 The pilot-in-command of an aircraft shall produce to any authorised person as and when requested by that person to do so, within reasonable time before the commencement or after the termination of a flight, any of the following documents:

a) Certificate of Airworthiness;
b) Certificate of Registration;
c) The licences of its operating crew and of any person required under paragraph 19 of the Air Navigation Order to be the holder of such a licence;
d) The Telecommunications Log Book in all cases which is required under the Air Navigation Order to be carried in the aircraft;
e) Radio Station Licence;
f) Copy of Load Sheet (Singapore registered aircraft only);
g) Passenger Manifest showing name and place of embarkation and destination;
h) Cargo Manifest;
i) Copy of Certificate of Maintenance Review (Singapore registered aircraft only);
j) Noise Certificate as required by paragraph 51 of the Air Navigation Order.

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

Please refer to page WSSS AD 2-22.

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)

6. OTHERS

6.1 Dissemination of Information on Wet Runways

The presence of water on a runway will be reported on RTF using the following descriptions:

DAMP - the surface shows a change of colour due to moisture
WET - the surface is soaked but there is no standing water
STANDING WATER - for aeroplane performance purposes, a runway where more than 25 percent of the runway surface area (whether in isolated areas or not) within the required length and width being used is covered by water more than 3mm deep.

When a runway is reported as DAMP or WET, subject to any notification to the contrary, pilots may assume that an acceptable level of runway wheel braking friction is available. When a runway is reported as having STANDING WATER, wheel braking may be affected by aquaplaning and appropriate operational adjustments should be considered.

3. TERMINAL 2 AIRCRAFT STANDS - Aircraft types that can be parked at stands (✈) are as follows:

Stands	E1	E2	E3	E4	E5	E6	E7	E8	E10	E11	E12	E20	E22	E24	E26	E27	E28
A300		✈	✈	✈	✈	✈		✈		✈	✈	✈	✈	✈	✈	✈	✈
A310	✈	✈	✈	✈	✈	✈	✈	✈		✈	✈	✈	✈	✈	✈	✈	✈
A319	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		✈	✈	✈
A320	✈	✈	✈	✈	✈	✈	✈	✈		✈	✈	✈	✈		✈	✈	✈
A321			✈		✈								✈		✈	✈	✈
A332			✈	✈	✈			✈		✈	✈	✈	✈	✈	✈	✈	✈
A333			✈	✈	✈			✈		✈	✈	✈	✈	✈	✈	✈	✈
A342			✈	✈	✈			✈		✈	✈		✈	✈	✈	✈	✈
A343			✈	✈	✈			✈		✈	✈		✈	✈	✈	✈	✈
A345			✈	✈	✈			✈		✈	✈		✈	✈	✈	✈	✈
A346				✈	✈			✈									
A380					✈			✈		✈							
B707															✈	✈	✈
B727	✈	✈	✈	✈	✈	✈		✈		✈	✈	✈	✈	✈	✈	✈	✈
B737	✈	✈	✈	✈	✈	✈	✈	✈		✈	✈	✈	✈		✈	✈	✈
B747			✈	✈	✈			✈		✈	✈	✈	✈	✈	✈	✈	✈
B74S			✈	✈	✈			✈		✈	✈		✈	✈	✈	✈	✈
B757	✈	✈	✈	✈	✈	✈		✈		✈	✈	✈	✈	✈	✈	✈	✈
B762	✈	✈	✈	✈	✈	✈		✈		✈	✈	✈	✈	✈	✈	✈	✈
B763	✈	✈	✈	✈	✈	✈		✈		✈	✈	✈	✈	✈	✈	✈	✈
B772			✈	✈	✈			✈		✈	✈	✈	✈	✈	✈	✈	✈
B773				✈	✈	✈		✈		✈	✈		✈	✈	✈	✈	✈
B773ER				✈	✈			✈		✈	✈		✈	✈	✈	✈	✈
B788												✈	✈		✈	✈	✈
DC10				✈	✈	✈		✈		✈	✈				✈	✈	✈
DC9												✈					
F70	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈			
F100															✈	✈	✈
IL62															✈	✈	✈
IL86															✈	✈	✈
IL96															✈	✈	✈
L101				✈	✈	✈		✈		✈	✈				✈	✈	✈
MD11				✈	✈	✈		✈		✈	✈				✈	✈	✈
MD80															✈	✈	✈
MD82															✈	✈	✈
MD87												✈					
MD88															✈	✈	✈

