

## REPUBLIC OF SINGAPORE

**AERONAUTICAL INFORMATION SERVICES**  
CIVIL AVIATION AUTHORITY OF SINGAPORE  
SINGAPORE CHANGI AIRPORT  
P.O. BOX 1, SINGAPORE 918141

# AIP

**AMENDMENT NR 1/14  
6 FEBRUARY 2014**

### 1. SIGNIFICANT INFORMATION AND CHANGES

#### 1.1 Singapore Changi Airport (WSSS)

- |   |   |
|---|---|
| a) Update to the docking procedures and safety measures for the Safegate Aircraft Docking Guidance System (SAFEDOCK).   | WSSS AD 2-5.2 to<br>WSSS AD 2-5.3   |
| b) Revision of pushback procedure for aircraft stands 103 and 104.  | WSSS AD 2-7.5   |
| c) Redesignation of Taxiway L4 as Taxilane L4   | WSSS AD 2-31 / chart  |
| d) Withdrawal of charts due to SIDs no longer in use:<br>LELIB DEPARTUTE (LLB 1C)<br>PIMOK DEPARTURE (PMK 1C)<br>BOBAG DEPARTURES (BOG 1V RWY 20R and BOG 1X RWY 20C)<br>ADPAX DEPARTURES (ADPAX IU RWY 02L and ADPAX 1W RWY 02C)<br>ADPAX DEPARTURES (ADPAX 1V RWY 20R and ADPAX 1X RWY 20C) | WSSS AD 2-59<br>WSSS AD 2-61<br>WSSS AD 2-80-1/2-80-2<br>WSSS AD 2-80-3/2-80-4<br>WSSS AD 2-80-5/2-80-6 |

#### 1.2 Seletar Airport (WSSL)

- |   |                                |
|---|--------------------------------|
| a) Update to the description for RWY 03/21 approach light.  | WSSL AD 2-5 and<br>WSSL AD 2-9 |
| b) Update to Seletar Aerodrome Obstacle Chart - ICAO Type A | WSSL AD 2-17                   |
| c) Update to Seletar Aerodrome Obstacle Chart - ICAO Type B | WSSL AD 2-19                   |

### 2. REMOVE THE FOLLOWING CHARTS WHICH ARE NO LONGER IN USE:

WSSS AD 2-59 LELIB DEPARTURE dated 10 JAN 13  
WSSS AD 2-61 PIMOK DEPARTURE dated 10 JAN 13  
WSSS AD 2-80-1/2-80-2 BOBAG DEPARTURES RWY 20 dated 20 SEP 12  
WSSS AD 2-80-3/2-80-4 ADPAX DEPARTURES RWY 02 dated 10 JAN 13  
WSSS AD 2-80-5/2-80-6 ADPAX DEPARTURES RWY 20 dated 10 JAN 13

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 THIS AMENDMENT INCORPORATES INFORMATION CONTAINED IN THE FOLLOWING WHICH ARE HEREBY SUPERSEDED: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

A2507/13 dated 23 OCT 13  
A2778/13 dated 2 DEC 13  
A2932/13 dated 23 DEC 13  
A0049/14 dated 10 JAN 14

AIC: 5/13 dated 18 JUN 13



<b>GEN 0.3 RECORD OF CURRENT AIP SUPPLEMENTS</b>				
<i>NR/ Year</i>	<i>Subject</i>	<i>AIP section affected</i>	<i>Period of validity (from / to)</i>	<i>Cancellation record</i>
190/11	Paya Lebar AP - Cranes	AD	WIE / 31 DEC 14	
191/11	Paya Lebar AP - Tower Crane	AD	WIE / 31 DEC 14	
192/11	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 14	
193/11	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 31 DEC 14	
194/11	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 14	
85/12	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 30 DEC 14	
86/12	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 14	
87/12	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 14	
88/12	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 31 DEC 14	
89/12	Paya Lebar AP - Cranes	AD	WIE / 31 DEC 14	
172/12	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 31 DEC 14	
173/12	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 14	
174/12	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 14	
175/12	Paya Lebar AP - Saddle Tower Cranes	AD	WIE / 31 DEC 14	
176/12	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 31 DEC 14	
177/12	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 31 DEC 14	
178/12	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 14	
179/12	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 14	
180/12	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 14	
181/12	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 14	
194/12	Paya Lebar AP - Cranes	AD	WIE / 31 DEC 15	
195/12	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 15	
196/12	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 15	
197/12	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 15	
198/12	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 15	
1/13	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 15	
2/13	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 15	
3/13	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 15	
4/13	Paya Lebar AP - Cranes	AD	WIE / 31 DEC 15	
5/13	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 15	
49/13	Paya Lebar AP - Topless Cranes	AD	WIE / 4 JAN 14	
50/13	Paya Lebar AP - Flat Top Crane	AD	WIE / 16 JAN 14	
51/13	Paya Lebar AP - Luffer Crane	AD	WIE / 31 JAN 14	
52/13	Paya Lebar AP - Tower Cranes	AD	WIE / 31 JAN 14	
53/13	Paya Lebar AP - Cranes and Rigs	AD	WIE / 31 JAN 14	
90/13	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 1 JAN 16	
91/13	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 1 JAN 16	
92/13	Paya Lebar AP - Tower Cranes	AD	WIE / 25 JAN 16	
93/13	Paya Lebar AP - Topless Cranes	AD	WIE / 31 JAN 16	
94/13	Paya Lebar AP - Luffer Crane	AD	WIE / 31 JAN 16	
103/13	Paya Lebar AP - Topless Cranes	AD	WIE / 14 MAR 14	
104/13	Paya Lebar AP - Tower Cranes	AD	WIE / 14 MAR 14	
105/13	Paya Lebar AP - Cranes	AD	WIE / 31 MAR 14	
106/13	Paya Lebar AP - Crawler Crane	AD	WIE / 31 MAR 14	
107/13	Paya Lebar AP - Mobile Crane	AD	WIE / 31 MAR 14	
108/13	Paya Lebar AP - Luffer Crane	AD	WIE / 20 MAY 14	
109/13	Paya Lebar AP - Hammerhead Crane	AD	WIE / 31 MAY 14	
110/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 MAY 14	
111/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 MAY 14	
112/13	Paya Lebar AP - Cranes	AD	WIE / 31 MAY 14	
152/13	Paya Lebar AP - Tower Cranes	AD	WIE / 28 FEB 14	
153/13	Paya Lebar AP - Topless Cranes	AD	WIE / 28 FEB 14	
154/13	Paya Lebar AP - Tower Cranes	AD	WIE / 9 MAR 14	
155/13	Paya Lebar AP - Crawler Crane	AD	WIE / 18 MAR 14	