Stands	E24L	E24R
A319, A320, A321, B737	✈	✈

4. TERMINAL 2 AIRCRAFT STANDS - Aircraft types that can be parked at stands (✈) are as follows:

Stands	F30	F31	F32	F33	F34	F35	F36	F37	F40	F41	F42	F50	F52	F52L	F52R	F54	F56	F58	F59	F60
A300		✈	✈		✈	✈			✈	✈	✈	✈	✈			✈	✈	✈	✈	✈
A310		✈	✈	✈	✈	✈	✈		✈	✈	✈	✈	✈			✈	✈	✈	✈	✈
A319	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		✈	✈	✈		✈		✈
A320	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		✈	✈	✈		✈		✈
A321														✈	✈					
A332		✈			✈				✈	✈	✈	✈	✈			✈	✈	✈	✈	✈
A333		✈			✈				✈	✈	✈	✈	✈			✈	✈	✈	✈	✈
A342		✈			✈				✈	✈	✈		✈			✈	✈	✈	✈	✈
A343		✈			✈				✈	✈	✈		✈			✈	✈	✈	✈	✈
A345		✈			✈				✈	✈	✈		✈			✈	✈	✈	✈	✈
A346											✈									✈
A380		✈									✈									✈
B707												✈				✈			✈	✈
B727	✈	✈	✈	✈	✈	✈		✈	✈	✈	✈	✈				✈	✈	✈	✈	✈
B737	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		✈	✈	✈		✈		✈
B747		✈			✈	✈			✈	✈	✈	✈	✈			✈	✈	✈	✈	✈
B74S		✈			✈				✈	✈	✈					✈	✈	✈	✈	✈
B757		✈	✈	✈	✈	✈			✈	✈	✈	✈	✈			✈	✈	✈	✈	✈
B762		✈	✈		✈	✈			✈	✈	✈	✈	✈			✈	✈	✈	✈	✈
B763		✈	✈		✈	✈			✈	✈	✈	✈	✈			✈	✈	✈	✈	✈
B772		✈		✈	✈				✈	✈	✈	✈	✈			✈	✈	✈	✈	✈
B773										✈	✈					✈	✈	✈	✈	✈
B773ER										✈	✈					✈	✈	✈	✈	✈
B788		✈										✈	✈			✈	✈	✈	✈	✈
DC10					✈	✈				✈	✈					✈	✈	✈	✈	✈
DC8																				
DC9												✈				✈	✈	✈		
F70	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈				✈	✈	✈	✈	✈
L101					✈	✈				✈	✈					✈	✈	✈	✈	✈
MD11					✈	✈				✈	✈					✈	✈	✈	✈	✈
MD87												✈				✈				

Stands	F56L	F56R	F59L	F59R
A319	✈	✈	✈	✈
A320	✈	✈	✈	✈
A321	✈	✈	✈	✈
B737	✈	✈		✈

7. CARGO STANDS - Aircraft types that can be parked are as follows:

Stands	502	503	504	505	506	507	508	509	601	602	603	604	611	612
A300	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
A306													✈	✈
A310	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A330									✈	✈	✈	✈	✈	✈
A332	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
A333	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
A342	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A343	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A345	✈							✈						
A346	✈							✈						
A380	✈							✈						
B707	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
B727	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B737	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B744	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈				
B747	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
B748						✈	✈	✈			✈	✈		
B74S	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
B752													✈	✈
B753													✈	✈
B757	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
B762	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B763	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B764	✈	✈	✈					✈			✈	✈		
B772	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
B772LR													✈	✈
B773	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
B773ER	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈		
B777F													✈	✈
DC8	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
DC10	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
IL62	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
IL86	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
L101	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
MD11	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈

8. REMOTE STANDS - Aircraft types that can be parked at stands (Q) are as follows:

Stands	1	2	3	4	5	6	7	8	9	10	11	12	13	14
AT72	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A319	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A320	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
A321											✈	✈	✈	✈
B737	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈
DHC7	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈	✈

8. REMOTE STANDS - Aircraft types that can be parked at stands (Q) are as follows:

Stands	15	16	17	701	702
A318	✈	✈	✈	✈	✈
A319	✈	✈	✈	✈	✈
A320	✈	✈	✈	✈	✈
A321	✈	✈	✈	✈	✈
ATR72-500	✈	✈	✈	✈	✈
B733	✈	✈	✈	✈	✈
B734	✈	✈	✈	✈	✈
B735	✈	✈	✈	✈	✈
B736	✈	✈	✈	✈	✈
B737	✈	✈	✈	✈	✈
B738	✈	✈	✈	✈	✈
B739	✈	✈	✈	✈	✈
DHC7	✈	✈	✈	✈	✈

9. MARS STANDS - Aircraft types that can be parked at stands (✈) are as follows:

Stands	101	101L	101R	102	102L	102R
A300	✈			✈		
A310	✈			✈		
A319		✈	✈		✈	✈
A320		✈	✈		✈	✈
A321		✈	✈		✈	✈
A332	✈			✈		
A333	✈			✈		
A342	✈			✈		
A343	✈			✈		
A345	✈			✈		
A380	✈			✈		
B737		✈	✈		✈	✈
B747	✈			✈		
B748	✈			✈		
B757	✈			✈		
B762	✈			✈		
B763	✈			✈		
B772	✈			✈		
B773	✈			✈		
B773ER	✈			✈		
B787-8	✈			✈		