<b>GEN 0.3 RECORD OF CURRENT AIP SUPPLEMENTS</b>				
<i>NR/ Year</i>	<i>Subject</i>	<i>AIP section affected</i>	<i>Period of validity (from / to)</i>	<i>Cancellation record</i>
156/13	Paya Lebar AP - Saddle Topless Cranes	AD	WIE / 31 MAR 14	
157/13	Paya Lebar AP - Hammerhead Crane	AD	WIE / 31 JUL 14	
158/13	Paya Lebar AP - Luffer Crane	AD	WIE / 31 AUG 14	
159/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 AUG 14	
160/13	Paya Lebar AP - Topless Cranes	AD	WIE / 30 SEP 14	
161/13	Paya Lebar AP - Luffer Crane	AD	WIE / 30 SEP 14	
162/13	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 31 OCT 14	
163/13	Paya Lebar AP - Luffer Crane	AD	WIE / 1 NOV 14	
164/13	Paya Lebar AP - Topless Cranes	AD	WIE / 29 DEC 14	
165/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 14	
166/13	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 14	
172/13	Paya Lebar AP - Luffer Crane	AD	WIE / 30 DEC 15	
173/13	Paya Lebar AP - Luffer Crane	AD	WIE / 30 DEC 15	
174/13	Paya Lebar AP - Tower Crane	AD	WIE / 31 DEC 15	
175/13	Paya Lebar AP - Hammerhead and Luffer Cranes	AD	WIE / 31 DEC 15	
176/13	Paya Lebar AP - Topless and Luffer Cranes	AD	WIE / 31 DEC 15	
183/13	Paya Lebar AP - Luffer Crane	AD	WIE / 28 JUL 14	
184/13	Paya Lebar AP - Tower Cranes	AD	WIE / 31 JUL 14	
185/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 JUL 14	
186/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 JUL 14	
187/13	Paya Lebar AP - Tower Crane	AD	WIE / 31 JUL 14	
188/13	Paya Lebar AP - Flat Top Cranes	AD	WIE / 29 AUG 14	
189/13	Paya Lebar AP - Topless Cranes	AD	WIE / 30 SEP 14	
190/13	Paya Lebar AP - Tower Cranes	AD	WIE / 31 AUG 14	
191/13	Paya Lebar AP - Topless Cranes	AD	WIE / 31 AUG 14	
192/13	Paya Lebar AP - Luffer Crane	AD	WIE / 1 SEP 14	
193/13	Paya Lebar AP - Topless Cranes	AD	WIE / 1 APR 14	
194/13	Paya Lebar AP - Tower Cranes	AD	WIE / 21 APR 14	
195/13	Paya Lebar AP - Cranes	AD	WIE / 30 APR 14	
196/13	Paya Lebar AP - Tower Cranes	AD	WIE / 30 APR 14	
197/13	Paya Lebar AP - Luffer Crane	AD	WIE / 30 APR 14	
198/13	Paya Lebar AP - Cranes	AD	WIE / 31 MAY 14	
199/13	Paya Lebar AP - Topless Cranes	AD	WIE / 12 JUN 14	
200/13	Paya Lebar AP - Luffer Crane	AD	WIE / 30 JUN 14	
201/13	Paya Lebar AP - Tower and Topless Cranes	AD	WIE / 30 JUN 14	
202/13	Paya Lebar AP - Luffer Crane	AD	WIE / 30 JUN 14	
203/13	Paya Lebar AP - Saddle Cranes	AD	WIE / 30 DEC 15	
205/13	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 15	
206/13	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 15	
207/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 15	
208/13	Paya Lebar AP - Hammerhead Crane	AD	WIE / 1 NOV 15	
209/13	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 1 NOV 15	
210/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 NOV 15	
211/13	Paya Lebar AP - Topless and Luffer Cranes	AD	WIE / 30 NOV 15	
212/13	Paya Lebar AP - Topless and Luffer Cranes	AD	WIE / 30 NOV 15	
213/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 AUG 16	
214/13	Paya Lebar AP - Saddle and Luffer Cranes	AD	WIE / 31 AUG 16	
215/13	Paya Lebar AP - Saddle Cranes	AD	WIE / 1 SEP 16	
216/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 10 SEP 16	
217/13	Paya Lebar AP - Topless Cranes	AD	WIE / 30 SEP 16	
218/13	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 1 JAN 15	
219/13	Paya Lebar AP - Luffer Crane	AD	WIE / 9 JAN 15	

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220/13	Paya Lebar AP - Hammerhead and Luffer Cranes	AD	WIE / 31 JAN 15	
221/13	Paya Lebar AP - Luffer Crane	AD	WIE / 31 JAN 15	
222/13	Paya Lebar AP - Luffer Crane	AD	WIE / 31 JAN 15	
223/13	Paya Lebar AP - Flat Top Cranes	AD	WIE / 28 FEB 15	
224/13	Paya Lebar AP - Luffer Crane	AD	WIE / 28 FEB 15	
225/13	Paya Lebar AP - Hammerhead and Luffer Cranes	AD	WIE / 28 FEB 15	
226/13	Paya Lebar AP - Mobile Crane	AD	WIE / 14 MAR 15	
227/13	Paya Lebar AP - Topless Cranes	AD	WIE / 30 APR 15	
228/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 15 MAR 15	
229/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 15 MAR 15	
230/13	Paya Lebar AP - Luffer and Topless Cranes	AD	WIE / 31 MAR 15	
231/13	Paya Lebar AP - Topless Cranes	AD	WIE / 31 MAR 15	
232/13	Paya Lebar AP - Topless Cranes	AD	WIE / 31 MAR 15	
238/13	Paya Lebar AP - Cranes	AD	WIE / 9 JUL 15	
239/13	Paya Lebar AP - Saddle and Luffer Cranes	AD	WIE / 31 JUL 15	
240/13	Paya Lebar AP - Saddle Cranes	AD	WIE / 1 AUG 15	
241/13	Paya Lebar AP - Topless Cranes	AD	WIE / 30 SEP 15	
242/13	Paya Lebar AP - Luffer Crane	AD	WIE / 1 NOV 15	
243/13	Paya Lebar AP - Hammerhead and Luffer Cranes	AD	WIE / 31 MAR 16	
244/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 MAR 16	
245/13	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 1 APR 16	
246/13	Paya Lebar AP - Luffer Crane	AD	WIE / 30 MAY 16	
247/13	Paya Lebar AP - Luffer Crane	AD	WIE / 22 JUN 16	
248/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 JUN 16	
249/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 JUN 16	
250/13	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 16	
251/13	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 16	
252/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 17	
254/13	Singapore FIR - Implementation of Automatic Dependent Surveillance Broadcast (ADS-B) Out Exclusive Airspace within parts of the Singapore FIR	ENR	WEF 12 DEC 13 / PERM	
255/13	Paya Lebar AP - Hammerhead and Topless Cranes	AD	WIE / 31 DEC 16	
256/13	Paya Lebar AP - Topless Cranes / A Frames	AD	WIE / 31 DEC 16	
257/13	Paya Lebar AP - Topless Cranes	AD	WIE / 31 DEC 16	
258/13	Paya Lebar AP - Luffer and Hammerhead Canes	AD	WIE / 31 DEC 16	
259/13	Paya Lebar AP - Topless and Hammerhead Cranes	AD	WIE / 31 DEC 16	
260/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 1 DEC 15	
261/13	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 20 DEC 15	
262/13	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 15	
263/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 15	
264/13	Paya Lebar AP - Luffer Crane	AD	WIE / 31 DEC 15	
265/13	Paya Lebar AP - Luffer Crane	AD	WIE / 30 SEP 15	
266/13	Paya Lebar AP - Topless Cranes	AD	WIE / 31 OCT 15	
267/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 NOV 15	
268/13	Paya Lebar AP - Luffer Crane	AD	WIE / 30 SEP 16	
269/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 17	
270/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 DEC 14	
271/13	Paya Lebar AP - Tower Crane	AD	WIE / 15 JAN 15	
272/13	Paya Lebar AP - Topless Cranes	AD	WIE / 28 FEB 15	
273/13	Paya Lebar AP - Crawler Crane	AD	WIE / 15 MAR 15	
274/13	Paya Lebar AP - Mobile Crane	AD	WIE / 6 JUN15	

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<i>NR/ Year</i>	<i>Subject</i>	<i>AIP section affected</i>	<i>Period of validity (from / to)</i>	<i>Cancellation record</i>
276/13	Paya Lebar AP - Mobile Crane	AD	WIE / 28 FEB 14	
277/13	Paya Lebar AP - Mobile Crane	AD	WIE / 2 MAR 14	
278/13	Paya Lebar AP - Topless Cranes	AD	WIE / 30 APR 14	
279/13	Paya Lebar AP - Crawler Crane	AD	WIE / 30 JUN 14	
280/13	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 JUN 14	
281/13	Paya Lebar AP - Luffer Crane	AD	WIE / 30 SEP 14	
282/13	Paya Lebar AP - Tower Cranes	AD	WIE / 28 FEB 14	
283/13	Paya Lebar AP - Tower Cranes	AD	WIE / 30 NOV 14	
284/13	Paya Lebar AP - Luffer Crane	AD	WIE / 30 NOV 14	
285/13	Singapore FIR - Flying Display in conjunction with the Singapore Airshow 2014 Exhibition	ENR	FROM 6 FEB 14 to 16 FEB 14	
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	
6/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 30 JUN 14	
7/14	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 30 JUN 14	
8/14	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 30 JUN 14	
9/14	Paya Lebar AP - Tower Cranes	AD	WIE / 30 JUN 14	
10/14	Paya Lebar AP - Cranes	AD	WIE / 30 JUN 14	
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	
21/14	Paya Lebar AP - Luffer Crane	AD	WIE / 14 FEB 15	
22/14	Paya Lebar AP - Luffer Crane	AD	WIE / 30 APR 15	
23/14	Paya Lebar AP - Mobile Crane	AD	WIE / 11 MAY 15	
24/14	Paya Lebar AP - Tower and Topless Cranes	AD	WIE / 14 MAY 15	
25/14	Paya Lebar AP - Luffer Crane	AD	WIE / 20 MAY 15	
26/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 31 MAY 15	
27/14	Paya Lebar AP - Hammerhead Cranes	AD	WIE / 1 JUN 15	
28/14	Paya Lebar AP - Luffer Cranes	AD	WIE / 4 JUL 15	
29/14	Paya Lebar AP - Luffer and Tower Cranes	AD	WIE / 29 JUL 15	
30/14	Paya Lebar AP - Mobile Cranes	AD	1 JAN 17	

GEN 0.4 CHECKLIST OF AIP PAGES					
PAGE	DATE	PAGE	DATE	PAGE	DATE
<b><u>PART 1 - GENERAL (GEN)</u></b>			<b><u>PART 2 - EN-ROUTE (ENR)</u></b>		
<b>GEN 0</b>			<b>ENR 0</b>		
0.1-1	12 DEC 13	2.2-7	20 DEC 07	0.6-1	10 MAR 11
0.1-2	12 DEC 13	2.2-8	20 DEC 07	0.6-2	10 MAR 11
0.1-3	28 SEP 06	2.3-1	18 JAN 07	0.6-3	27 JUN 13
0.2-1	13 JAN 11	2.3-2	18 JAN 07	0.6-4	27 JUN 13
* 0.3-1	6 FEB 14	2.4-1	3 JUN 10	<b>ENR 1</b>	
* 0.3-2	6 FEB 14	2.5-1	18 JAN 07	1.1-1	1 SEP 05
* 0.3-3	6 FEB 14	2.5-3/chart	15 MAR 07	1.1-2	1 SEP 05
* 0.3-4	6 FEB 14	2.6-1	28 SEP 06	1.1-3	1 SEP 05
* 0.4-1	6 FEB 14	2.6-2	28 SEP 06	1.1-4	1 SEP 05
* 0.4-2	6 FEB 14	2.7-1	18 NOV 10	1.1-5	8 JUN 06
* 0.4-3	6 FEB 14	<b>GEN 3</b>		1.1-6	8 JUN 06
* 0.4-4	6 FEB 14	3.1-1	12 DEC 13	1.1-7	28 SEP 06
* 0.5-1	6 FEB 14	3.1-2	12 DEC 13	1.1-8	28 SEP 06
0.6-1	5 MAY 11	3.1-3	9 FEB 12	1.1-9	28 SEP 06
0.6-2	5 MAY 11	3.1-4	9 FEB 12	1.1-10	28 SEP 06
0.6-3	20 SEP 12	3.1-5	9 FEB 12	1.1-11	27 AUG 09
<b>GEN 1</b>		3.2-1	27 AUG 09	1.1-12	27 AUG 09
1.1-1	15 NOV 12	3.2-2	27 AUG 09	1.1-13	15 NOV 12
1.1-2	15 NOV 12	3.2-3	10 MAY 07	1.1-14	15 NOV 12
1.2-1	5 JUN 08	* 3.2-5	6 FEB 14	1.1-15	15 NOV 12
1.2-2	5 JUN 08	* 3.2-6	6 FEB 14	1.1-16	15 NOV 12
1.2-3	5 APR 12	3.2-7	18 JAN 07	<b>ENR 1</b>	
1.2-4	5 APR 12	3.3-1	27 AUG 09	1.2-1	10 MAY 07
* 1.2-5	6 FEB 14	3.3-2	27 AUG 09	1.3-1	29 JUL 10
* 1.2-6	6 FEB 14	3.4-1	10 MAR 11	1.4-1	18 NOV 10
1.3-1	3 JUN 10	3.4-2	10 MAR 11	1.5-1	20 NOV 08
1.3-2	3 JUN 10	3.4-3	18 JAN 07	1.5-2	20 NOV 08
1.3-3	22 AUG 13	3.4-4	18 JAN 07	1.5-3	23 NOV 06
1.3-4	22 AUG 13	3.4-5	28 SEP 06	1.5-4	23 NOV 06
1.3-5/chart	18 APR 02	3.4-6	28 SEP 06	1.5-5	23 NOV 06
1.3-7/chart	18 APR 02	3.4-7/diagram	18 NOV 10	1.6-1	10 MAR 11
1.4-1	5 MAY 11	3.4-9/diagram	28 SEP 06	1.6-2	10 MAR 11
1.4-2	5 MAY 11	* 3.5-1	6 FEB 14	1.6-3	17 OCT 13
1.4-3	5 MAY 11	* 3.5-2	6 FEB 14	1.6-4	17 OCT 13
1.5-1	22 OCT 09	3.5-3	23 SEP 10	* 1.6-5	6 FEB 14
1.6-1	29 JUL 10	3.5-4	23 SEP 10	* 1.6-6	6 FEB 14
1.6-2	29 JUL 10	* 3.5-5	6 FEB 14	1.6-7	10 MAR 11
1.6-3	17 DEC 09	* 3.5-6	6 FEB 14	1.6-8	10 MAR 11
1.6-4	17 DEC 09	3.5-7	20 NOV 08	1.6-9/chart	18 APR 02
1.7-1	7 MAR 13	3.5-8	20 NOV 08	1.6-11/chart	18 APR 02
1.7-2	7 MAR 13	* 3.5-9	6 FEB 14	<b>ENR 1</b>	
* 1.7-3	6 FEB 14	* 3.5-10	6 FEB 14	1.7-1	15 MAR 07
* 1.7-4	6 FEB 14	3.6-1	27 AUG 09	1.7-2	15 MAR 07
* 1.7-5	6 FEB 14	3.6-2	27 AUG 09	1.7-3	15 MAR 07
<b>GEN 2</b>		3.6-3	25 OCT 07	1.7-4	15 MAR 07
2.1-1	27 JUN 13	3.6-4	25 OCT 07	1.7-5	29 JUL 10
2.1-2	27 JUN 13	3.6-5/chart	18 JAN 07	1.7-6	29 JUL 10
2.2-1	20 NOV 08	<b>GEN 4</b>		1.7-7	11 FEB 10
2.2-2	20 NOV 08	4.1-1	20 SEP 12	1.7-8	11 FEB 10
2.2-3	20 DEC 07	4.2-1	17 OCT 13	1.7-9	11 FEB 10
2.2-4	20 DEC 07	4.2-2	17 OCT 13	1.8-1	31 JUL 08
2.2-5	23 SEP 10	4.2-3	20 OCT 11	1.8-2	31 JUL 08
2.2-6	23 SEP 10	4.2-4	20 OCT 11	1.8-3	31 JUL 08
				1.8-4	31 JUL 08