APRON/ACFT STANDS	PUSHBACK PROCEDURES	PHRASEOLOGY USED BY SINGAPORE GROUND
1, 2	The aircraft (on idle thrust) shall be pushed back: ● to face West onto TWY L7 until its nosewheel is at the stopbar marked “END OF PUSH” behind aircraft stand 2. The aircraft may breakaway from there. Simultaneous pushback is not permitted for aircraft stands 1, 2 and 3. <u>OR</u> ● onto TWY L5 to face North until its nosewheel is behind the stopbar behind aircraft stand 3. The aircraft may breakaway from there. Simultaneous pushback is not permitted for aircraft stands 1, 2 and 3. Pushback from aircraft stands 1 and 2 to face South is not permitted.	Pushback approved, to face West. Pushback approved, to face North.
3, 4, 5, 6, 7, 8, 9, 10	The aircraft (on idle thrust) shall be pushed back onto TWY L5 to face North or South until its nosewheel is at the intersection of the aircraft stand lead-in line and the centreline of TWY L5. The aircraft may breakaway from there. There shall be no simultaneous pushback of aircraft unless there is at least one aircraft stand separation. Simultaneous pushback is not permitted for aircraft stands 1, 2 and 3.	Pushback approved, to face North or South.
11, 12, 13	The aircraft (on idle thrust) shall be pushed back onto TWY L5 to face North or South until its nosewheel is at the “END OF PUSH (EOP)” position and the centreline of TWY L5. The aircraft may breakaway from there. There shall be no simultaneous pushback of aircraft unless there is at least one aircraft stand separation.	Pushback approved, to face North or South.
14	The aircraft (on idle thrust) shall be pushed back onto TWY L5 to face North until its nosewheel is at the “END OF PUSH (EOP)” position and the centreline of TWY L5. The aircraft may breakaway from there. There shall be no simultaneous pushback of aircraft unless there is at least one aircraft stand separation.	Pushback approved, to face North.
15, 16, 701, 702	The aircraft (on idle thrust) shall be pushed back onto TWY L5 centreline to face North. The aircraft shall then be towed forward until its nosewheel is at the position between aircraft stands 12 and 13. The aircraft may breakaway from there.	Pushback approved, to face North.
17	The aircraft (on idle thrust) shall be pushed back to face West until its nosewheel is at the “END OF PUSH (EOP)” position. The aircraft shall then be towed forward onto TWY L5 to face North until its nosewheel is at the position between aircraft stands 12 and 13. The aircraft may breakaway from there.	Standard pushback approved.

INTENTIONALLY

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WSSS AD 2.18 ATS COMMUNICATION FACILITIES

Service Designation	*Call sign*	*Frequency (P-PRI, S-SEC)*	*Hours of operation*	*Remarks*
ACC	Singapore Radar	P123.7 MHz S127.3 MHz	H24	for ATS Routes B469, G219, G334, R208, L625, L629, L635, L642, L644, M751, M753, M758, M761, M763, M771, N884, N891 and N892.
		133.8 MHz	0000-1430	
		P133.25 MHz S135.8 MHz	H24	for ATS Routes A457, A464, A576, B466, R325 (all northbound) and R469.
		P134.2 MHz S133.35 MHz		for ATS Routes B348, G580, L644 and M767
		P134.4 MHz S128.1 MHz 255.4 MHz		for ATS Routes A464, A576, G579 (all southbound), B470, L644, N875 and in area in the immediate vicinity of Singapore.
		124.05 MHz	0000-1530	Flow control service provided for ARR/DEP ACFT
		MAINT Period: Monthly - EV third SAT 1601-2359		
	Singapore Radio	6 556 KHz 11 297 KHz	H24	SEA 1, Emission: A3AJ. SSB suppressed carrier, SAT-COM service available
		5 655 KHz 8 942 KHz 11 396 KHz		SEA 2, Emission: A3AJ. SSB suppressed carrier, SAT-COM service available
		6 556 KHz		SEA 3, Emission: A3AJ. SSB suppressed carrier, SAT-COM service available
APP	Singapore Approach	P120.3 MHz S124.6 MHz	H24	TAR - Intermediate approach to Singapore Changi Airport and other airports in Singapore. Departures from all airports in Singapore.
	Singapore Arrival	119.3 MHz		TAR - Intermediate and final approach to Singapore Changi Airport.
	LOC of ASR I radar head: 012159.87N 1035849.89E. MAINT Period: Monthly, EV first SAT 1601-2359 LOC of ASR II radar head: 012156.28N 1035844.86E. MAINT Period: Monthly, EV fourth SAT 1601-2359			
TWR	Singapore Tower	118.6 MHz	H24 0000-1600	for takeoff / landing for aircraft operating on RWY 02L/20R
		118.25 MHz	0000-1600	for aircraft operating on RWY 02C/20C
	Singapore Ground	124.3 MHz	1600-0000 0000-1600	for start-up / push-back / taxiing of all aircraft for ground movement of aircraft west of Terminal 3
		121.725 MHz	0000-1700 2100-0000	for ground movement of aircraft east of Terminal 2
		121.85 MHz	0000-1800 2300-0000	for ground movement of aircraft north of Terminal 1
	Singapore Delivery	121.65 MHz		for Pre-flight check / ATC clearance
	Changi Tower / Changi Apron	121.9 MHz	H24	for vehicular movements on taxiways and runways. Towing of all aircraft and requests for engine runs on apron and taxiways, excluding runways, will be regulated by Changi Apron.
D-ATIS	Singapore Changi AP Information	128.6 MHz	H24	Data Link Service available. AP IDENT WSSS. Messages comply with ARINC 623 Standards. Updating of data: H+00 to H+10 and H+30 to H+40