GEN 0.4 CHECKLIST OF AIP PAGES					
PAGE	DATE	PAGE	DATE	PAGE	DATE
1.8-5	31 JUL 08	3.1-5	22 AUG 13	<b>ENR 6</b>	
1.8-6	31 JUL 08	3.1-6	22 AUG 13		6-1/chart
1.8-7	31 JUL 08	3.1-7	20 SEP 12	WAC 2860	15 JUL 99
1.8-8	31 JUL 08	3.1-8	20 SEP 12	<b>PART 3 - AERODROME (AD)</b>	
1.8-9	1 SEP 05	3.1-17/chart	2 MAY 13	<b>AD 0</b>	
1.8-10	1 SEP 05	3.3-1	9 FEB 12	0.6-1	17 OCT 13
1.8-11	3 JUN 10	3.3-2	9 FEB 12	0.6-2	17 OCT 13
1.8-12	3 JUN 10	* 3.3-3	6 FEB 14	0.6-3	17 OCT 13
1.8-13	29 JUL 10	* 3.3-4	6 FEB 14	0.6-4	17 OCT 13
1.8-14	29 JUL 10	3.3-5	20 SEP 12	<b>AD 1</b>	
1.8-15	27 JUN 13	3.3-6	20 SEP 12	1.1-1	27 AUG 09
1.8-16	27 JUN 13	3.3-7	18 NOV 10	1.1-2	27 AUG 09
1.8-17	18 NOV 10	3.3-8	18 NOV 10	1.1-3	2 MAY 13
1.8-18	18 NOV 10	* 3.3-9	6 FEB 14	1.1-4	2 MAY 13
1.8-19	26 JUL 12	* 3.3-10	6 FEB 14	1.2-1	18 JAN 07
1.8-20	26 JUL 12	3.3-11	9 FEB 12	1.3-1	10 MAY 07
1.8-21	22 AUG 13	3.3-12	9 FEB 12	1.3-3/chart	15 MAR 07
1.8-22	22 AUG 13	3.3-13	20 SEP 12	1.4-1	18 JAN 07
1.8-23	15 NOV 12	3.3-14	20 SEP 12	1.5-1	17 DEC 09
1.9-1	15 JAN 09	* 3.4-1	6 FEB 14	<b>AD 2</b>	
1.9-2	15 JAN 09	* 3.4-2	6 FEB 14	* WSSS AD 2-1	6 FEB 14
1.9-3	5 JUL 07	3.4-3	18 NOV 10	* WSSS AD 2-2	6 FEB 14
1.9-4	5 JUL 07	3.4-4	18 NOV 10	WSSS AD 2-3	17 OCT 13
1.9-5	5 JUL 07	3.4-5/chart	30 JUN 11	WSSS AD 2-4	17 OCT 13
1.10-1	15 NOV 12	3.4-7/chart	18 JAN 07	* WSSS AD 2-5.1	6 FEB 14
1.10-2	15 NOV 12	3.5-1	27 JUN 13	* WSSS AD 2-5.2	6 FEB 14
1.10-3	15 NOV 12	3.5-2	27 JUN 13	* WSSS AD 2-5.3	6 FEB 14
1.10-4	15 NOV 12	3.5-3/chart	13 JAN 11	WSSS AD 2-6.1	15 NOV 12
1.11-1	10 MAR 11	3.6-1	20 OCT 11	WSSS AD 2-6.2	15 NOV 12
1.12-1	8 APR 10	3.6-2	20 OCT 11	WSSS AD 2-6.3	7 MAR 13
1.12-2	8 APR 10	3.6-3/chart	20 SEP 12	WSSS AD 2-6.4	7 MAR 13
1.12-3	18 JAN 07	3.6-5/chart	20 SEP 12	WSSS AD 2-6.5	17 OCT 13
1.12-4	18 JAN 07	3.6-7/chart	20 SEP 12	WSSS AD 2-6.6	17 OCT 13
1.13-1	18 JAN 07	3.6-9/chart	20 SEP 12	WSSS AD 2-6.7	12 DEC 13
1.14-1	10 MAR 11	<b>ENR 4</b>		WSSS AD 2-6.8	12 DEC 13
1.14-2	10 MAR 11	4.1-1	20 SEP 12	WSSS AD 2-7.1	7 MAY 09
1.14-3	3 JUN 10	4.1-2	20 SEP 12	WSSS AD 2-7.2	7 MAY 09
1.14-4	3 JUN 10	4.2-1	10 MAR 11	WSSS AD 2-7.3	7 MAY 09
1.14-5	3 JUN 10	4.3-1	10 MAR 11	WSSS AD 2-7.4	7 MAY 09
1.14-6	3 JUN 10	4.4-1	20 SEP 12	* WSSS AD 2-7.5	6 FEB 14
1.15-1	10 JAN 13	4.4-2	20 SEP 12	* WSSS AD 2-7.6	6 FEB 14
1.15-3	2 MAY 13	4.4-3	20 SEP 12	WSSS AD 2-7.7	2 MAY 13
1.15-4	2 MAY 13	4.4-4	20 SEP 12	WSSS AD 2-7.8	2 MAY 13
<b>ENR 2</b>		4.4-4	20 SEP 12	WSSS AD 2-7.9	2 MAY 13
2.1-1	18 NOV 10	4.5-1	10 MAR 11	WSSS AD 2-7.10	2 MAY 13
2.1-2	18 NOV 10	<b>ENR 5</b>		WSSS AD 2-7.11	2 MAY 13
2.1-3	18 NOV 10	5.1-1	8 APR 10	WSSS AD 2-7.12	2 MAY 13
2.1-4	18 NOV 10	5.1-3	10 MAR 11	WSSS AD 2-7.13	12 DEC 13
2.1-7/chart	7 JUL 05	5.1-4	10 MAR 11	WSSS AD 2-7.14	12 DEC 13
2.1-9/chart	20 SEP 12	5.1-5	10 MAR 11	WSSS AD 2-7.15	2 MAY 13
2.1-11A/diagram	8 APR 10	5.1-6	10 MAR 11	WSSS AD 2-7.16	2 MAY 13
2.1-11B/diagram	8 APR 10	5.1-7/chart	20 SEP 12	WSSS AD 2-8.1	8 APR 10
2.1-13/diagram	8 OCT 98	5.1-9/chart	10 MAR 11	WSSS AD 2-8.2	8 APR 10
2.1-15/chart	2 MAY 13	5.2-1	18 NOV 10		
2.2-1	18 JAN 07	5.2-2	18 NOV 10		
<b>ENR 3</b>		5.3-1	11 FEB 10		
3.1-1	10 JAN 13	5.4-1	10 MAR 11		
3.1-2	10 JAN 13	5.5-1	15 DEC 11		
3.1-3	20 SEP 12	5.6-1	10 JAN 13		
3.1-4	20 SEP 12	5.6-3	10 JAN 13		