WSSS AD 2.19 RADIO NAVIGATION AND LANDING AIDS					
Type of aid and MAG Variation	*IDENT*	*Frequency*	*OPR HR*	*Position of Transmitting Antenna Coordinates*	*DME Transmitting Antenna Elevation / Remarks*
1	2	3	4	5	6 & 7
SINJON DVOR/DME	SJ	113.5MHz CH82X	H24	011321.54N 1035115.74E	201° MAG 14.5km from THR RWY 02 (Paya Lebar). Antenna HGT: 194ft AMSL. Coverage 200NM. EM: F1. Maintenance period: Third Thursday of every month between 0200-0600
TEKONG DVOR/DME	VTK	116.5MHz CH112X	H24	012455.36N 1040120.17E	023° MAG 6.4km from THR RWY 20C (Singapore Changi). Antenna HGT: 150ft AMSL. Coverage 200NM. EM:F1 Maintenance period: Third Friday of every month between 0200-0600
BEDOK NDB	BED	232KHz	H24	011858.39N 1035749.07E	203° MAG 3.9km from THR RWY 02L (Singapore Changi). Coverage 25NM. EM: A0/A2
RWY 20C ILS LLZ	ICC	109.7MHz	H24	011935.97N 1035902.64E	LOC 250m (820ft) from THR RWY 02C, along RWY centreline. Course width 3°. EM: A0/A2. Maintenance period: May - October Second Friday of every month between 1600-2300 November - April Second Friday of every month between 0200-0900
RWY 20C ILS GP	-	333.2MHz	H24	012131.32N 1035956.57E	LOC 338m (1109ft) from THR RWY 20C on left side of RWY, 148m (486ft) from RWY centreline. GP angle 3°. HGT of ILS reference datum: 18m (58ft) EM: A0/A2
RWY 20C ILS DME	ICC	CH34X	H24	012131.32N 1035956.57E	DME co-located with GP. EM: P9
RWY 20C ILS MM	-	75MHz	H24	012211.94N 1040008.52E	LOC 955m (3133ft) from THR RWY 20C along extended centreline of RWY. No back beam.
RWY 02C ILS LLZ	ICE	108.3MHz	H24	012150.84N 1035959.58E	LOC 250m (820ft) from THR RWY 20C, along RWY centreline. Course width 3°. EM: A0/A2. Maintenance period: May - October Second Friday of every month between 0200-0900 November - April Second Saturday of every month between 0200-0900
RWY 02C ILS GP	-	334.1MHz	H24	011951.64N 1035914.70E	LOC 338m (1109ft) from THR RWY 02C on right side of RWY, 154m (505ft) from RWY centreline. GP angle 3°. HGT of ILS reference datum: 18m (58ft) EM: A0/A2
RWY 02C ILS DME	ICE	CH20X	H24	011951.64N 1035914.70E	DME co-located with GP. EM: P9
RWY 02C ILS MM	-	75MHz	H24	011915.15N 1035853.88E	LOC 945m (3100ft) from THR RWY 02C along extended centreline of RWY. No back beam.

3.5 The pilot shall notify ATC when the aircraft is ready to push back within 5 minutes using the following phraseology:
- callsign
- destination
- proposed flight level and alternate level, if any
- parking position

3.6 On receipt of the “ready to push back” call, ATC will advise the pilot whether the proposed flight level or other alternate flight level is available and an ATC clearance will be issued accordingly. If pre-departure coordination with an adjacent unit or centre is required, the pilot will be instructed to standby.

3.7 Once the flight level is accepted by the pilot and an ATC clearance issued, the aircraft must be pushed back within 5 minutes from the time the ATC clearance is accepted unless other ATC restrictions are imposed. The ATC clearance will be cancelled on expiry of the 5 minutes grace period.

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

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

4. GATE HOLD PROCEDURES FOR DEPARTING AIRCRAFT

4.1 Whenever there are about five to seven departing aircraft at the RWY holding point, subsequent push-backs of departures will be regulated such that the Ground Movement Planner (GMP) on VHF frequency 121.65MHz will start to issue pilots with Expected Push back Time (EPT). The determination of EPT will take into account an aircraft’s parking stand as well as taxi time to the RWY-in-use holding point.

4.2 When an EPT is issued, pilots will be instructed to either remain on GMP frequency or to monitor Singapore Ground Control (frequencies 124.3MHz, 121.725MHz or 121.85MHz). It should be noted that when instructed to monitor Singapore Ground frequencies, pilots shall not establish contact with the Singapore Ground Control, rather, pilots shall maintain a listening watch on the assigned Singapore Ground Control frequency and wait for push back instruction. This is to prevent unnecessary frequency congestion.

4.3 A flight issued with an EPT but chooses to commence push back before the assigned time will be allowed to do so. However, the flight should not expect an earlier departure time as the planned departure sequences will be maintained.

4.4 In a situation when a departing aircraft is occupying a gate that has been assigned to an arriving aircraft, the departing aircraft will be instructed by the GMP to contact Singapore Ground for push back for the purpose of better gate utilization.

4.5 To maximize runway utilization, departure sequence will be planned on the basis of increasing runway throughput so as to enhance overall efficiency.

5. DELAY IN PUSH BACK AND/OR TAXIING DUE TO OTHER AIRCRAFT

5.1 Delays may be expected for the second aircraft to push back and to taxi when two or more aircraft are parked either adjacent to one another or close together. However, it will retain its ATC clearance even if the 5 minutes grace period allowed for under para 3.7 is exceeded.

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

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

7. DELAY DUE TO OVERFLIGHTS

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

8. FLIGHTS EXEMPTED

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

9. CANCELLATION OF ATC CLEARANCE / OBTAINING A FRESH CLEARANCE

9.1 A departing aircraft may have its ATC clearance cancelled under the following circumstances:
a) on expiry of the 5 minutes grace period under para 3.7, it is still unable to push back; or
b) after pushing back, the pilot advises that it is returning to blocks; or
c) it develops a technical problem and is unable to continue taxiing.

9.2 ATC will inform the aircraft when a clearance is cancelled using the phraseology;
"(Callsign of aircraft) your ATC clearance is cancelled (reason)"

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

10. GROUND MOVEMENT PLANNER ON VHF 121.65MHz

10.1 The frequency shall be used for aircraft pre-flight checks and ATC clearances. Pilot-in-command to make his initial call from the parked position on this frequency.

11. GROUND MOVEMENT CONTROL ON VHF 124.3MHz, 121.85MHz AND 121.725MHz

11.1 This frequency shall be used for aircraft start-up/push-back clearance.

11.2 Unless otherwise instructed by ATC, the pilot-in-command shall prior to starting engines listen out on the Ground Movement Control frequency on 124.3MHz, 121.85MHz or 121.725MHz.

11.3 The pilot-in-command shall:

a) Request and obtain taxi instructions prior to taxiing;
Note: ATC clearance, including the assigned SSR code will normally be issued prior to push back. Pilot shall squawk the SSR code immediately when airborne.

b) Change from Ground Movement Control frequency to the Runway Control frequency when instructed (118.6MHz or 118.25MHz). It should be noted that when instructed to monitor Singapore Tower frequencies, pilots shall not establish contact with Singapore Tower; rather, pilots shall maintain a listening watch on the assigned Singapore Tower frequency and wait for instruction. This is to prevent unnecessary frequency congestion.

11.4 Departing aircraft will be instructed when to change from 118.6MHz or 118.25MHz to Singapore Departure frequency 120.3MHz.

11.5 In the case of the aircraft having landed, the pilot-in-command shall change from 118.6MHz or 118.25MHz to 124.3MHz, 121.85MHz or 121.725MHz immediately upon instructed by ATC after clearing the runway. He shall maintain watch on 124.3MHz, 121.85MHz or 121.725MHz for taxiing and parking instructions until he arrives at his aircraft stand.

12. TAXIING

12.1 Taxi clearance given by Ground Movement Control will relate to movement on the manoeuvring area, but excluding the marshalling area.

12.2 Aircraft taxiing on the manoeuvring area will be regulated by ATC to avoid or reduce possible conflict and will be provided with traffic information and alerting service. ATC shall apply taxiing clearance limits whenever necessary.

12.3 The taxiway routes to be used by aircraft after landing or when taxiing for departure will be specified by ATC. The issuance by ATC of a taxi route to an aircraft does not relieve the pilot-in-command of the responsibility to maintain separation with other aircraft on the manoeuvring area or to comply with ATC directions intended to regulate aircraft on the manoeuvring area.

AERODROME CHART - ICAO

01° 21' 33"N
103°59' 22"E

AERODROME ELEVATION 6.66m

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

SINGAPORE/SINGAPORE CHANGI

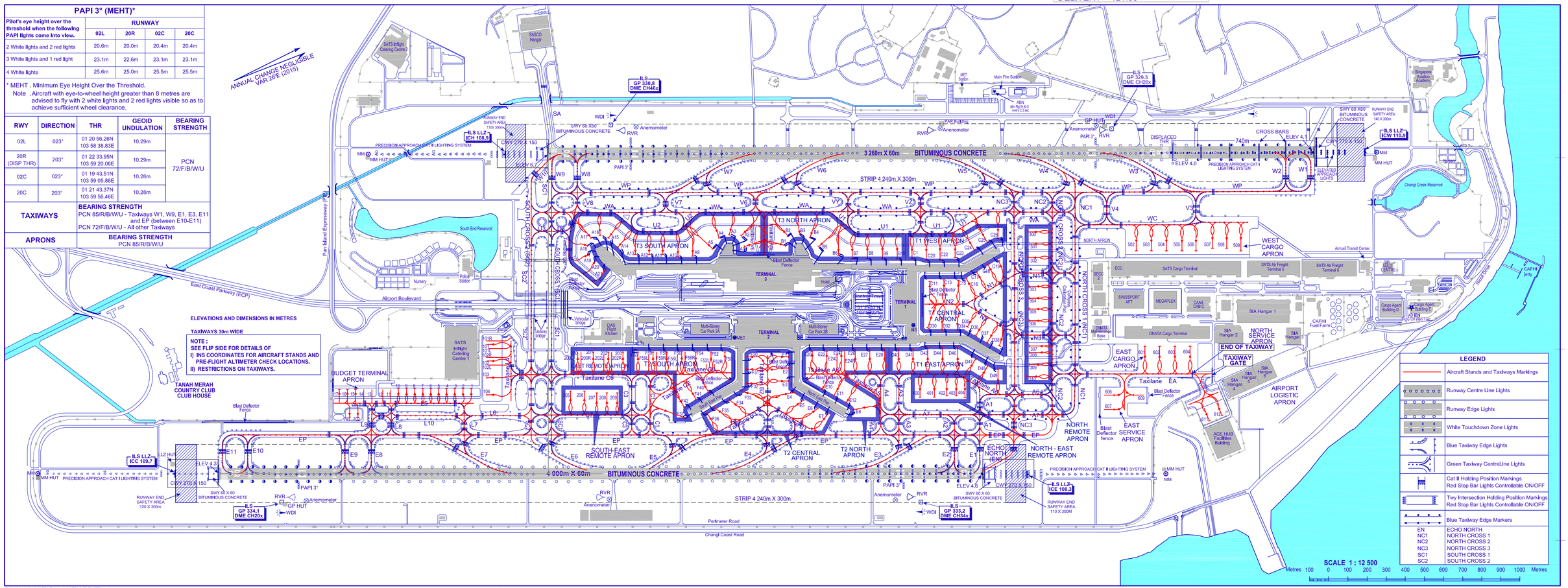
PAPI 3° (MEHT)*

Pilot's eye height over the threshold when the following PAPI lights come into view.	RUNWAY			
	02L	20R	02C	20C
2 White lights and 2 red lights	20.6m	20.0m	20.4m	20.4m
3 White lights and 1 red light	23.1m	22.6m	23.1m	23.1m
4 White lights	25.6m	25.0m	25.5m	25.5m

* MEHT . Minimum Eye Height Over the Threshold.