GEN 0.4 CHECKLIST OF AIP PAGES					
PAGE	DATE	PAGE	DATE	PAGE	DATE
WSSS AD 2-9	13 JAN 11	WSSS AD 2-71-1/chart	10 JAN 13	WSSS AD 2-101/chart	10 MAR 11
WSSS AD 2-10	13 JAN 11	WSSS AD 2-72-1	10 JAN 13	WSSS AD 2-103/chart	10 MAR 11
* <b>WSSS AD 2-11</b>	<b>6 FEB 14</b>	WSSS AD 2-73/chart	10 JAN 13	WSSS AD 2-105/chart	10 MAR 11
* <b>WSSS AD 2-12</b>	<b>6 FEB 14</b>	WSSS AD 2-74	10 JAN 13	WSSS AD 2-107/chart	10 MAR 11
WSSS AD 2-13	23 NOV 06	WSSS AD 2-73-1/chart	10 JAN 13	WSSS AD 2-109/chart	10 MAR 11
WSSS AD 2-14	23 NOV 06	WSSS AD 2-74-1	10 JAN 13	WSSS AD 2-111/chart	10 MAR 11
WSSS AD 2-15	18 JAN 07	WSSS AD 2-75/chart	10 JAN 13	WSSS AD 2-113/chart	10 MAR 11
WSSS AD 2-16	18 JAN 07	WSSS AD 2-76	10 JAN 13	WSSS AD 2-115/chart	18 NOV 10
WSSS AD 2-17	12 DEC 13	WSSS AD 2-77/chart	10 JAN 13	WSSS AD 2-117/chart	10 MAR 11
WSSS AD 2-18	12 DEC 13	WSSS AD 2-78	10 JAN 13	WSSS AD 2-119/chart	7 MAR 13
WSSS AD 2-19	15 DEC 11			WSSS AD 2-121/chart	10 MAR 11
WSSS AD 2-20	15 DEC 11			WSSL AD 2-1	12 DEC 13
WSSS AD 2-21	17 OCT 13			WSSL AD 2-2	12 DEC 13
WSSS AD 2-22	17 OCT 13			* <b>WSSL AD 2-3-1</b>	<b>6 FEB 14</b>
WSSS AD 2-23	20 SEP 12			* <b>WSSL AD 2-3-2</b>	<b>6 FEB 14</b>
WSSS AD 2-24	20 SEP 12			WSSL AD 2-4-1	17 OCT 13
WSSS AD 2-25	20 SEP 12			WSSL AD 2-4-2	17 OCT 13
WSSS AD 2-26	20 SEP 12	WSSS AD 2-81/chart	26 JUL 12	* <b>WSSL AD 2-5</b>	<b>6 FEB 14</b>
* <b>WSSS AD 2-27</b>	<b>6 FEB 14</b>	WSSS AD 2-82	26 JUL 12	* <b>WSSL AD 2-6</b>	<b>6 FEB 14</b>
* <b>WSSS AD 2-28</b>	<b>6 FEB 14</b>	WSSS AD 2-81-1/chart	5 APR 12	WSSL AD 2-7	9 FEB 12
WSSS AD 2-29	1 SEP 05	WSSS AD 2-82-1	5 APR 12	WSSL AD 2-8	9 FEB 12
		WSSS AD 2-83/chart	26 JUL 12	* <b>WSSL AD 2-9</b>	<b>6 FEB 14</b>
* <b>WSSS AD 2-31/chart</b>	<b>6 FEB 14</b>	WSSS AD 2-84	26 JUL 12	* <b>WSSL AD 2-10</b>	<b>6 FEB 14</b>
WSSS AD 2-33/chart	15 JAN 09	WSSS AD 2-83-1/chart	5 APR 12	WSSL AD 2-11	20 OCT 11
WSSS AD 2-37/chart	15 JUL 99	WSSS AD 2-84-1	5 APR 12	WSSL AD 2-12	20 OCT 11
WSSS AD 2-39/chart	15 JUL 99	WSSS AD 2-85/chart	26 JUL 12	WSSL AD 2-12-1	12 DEC 13
WSSS AD 2-41/chart	15 JUL 99	WSSS AD 2-86	26 JUL 12	WSSL AD 2-12-2	12 DEC 13
WSSS AD 2-43/chart	25 APR 96	WSSS AD 2-85-1/chart	5 APR 12	* <b>WSSL AD 2-13/chart</b>	<b>6 FEB 14</b>
WSSS AD 2-45/chart	25 APR 96	WSSS AD 2-86-1	5 APR 12	* <b>WSSL AD 2-15/chart</b>	<b>6 FEB 14</b>
WSSS AD 2-47	5 APR 12	WSSS AD 2-86-2	5 APR 12	* <b>WSSL AD 2-17/chart</b>	<b>6 FEB 14</b>
WSSS AD 2-48	5 APR 12	WSSS AD 2-87/chart	26 JUL 12	* <b>WSSL AD 2-19/chart</b>	<b>6 FEB 14</b>
WSSS AD 2-49	20 SEP 12	WSSS AD 2-88	26 JUL 12	WSSL AD 2-21/chart	12 DEC 13
WSSS AD 2-50	20 SEP 12	WSSS AD 2-87-1/chart	5 APR 12	WSSL AD 2-23/chart	12 DEC 13
WSSS AD 2-50-1	26 JUL 12	WSSS AD 2-88-1	5 APR 12	WSSL AD 2-25/chart	12 DEC 13
WSSS AD 2-50-2	26 JUL 12	WSSS AD 2-88-2	5 APR 12	WSSL AD 2-27/chart	12 DEC 13
WSSS AD 2-50-3	5 APR 12	WSSS AD 2-89/chart	26 JUL 12	WSSL AD 2-29/chart	12 DEC 13
WSSS AD 2-50-4	5 APR 12	WSSS AD 2-90	26 JUL 12	WSSL AD 2-31/chart	12 DEC 13
				WSSL AD 2-33/chart	30 JUN 11
WSSS AD 2-51/chart	2 MAY 13	WSSS AD 2-91/chart	26 JUL 12	WSSL AD 2-35/chart	30 JUN 11
WSSS AD 2-52	2 MAY 13	WSSS AD 2-92	26 JUL 12	WSSL AD 2-37/chart	30 JUN 11
WSSS AD 2-53/chart	2 MAY 13	WSSS AD 2-91-1/chart	5 APR 12		
WSSS AD 2-54	2 MAY 13	WSSS AD 2-92-1	5 APR 12	* <b>WSAP AD 2-1</b>	<b>6 FEB 14</b>
WSSS AD 2-55/chart	10 JAN 13	WSSS AD 2-92-2	5 APR 12	* <b>WSAP AD 2-2</b>	<b>6 FEB 14</b>
WSSS AD 2-56	10 JAN 13	WSSS AD 2-93/chart	26 JUL 12	WSAP AD 2-3	18 NOV 10
WSSS AD 2-57/chart	10 JAN 13	WSSS AD 2-94	26 JUL 12	WSAP AD 2-4	18 NOV 10
WSSS AD 2-58	10 JAN 13	WSSS AD 2-93-1/chart	5 APR 12	* <b>WSAP AD 2-5</b>	<b>6 FEB 14</b>
		WSSS AD 2-94-1	5 APR 12	* <b>WSAP AD 2-6</b>	<b>6 FEB 14</b>
		WSSS AD 2-94-2	5 APR 12	WSAP AD 2-7	20 OCT 11
WSSS AD 2-63/chart	10 JAN 13			WSAP AD 2-8	20 OCT 11
WSSS AD 2-64	10 JAN 13	WSSS AD 2-97/chart	26 JUL 12	WSAP AD 2-9	18 NOV 10
WSSS AD 2-65/chart	10 JAN 13	WSSS AD 2-98	26 JUL 12	WSAP AD 2-10	18 NOV 10
WSSS AD 2-66	10 JAN 13	WSSS AD 2-97-1/chart	5 APR 12	WSAP AD 2-11/chart	18 NOV 10
WSSS AD 2-67/chart	10 JAN 13	WSSS AD 2-98-1	5 APR 12	WSAP AD 2-13/chart	18 NOV 10
WSSS AD 2-68	10 JAN 13	WSSS AD 2-99/chart	26 JUL 12	WSAP AD 2-15/chart	25 APR 96
WSSS AD 2-69/chart	10 JAN 13	WSSS AD 2-100	26 JUL 12	WSAP AD 2-17/chart	10 MAR 11
WSSS AD 2-70	10 JAN 13	WSSS AD 2-99-1/chart	5 APR 12	WSAP AD 2-19/chart	10 MAR 11
WSSS AD 2-71/chart	10 JAN 13	WSSS AD 2-100-1	5 APR 12	WSAP AD 2-21/chart	10 MAR 11
WSSS AD 2-72	10 JAN 13			WSAP AD 2-23/chart	10 MAR 11