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

RWY	DIRECTION	THR	GEOID UNDULATION	BEARING STRENGTH
02L	023°	01 20 56.26N 103 58 38.83E	10.29m	PCN 72/F/B/W/U
20R (DISP THR)	203°	01 22 33.95N 103 59 20.06E	10.29m	
02C	023°	01 19 43.51N 103 59 05.86E	10.28m	
20C	203°	01 21 43.37N 103 59 56.46E	10.28m	
TAXIWAYS	BEARING STRENGTH PCN 85/R/B/W/U - Taxiways W1, W9, E1, E3, E11 and EP (between E10-E11) PCN 72/F/B/W/U - All other Taxiways			
APRONS	BEARING STRENGTH PCN 85/R/B/W/U			



Changes : Ground frequencies 127.725MHz and 121.85MHz added. VAR 27'E (2010) changed to read as VAR 26'E (2015). INS Coordinates for aircraft stands updated following recent WGS-84 re-survey. Lead in lines of aircraft stands 1 to 10 changed. New remote aircraft stands 15 to 17, 701 and 702 added.

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 (15.56ft)
	A2	01 21 21.75	103 59 04.00	4.65m (15.26ft)
	A3	01 21 19.86	103 59 02.79	4.66m (15.29ft)
	A4	01 21 17.61	103 59 02.54	4.79m (15.72ft)
	A5	01 21 15.50	103 59 03.62	4.86m (15.94ft)
	A9	01 21 12.56	103 59 03.65	5.02m (16.47ft)
	A10	01 21 10.34	103 59 02.40	5.04m (16.54ft)
	A11	01 21 07.93	103 59 01.41	5.25m (17.22ft)
	A12	01 21 05.76	103 59 00.49	5.38m (17.65ft)
	A13	01 21 03.59	103 58 59.58	5.48m (17.98ft)
	A14	01 21 01.66	103 58 57.59	5.57m (18.27ft)
	A15	01 21 00.77	103 58 55.41	5.46m (17.91ft)
	A16	01 20 59.27	103 58 54.20	5.51m (18.08ft)
	A17	01 20 57.25	103 58 54.06	5.23m (17.16ft)
	A18	01 20 55.87	103 58 55.25	5.37m (17.62ft)
	A19	01 20 55.26	103 58 57.13	5.40m (17.72ft)
	A20	01 20 56.09	103 58 58.83	5.45m (17.88ft)
	A21	01 20 57.10	103 59 00.80	5.49m (18.01ft)
T3 NORTH APRON	B1	01 21 26.86	103 59 08.37	4.82m (15.81ft)
	B2	01 21 28.18	103 59 06.82	4.68m (15.35ft)
	B3	01 21 30.33	103 59 07.30	4.65m (15.26ft)
	B4	01 21 32.03	103 59 08.60	4.75m (15.58ft)
	B5	01 21 32.98	103 59 10.89	4.80m (15.75ft)
	B6	01 21 35.15	103 59 13.16	4.96m (16.27ft)
	B7	01 21 37.65	103 59 13.93	4.97m (16.31ft)
	B8	01 21 39.94	103 59 15.20	5.09m (16.70ft)
	B9	01 21 42.19	103 59 16.16	5.13m (16.83ft)
	B10	01 21 44.47	103 59 17.12	5.10m (16.73ft)
T1 WEST APRON	C1	01 21 46.75	103 59 18.08	5.09m (16.70ft)
	C20	01 21 48.83	103 59 19.23	5.08m (16.67ft)
	C22	01 21 51.00	103 59 20.13	5.15m (16.90ft)
	C23	01 21 53.56	103 59 20.77	5.08m (16.67ft)
	C24	01 21 56.54	103 59 20.97	4.89m (16.04ft)
	C25	01 21 59.12	103 59 20.59	4.99m (16.37ft)
	C26	01 22 01.48	103 59 20.76	5.01m (16.44ft)
T1 CENTRAL APRON	C11	01 21 47.42	103 59 23.82	5.07m (16.63ft)
	C13	01 21 49.64	103 59 24.75	5.05m (16.57ft)
	C15	01 21 51.90	103 59 25.71	5.05m (16.57ft)
	C16	01 21 53.63	103 59 26.42	4.91m (16.11ft)
	C17	01 21 55.63	103 59 26.07	5.03m (16.50ft)
	C18	01 21 57.86	103 59 25.75	4.99m (16.37ft)
	C19	01 21 59.79	103 59 25.63	4.95m (16.24ft)
	D30	01 21 44.54	103 59 30.14	5.09m (16.70ft)
	D32	01 21 46.73	103 59 31.07	5.08m (16.67ft)
	D34	01 21 49.03	103 59 32.04	5.07m (16.63ft)
	D35	01 21 50.87	103 59 32.82	5.02m (16.47ft)
	D36	01 21 51.98	103 59 34.52	5.06m (16.60ft)
	D37	01 21 53.37	103 59 36.28	4.97m (16.31ft)
	D38	01 21 54.58	103 59 37.77	4.99m (16.37ft)
T1 EAST APRON	D40	01 21 38.02	103 59 32.85	5.07m (16.63ft)
	D41	01 21 40.30	103 59 33.81	5.07m (16.63ft)
	D42	01 21 42.70	103 59 34.48	5.11m (16.77ft)
	D44	01 21 44.97	103 59 35.44	5.14m (16.86ft)
	D46	01 21 47.40	103 59 36.72	5.08m (16.67ft)
	D47	01 21 49.19	103 59 38.89	4.93m (16.17ft)
	D48	01 21 50.60	103 59 40.77	4.97m (16.31ft)
	D49	01 21 52.23	103 59 42.35	4.98m (16.34ft)
T2 NORTH APRON	E8	01 21 27.99	103 59 38.45	4.68m (15.35ft)
	E10	01 21 24.15	103 59 32.67	4.71m (15.45ft)
	E11	01 21 25.57	103 59 34.37	4.78m (15.68ft)
	E12	01 21 27.20	103 59 36.42	4.75m (15.58ft)
	E20	01 21 24.36	103 59 27.08	5.04m (16.54ft)
	E22	01 21 26.64	103 59 28.04	5.07m (16.63ft)
	E24	01 21 29.01	103 59 29.06	5.09m (16.70ft)
	E24L	01 21 28.32	103 59 28.77	5.10m (16.73ft)
	E24R	01 21 29.53	103 59 29.28	5.08m (16.67ft)
	E26	01 21 31.19	103 59 29.96	5.08m (16.67ft)
	E27	01 21 33.46	103 59 30.93	5.03m (16.50ft)
	E28	01 21 35.74	103 59 31.89	5.08m (16.67ft)
T2 CENTRAL APRON	E1	01 21 20.02	103 59 25.58	4.91m (16.11ft)
	E2	01 21 19.28	103 59 27.30	4.90m (16.08ft)
	E3	01 21 18.44	103 59 29.27	4.82m (15.81ft)
	E4	01 21 18.10	103 59 31.70	4.80m (15.75ft)
	E5	01 21 19.56	103 59 33.72	4.90m (16.08ft)
	E6	01 21 21.22	103 59 35.93	4.84m (15.88ft)
	E7	01 21 22.48	103 59 37.46	4.73m (15.52ft)
	F30	01 21 14.71	103 59 23.33	4.92m (16.14ft)
	F31	01 21 13.87	103 59 25.30	4.91m(16.11ft)
	F32	01 21 13.03	103 59 27.26	4.85m (15.91ft)
	F33	01 21 11.30	103 59 28.54	4.91m (16.11ft)
	F34	01 21 08.98	103 59 28.96	4.92m (16.14ft)
	F35	01 21 06.28	103 59 29.29	4.90m (16.08ft)
	F36	01 21 04.34	103 59 29.67	4.82m (15.81ft)

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

LOCATION	STAND NR	NORTH LAT	EAST LONG	ELEVATION
T2 SOUTH APRON	F37	01 20 59.83	103 59 27.87	4.75m (15.58ft)
	F40	01 21 05.62	103 59 25.34	4.85m (15.91ft)
	F41	01 21 03.19	103 59 25.58	4.82m (15.81ft)
	F42	01 21 00.61	103 59 25.96	4.72m (15.49ft)
	F50	01 21 10.69	103 59 21.32	5.03m (16.50ft)
	F52	01 21 08.51	103 59 20.40	5.11m (16.77ft)
	F52L	01 21 07.82	103 59 20.11	5.16m (16.93ft)
	F52R	01 21 09.04	103 59 20.62	5.08m (16.67ft)
	F54	01 21 06.14	103 59 19.40	5.22m (17.13ft)
	F56	01 21 03.96	103 59 18.48	5.30m (17.39ft)
	F56L	01 21 03.27	103 59 18.18	5.42m (17.78ft)
	F56R	01 21 04.49	103 59 18.70	5.34m (17.52ft)
	F58	01 21 01.58	103 59 17.47	5.49m (18.01ft)
	F59	01 20 59.41	103 59 16.55	5.64m (18.50ft)
	F59L	01 20 58.72	103 59 16.26	5.67m (18.60ft)
	F59R	01 20 59.93	103 59 16.78	5.60m (18.37ft)
	F60	01 20 56.91	103 59 15.50	5.77m (18.93ft)
EAST REMOTE APRON	200	01 20 47.83	103 59 11.67	6.23m (20.44ft)
	200L	01 20 46.91	103 59 11.92	6.29m (20.64ft)
	200R	01 20 48.35	103 59 11.89	6.18m (20.28ft)
	201	01 20 49.99	103 59 12.62	5.96m (19.55ft)
	202	01 20 52.34	103 59 13.57	5.94m (19.49ft)
	202L	01 20 51.65	103 59 13.28	5.76m (18.90ft)
	202R	01 20 52.87	103 59 13.79	5.73m (18.80ft)
	203	01 20 54.52	103 59 14.47	5.92m (19.42ft)
SOUTH-EAST REMOTE APRON	101	01 20 34.88	103 59 04.05	4.49m (14.73ft)
	101L	01 20 34.60	103 59 04.70	4.60m (15.09ft)
	101R	01 20 35.11	103 59 03.50	4.53m (14.86ft)
	102	01 20 33.76	103 59 06.65	4.49m (14.73ft)
	102L	01 20 33.53	103 59 07.33	4.62m (15.16ft)
	102R	01 20 34.00	103 59 06.10	4.60m (15.09ft)
	103	01 20 32.88	103 59 09.35	4.67m (15.32ft)
	104	01 20 31.77	103 59 11.96	4.39m (14.40ft)
	205	01 20 43.91	103 59 17.06	4.77m (15.65ft)
	206	01 20 46.08	103 59 17.98	4.76m (15.62ft)
	207	01 20 47.91	103 59 18.88	4.74m (15.55ft)
	208	01 20 49.48	103 59 19.54	4.74m (15.55ft)
	209	01 20 51.06	103 59 20.21	4.75m (15.58ft)
NORTH REMOTE APRON	300	01 22 06.95	103 59 22.67	4.53m (14.86ft)
	301	01 22 06.41	103 59 24.69	4.93m (16.17ft)
	302	01 22 05.21	103 59 26.75	4.97m (16.31ft)
	303	01 22 03.55	103 59 31.40	5.32m (17.45ft)
	304	01 22 02.84	103 59 33.06	5.35m (17.55ft)
	305	01 22 02.14	103 59 34.71	5.30m (17.39ft)
	306	01 22 01.41	103 59 36.42	5.16m (16.93ft)
	307	01 21 59.39	103 59 40.36	5.16m (16.93ft)
	308	01 21 58.96	103 59 41.35	5.10m (16.73ft)
	309	01 21 58.52	103 59 43.17	5.06m (16.60ft)
	310	01 21 57.42	103 59 44.96	4.74m (15.55ft)
NORTH-EAST REMOTE APRON	400	01 21 38.71	103 59 40.14	4.31m (14.14ft)
	401	01 21 40.98	103 59 41.10	4.31m (14.14ft)
	402	01 21 42.85	103 59 41.89	4.30m (14.11ft)
	403	01 21 44.44	103 59 42.56	4.29m (14.07ft)
	404	01 21 45.63	103 59 43.44	4.16m (13.65ft)
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)
EAST CARGO APRON	601	01 22 16.52	103 59 49.27	4.27m (14.01ft)