GEN 0.4 CHECKLIST OF AIP PAGES					
PAGE	DATE	PAGE	DATE	PAGE	DATE
WSAT AD 2-1	20 SEP 12				
WSAT AD 2-2	20 SEP 12				
WSAT AD 2-3	5 APR 12				
WSAT AD 2-4	5 APR 12				
WSAT AD 2-5	20 OCT 11				
WSAT AD 2-6	20 OCT 11				
WSAT AD 2-7	20 SEP 12				
WSAT AD 2-8	20 SEP 12				
WSAT AD 2-9	18 NOV 10				
WSAT AD 2-11/chart	1 JAN 98				
WSAG AD 2-1	5 APR 12				
WSAG AD 2-2	5 APR 12				
WSAG AD 2-3	18 NOV 10				
WMKJ AD 2-1	7 MAR 13				
WIDD AD 2-1	20 SEP 12				
WIDD AD 2-3	12 MAY 05				
WIDD AD 2-5/chart	12 MAY 05				
WIDD AD 2-6/chart	12 MAY 05				
WIDD AD 2-7/chart	12 MAY 05				
WIDD AD 2-8/chart	12 MAY 05				
WIDD AD 2-9/chart	12 MAY 05				
WIDD AD 2-10/chart	12 MAY 05				
WIDD AD 2-11/chart	12 MAY 05				
WIDD AD 2-12/chart	12 MAY 05				
WIDN AD 2-1	9 FEB 12				
WIDN AD 2-3	15 DEC 11				
WIDN AD 2-5/chart	15 DEC 11				
WIDN AD 2-6/chart	15 DEC 11				
WIDN AD 2-7/chart	15 DEC 11				
WIDN AD 2-8/chart	15 DEC 11				
WIDN AD 2-9/chart	15 DEC 11				
WIDN AD 2-10/chart	15 DEC 11				
WIDN AD 2-11/chart	15 DEC 11				
WIDN AD 2-12/chart	15 DEC 11				

<b>GEN 0.5 LIST OF HAND AMENDMENTS TO THE AIP</b>		
<i>AIP page(s) affected</i>	<i>Amendment text</i>	<i>Introduced by AIP Amendment NR</i>
WAC 2860/chart	a) Delete SJ NDB.	1/01
	b) Redesignation of Danger Areas WSD8, WSD12, WSD21 to read as WMD8, WMD12, WMD21 respectively.	5/07
	c) Upper limit of WSD13/14/15/44/45 and WMD8/12 to read as FL550.	2/10
WSSS AD 2-37 /chart	a) ASDA RWY 02L to read as 4060m.	1/04
	b) Magnetic Variation to read as 27'E(2010).	6/10
	c) RWY 02L/20R TODA to read as 4270m	6/06
	d) RWY 02L/20R Clearway to read as 270 x 150m	6/06
WSSS AD 2-39 /chart	a) RWY 02R/20L to read as RWY 02C/20C.	1/05
	b) Magnetic Variation to read as 27'E(2010).	6/10
	c) RWY 02C/20C TODA to read as 4270m.	6/06
	d) RWY 02C/20C Clearway to read as 270 x 150m	6/06
WSSS AD 2-41	a) RWY 02R/20L to read as RWY 02C/20C.	1/05
	b) Magnetic Variation to read as 27'E(2010).	6/10
	c) RWY 02L/20R 02C/20C Clearway to read as 270 x 150m	6/06
WSSS AD 2-45	RWY 02R and 20L to read as RWY 02C and 20C.	1/05
WSAP AD 2-15	Magnetic Variation to read as 27'E(2010).	6/10
WSAT AD 2-11	Magnetic Variation to read as 27'E(2010).	6/10

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## GEN 1.2 ENTRY, TRANSIT AND DEPARTURE OF AIRCRAFT

### 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.

#### (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](mailto: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](mailto: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.

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

- Nil differences.

**ANNEX 8 Airworthiness of Aircraft**, 11th edition (Amendment 103)

- Nil differences.

**ANNEX 9 Facilitation**, 13th edition (Amendment 22)

Chapter 2

- 2.4 General Declaration is required.
- 2.5 Name of flight crew members are required and to be provided on General Declaration on entry and departure of aircraft.
- 2.6 Two copies of Embarking Passenger manifests are required.
- 2.12 Crew lists are required.
- 2.15 Crew lists are required.
- 2.18 Documents for entry and departure of aircraft should be in English.

Chapter 3

- 3.7 Visa is only required for persons who are holders of Certificate of Identity and Travel Documents issued by countries which have not entered visa agreement with the Singapore Government.
- 3.8 Visa fees are payable at standard rates.
- 3.8.4 Permanent residents who are not Singapore Citizens are required to be in possession of Re-Entry Permits when they return from overseas trips.
- 3.9 Embarkation/Disembarkation forms and certain supplementary information are required.
- 3.10 Embarkation/Disembarkation forms and certain supplementary information are required.
- 3.23 Crew members when travelling as passengers are required to be in possession of passports.

Chapter 4

- 4.8 Except for certain scheduled items for which a Diversion Certificate or other authority is required, in/out cargo is as free as possible of governmental documentary requirements.

Chapter 5

- 5.2 Facilities for provisional declarations are available to expedite clearance.
- 5.4.1 Passports and visas, when necessary, are required where passengers have to leave the International Airport and stay in Singapore.

Chapter 6

- 6.57 Any requests to station representatives of the public authorities of another State will be considered on its merits.

Chapter 8

- 8.1 As laws differ between Government Departments, the use of a single comprehensive bond is not acceptable.
- 8.14 There is a medical centre at the airport which provides consultation, pharmaceutical, dental, x-ray and minor operations facilities. Requests for medical care and assistance could be made prior to arrival of aircraft.

**ANNEX 10 Aeronautical Telecommunications**

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

- Nil Differences

**ANNEX 11 Air Traffic Services, 13th edition**

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

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

- Nil Differences

**ANNEX 13 Aircraft Accident and Incident Investigation, 10th edition**

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

**ANNEX 14 Aerodromes**

Volume I	(Aerodrome Design and Operations) - 6th edition
<u>Chapter 2</u>	
2.5.3	Geographical coordinates of appropriate taxiway centre line points are not provided at Changi Airport and Seletar Airport.
<u>Chapter 4</u>	
4.2.13	In addition to the obstacle limitation surfaces described in para 4.2.13 of the Annex, the inner approach surface, inner transitional surfaces and balked landing surface shall also be established for a precision approach runway category I.



Chapter 7

7.4.1 In addition to para 7.4.1 of the Annex, unserviceability markers shall also be displayed at the entrances to a permanently or temporarily closed runway or taxiway, or part thereof.

Chapter 9

9.2.3 The remission factor described in para 9.2.3 of the Annex has been removed from our national regulations.

Volume II (Heliports) - 3rd edition (Amendment 4)  
- Not applicable

→ **ANNEX 15 Aeronautical Information Services**, 14th edition

Chapter 10 (Amendment 36)

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

→ **ANNEX 16 Environmental Protection**

Volume I (Aircraft Noise) - 6th edition (Amendment 10)  
Volume II (Aircraft Engine Emissions) - 3rd edition (Amendment 7)

- Nil Differences

**ANNEX 17 Security - Safeguarding International Civil Aviation Against Acts of Unlawful Interference**, 9th edition (Amendment 12)