	602	01 22 18.80	103 59 50.23	4.30m (14.11ft)
	603	01 22 21.15	103 59 51.02	4.29m (14.07ft)
	604	01 22 23.46	103 59 51.99	4.31m (14.14ft)
EAST SERVICE APRON	606	01 22 09.09	103 59 53.22	2.70m (8.86ft)
	607	01 22 08.12	103 59 55.49	2.82m (9.25ft)
	609	01 22 12.19	103 59 54.57	3.01m (9.88ft)
ACEHUB	611	01 22 22.14	104 00 02.87	4.01m (13.16ft)
	612	01 22 24.50	104 00 02.87	3.91m (12.83ft)
BUDGET TERMINAL APRON	1	01 20 28.69	103 59 10.05	3.97m (13.02ft)
	2	01 20 27.39	103 59 09.51	4.04m (13.25ft)
	3	01 20 26.09	103 59 08.96	3.90m (12.80ft)
	4	01 20 24.80	103 59 08.41	3.86m (12.66ft)
	5	01 20 23.50	103 59 07.86	3.85m (12.63ft)
	6	01 20 22.20	103 59 07.32	3.86m (12.66ft)
	7	01 20 20.90	103 59 06.77	3.83m (12.57ft)
	8	01 20 19.60	103 59 06.22	3.84m (12.60ft)
	9	01 20 18.31	103 59 05.67	3.83m (12.57ft)
	10	01 20 17.03	103 59 05.07	3.85m (12.63ft)
	11	01 20 15.77	103 59 04.43	3.90m (12.80ft)
	12	01 20 14.50	103 59 03.89	3.94m (12.93ft)
	13	01 20 12.78	103 59 03.16	3.99m (13.09ft)
	14	01 20 11.48	103 59 02.62	4.01m (13.16ft)
	15	01 20 10.33	103 59 01.72	4.60m (15.09ft)
	16	01 20 09.03	103 59 01.17	4.60m (15.09ft)
	17	01 20 07.74	103 59 00.62	4.60m (15.09ft)
	701	01 20 08.81	103 59 06.24	5.03m (16.50ft)
	702	01 20 07.51	103 59 05.69	5.03m (16.50ft)

RESTRICTIONS ON TAXIWAYS

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

2) TWY A2 is a one-way taxiway for aircraft taxiing from TWY EP to TWY A7 only. No-entry signs have been mounted on either side of TWY A2 along TWY A7. Taxiway centreline lights along TWY A2 have been shielded to provide guidance only from TWY EP in the direction of TWY A7.

3) TWY WC centreline behind aircraft stands 506, 507 and 508 diverted 32m westward. Pilots to follow the TWY centreline while taxiing along TWY WC.

4) Pilots operating aircraft with wheelbase longer than B747 or 26m shall take note that judgemental oversteering may be required when manoeuvring round taxiway turns.

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

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

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

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

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

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

11) TWY L5 can only be used by aircraft with maximum wingspan 36m.

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

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

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

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

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

RADIO ALTIMETER OPERATIONS AREA

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

AIRCRAFT STANDS WITH SAFEGATE AIRCRAFT DOCKING GUIDANCE SYSTEM.

TOTAL AIRCRAFT PARKING POSITIONS : 168