- Nil Differences

**ANNEX 18 The Safe Transport of Dangerous Goods by Air**, 4th edition (Amendment 10)

- Nil Differences

**ANNEX 19 Safety Management**, 1st edition

- Nil Differences

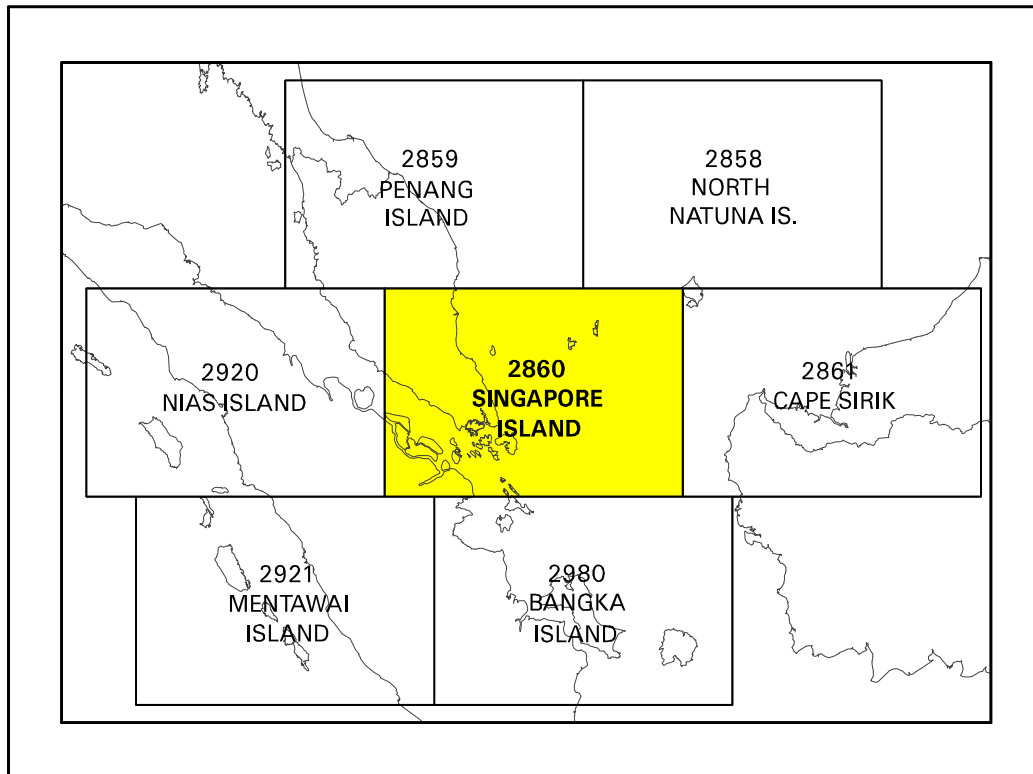
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GEN 3.2.5 LIST OF AERONAUTICAL CHARTS AVAILABLE					
<i>Title of Chart Series</i>	<i>Scale</i>	<i>Name and/or number</i>		<i>Price (\$)</i>	<i>Date</i>
<b>World Aeronautical Chart</b> ICAO (WAC)	1:1 000 000	WAC 2860		In AIP	15 JUL 99
<b>Enroute Chart</b> ICAO (ENRC)		ENR 6-1		In AIP	2 MAY 13
<b>Instrument Approach Chart</b> ICAO (IAC)	1:400 000	<b>Singapore Changi</b> 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	10 MAR 11
	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
	1:400 000	<b>Paya Lebar</b> 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
	<b>Visual Approach Chart</b> ICAO (VAC)	1:400 000	<b>Singapore Changi</b> WSSS AD 2-121		In AIP
1:100 000		<b>Seletar</b> RWY 03 WSSL AD 2-21		In AIP	9 FEB 12
1:100 000		RWY 21 WSSL AD 2-23		In AIP	9 FEB 12
1:100 000		RWY 03 WSSL AD 2-25		In AIP	9 FEB 12
1:100 000		RWY 21 WSSL AD 2-27		In AIP	9 FEB 12
<b>Visual Departure Chart</b>	1:100 000	<b>Seletar</b> RWY 03 WSSL AD 2-29		In AIP	9 FEB 12
	1:100 000	RWY 21 WSSL AD 2-31		In AIP	9 FEB 12
<b>Aerodrome Chart</b> ICAO (AC)		<b>Singapore Changi</b> WSSS AD 2-31		In AIP	6 FEB 14
		<b>Seletar</b> WSSL AD 2-13		In AIP	6 FEB 14
		<b>Paya Lebar</b> WSAP AD 2-11		In AIP	18 NOV 10
<b>Aerodrome Obstacle Chart</b> ICAO TYPE A (AOC)	1:10 000	<b>Singapore Changi</b> RWY 20R/02L WSSS AD 2-37		In AIP	15 JUL 99
	1:10 000	RWY 20C/02C WSSS AD 2-39		In AIP	15 JUL 99
	1:10 000	<b>Seletar</b> RWY 03/21 WSSL AD 2 -17		In AIP	6 FEB 14
	1:20 000	<b>Paya Lebar</b> RWY 20/02 WSAP AD 2-15		In AIP	25 APR 96
	1:25 000	<b>Singapore Changi</b> RWY 02L/20R and 02C/20C WSSS AD 2-41		In AIP	15 JUL 99
	1:12 500	<b>Seletar</b> RWY 03/21 WSSL AD 2-19		In AIP	6 FEB 14
<b>Precision Approach Terrain Chart - ICAO (PATC)</b>	1:2 500	<b>Singapore Changi</b> 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**



**GEN 3.5 METEOROLOGICAL SERVICES**

**1. RESPONSIBLE SERVICE**

- 1.1 The meteorological services for civil aviation are provided by the Meteorological Service Singapore of the National Environment Agency.

The Director-General  
Meteorological Service Singapore  
Singapore Changi Airport  
P. O. Box 8  
Singapore 918141

→ TEL: (65) 65457190 (HQ)  
(65) 65425059 / (65) 65422837 (MET Office)

FAX: (65) 65457192 (HQ)  
(65) 65425026 (MET Office)

AFS: WSSSYMYX

Website: <http://www.weather.gov.sg>

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

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

- 1.3 Differences to these provisions are detailed in subsection GEN 1.7.

**2. AREA OF RESPONSIBILITY**

- 2.1 Area meteorological watch is provided for the Singapore FIR.

### 3. METEOROLOGICAL OBSERVATIONS AND REPORTS

**TABLE GEN 3.5.3 Meteorological Observations and Reports**

<i>Name of Station/ Location Indicator</i>	<i>Type &amp; Frequency of Observation/ Automatic Observing Equipment</i>	<i>Types of MET Reports &amp; Supplementary Information included</i>	<i>Observation System &amp; Sites (s)</i>	<i>Hours of Operation</i>	<i>Climatological Information</i>
1	2	3	4	5	6
SINGAPORE/ Singapore Changi WSSS	Half hourly plus special observations	METAR SPECI TREND WS	<ul style="list-style-type: none"> <li>a) Ultrasonic Wind Sensor at MET station situated 345m west of centre of RWY 02L/20R. (wind report in METAR and SPECI taken from this measurement).</li> <li>b) Cup anemometers and wind vanes at ends and middle of both runways.</li> <li>c) Windsocks at ends of both runways.</li> <li>d) Transmissometers at both ends and in the middle of both runways.</li> <li>e) Low level wind shear observations made continuously by system of 13 surface wind sensors located in the airport and its vicinity.</li> <li>f) Satellite Receiving System receiving MTSAT infrared and visible imageries hourly.</li> <li>g) MET Doppler Weather Radar detecting windshear within 20km and monitoring storms up to 480km.</li> </ul>	H24	Climatological Summaries available at Singapore MET Services of the National Environment Agency.
SINGAPORE/ Seletar WSSL	Hourly plus special observations	METAR SPECI	<ul style="list-style-type: none"> <li>a) 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).</li> <li>b) Windsocks at ends of RWY 03/21.</li> </ul>	2100-1500  1500-2100 on request	Nil
SINGAPORE/ Paya Lebar WSAP	Hourly plus special observations	METAR SPECI	<ul style="list-style-type: none"> <li>a) Cup anemometers and wind vanes at both ends of RWY 02/20 (wind report in METAR and SPECI taken from the measurement associated with the RWY in use).</li> </ul>	2100-1500  1500-2100 on request	Nil

- 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)

- 4.8.2.1 ATC will pass to all aircraft taking off or landing for the next  $\frac{1}{2}$  hour from the time of report whenever microburst or windshear of intensity 10 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 10 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 and a half hours' notice at Singapore Changi Airport and three 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) 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



## 8.1 General

8.1.1 For the safety of air traffic, the Meteorological Authority maintains an area meteorological watch and warning service. This service consists partly of a continuous weather watch within the lower and upper FIR and issuance of appropriate information (SIGMET) by the Meteorological Watch Office and partly of the issuing of warnings for Singapore Changi Airport.

## 8.2 Area Meteorological Watch Service

8.2.1 The area meteorological watch service is performed by the Meteorological Office, Singapore.

8.2.2 The Meteorological Office, Singapore issues information in the form of SIGMET messages about the occurrence or expected occurrence of one or several of the following significant meteorological phenomena:

- thunderstorms \*
- severe turbulence
- severe icing
- severe mountain waves
- heavy sand storm/dust storm
- volcanic ash cloud
- tropical cyclone

\* Area of widespread cumulonimbus clouds or cumulonimbus along a line (squall line) with little or no space between individual clouds, or cumulonimbus embedded in cloud layers or obscured by haze.

8.2.3 The SIGMETs are issued in abbreviated plain language using ICAO abbreviations and are respectively numbered consecutively for each day commencing at 0001. Their period of validity is generally limited to less than 4 hours from the time of transmission.

8.2.4 SIGMETs issued by the Meteorological Office, Singapore are transmitted to adjacent MWOs in accordance with regional air navigation agreements and inserted in the MET page of LORADS (Long Range Radar and Display System) for use by the Singapore Air Traffic Control Centre.

## 8.3 Warning Service

8.3.1 Aerodrome warnings for Singapore Changi Airport are issued by Meteorological Office, Singapore if one or several of the following phenomena are expected to occur at the airport:

- squall
- thunderstorm
- hail
- tornado
- horizontal visibility and/or RVR of 800 metres or less
- mean surface wind speed of 25 knots or more
- wind gusts of 35 knots or more
- cloud of BKN or OVC amount with base 500 ft or less

8.3.2 The warnings are:

- for the protection of parked and moored aircraft,
- for the protection of equipment at the airport, and
- for the safety of arriving and departing aircraft.

8.3.3 The warnings are issued in English and are distributed in accordance with a distribution list which has to be agreed upon locally. In order to guarantee rapid dissemination of the warnings, the distribution list to be used shall, as far as possible, contain only one recipient for an interested group; this recipient will be responsible for the further dissemination of the warning within the group.

8.3.4 SIGMET is disseminated by directed transmissions to aircraft through general calls by the Area Control Centre, Singapore for Singapore FIR.

**9. OTHER AUTOMATED METEOROLOGICAL SERVICES**

- 9.1 Besides VOLMET and ATIS broadcasts, airline operators can obtain access to various operational meteorological information through our Aviation Intranet dedicated computer to computer links and automated faxing service.
- 9.2 Aviation Intranet is free to airlines or flight operators with flights departing from Singapore Changi and Seletar Airports. It is accessible at URL <http://www.weather.gov.sg/>. A registered user account is required for the access. For registration, please email to [MSS\\_Operations@nea.gov.sg](mailto:MSS_Operations@nea.gov.sg)

**TABLE 3.5.9 AVIATION INTRANET**

<i>Service Name</i>	<i>Information Available</i>	<i>Area, Route and Aerodrome Coverage</i>	<i>Telephone and Telefax numbers Remarks</i>
1	2	3	4
Aviation Intranet	METAR, SPECI, TAF, SIGMET, Typhoon and Tropical Cyclone Warnings, Tropical Cyclone / Volcanic Ash Advisories	All METAR, SPECI, TAF, SIGMET, Typhoon and Tropical Cyclone Warnings, Tropical Cyclone / Volcanic Ash Advisories received	
	Latest hourly IR MTSAT-1R and FY2E Satellite pictures	Southeast Asia and full globe	
	Latest images from other satellites	Europe, America and Asia Pacific	
	Mid-Level Significant Weather charts	Medium-High level (FL100-FL450) covering 30E -180E; 45N - 45S	
	WAFS (World Area Forecast System) SIGWX charts	Medium-High level covering Asia, Middle East, Africa, America and Europe	
	Prognostic Wind-Temperature charts	Standard levels covering Europe, America and the Asia-Pacific Regions	
	Weather Radar images	Latest Singapore Changi Airport 70km range rain intensity radar plots.	

Note: Details of meteorological briefing at aerodromes are given in the individual aerodrome sections, i.e. AD2

- 1.12.3 When radio communication failure occurs immediately after the aircraft has departed on RWY 20R/20C, the pilot shall proceed according to the following procedures:
- a) Proceed straight ahead to SAMKO Holding Area (SHA) climbing to the last assigned altitude. At SHA climb/descend to maintain 7,000ft;
  - b) Hold at SHA for 4 minutes. Leave SHA for HOSBA Holding Area (HHA) via SJ DVOR and ATS Route G580 to jettison fuel, maintaining 7,000ft;
  - c) After fuel jettison, proceed to NHA via ATS Route W401. Maintain 7,000ft. On crossing VTK 042R turn right to intercept VTK 023R. At NHA descend to carry out an instrument approach on RWY 20R/20C.
- 1.12.4 ATC action is based on the assumption that the aircraft will take a minimum of 10 minutes to jettison fuel. An aircraft therefore should not leave earlier than 10 minutes after arrival at HOSBA Holding Area even if fuel jettison is completed at a shorter time or if jettisoning is not necessary or possible unless circumstances require an immediate return.
- 1.12.5 Alternatively, aircraft may jettison fuel between HOSBA and point 80NM from VTK DVOR/DME on ATS Route G580.

### 1.13 TOTAL RADIO FAILURE - SPECIAL PROCEDURES - SELETAR AP - ARRIVALS

- 1.13.1 If total radio communication failure occurs in VMC during daylight hours to an aircraft bound for Seletar AD, the pilot shall continue to fly in VMC and land at the most suitable aerodrome.
- 1.13.2 If in IMC or when weather conditions are such that the total radio communication failure aircraft cannot complete its flight in accordance with 1.13.1, the pilot will EITHER:
- a) proceed in accordance with the last acknowledged clearance from ATC; OR
  - b) if no specific instructions or clearances have been received and acknowledged:
    - i) maintain the last assigned level and proceed via flight planned route to KK NDB;
    - ii) commence descent from KK NDB at or as close as possible to the ETA Seletar AD as indicated on the flight plan or last EAT passed by ATC and acknowledged by aircraft;
    - iii) leave KK NDB at 2,500ft and proceed to overhead Seletar;
    - iv) if Seletar Aerodrome is visual, initiate the standard arrival procedures for RWY 21;
    - v) if unable to effect a landing on RWY 21, carry out a missed approach at or below 1,500ft and land on RWY 03.
- 1.13.3 ATC will assist the pilot in identifying RWY-in-use by switching on the RWY lights and appropriate PAPI.
- 1.13.4 The pilot shall keep a look-out for light signals from Seletar Tower. On receipt of a green light from Seletar Tower, a landing may be made.
- 1.13.5 If unable to land within 30 minutes of ETA Seletar as indicated in the flight plan or last acknowledged EAT, aircraft will proceed to its flight planned alternate.
- 1.13.6 It is the pilot's responsibility to ensure that he is clear of other traffic while carrying out the standard arrival procedure.

#### **1.14 TOTAL RADIO FAILURE - SPECIAL PROCEDURES - SELETAR AP - DEPARTURES**

- 1.14.1 If total radio communication failure occurs to a departing aircraft within the Seletar Control Zone, the pilot shall maintain 2,500ft and if Seletar Ad is visual, initiate the standard arrival procedures for RWY 21. If unable to effect a landing on RWY 21, carry out a missed approach at or below 1,500ft and land on RWY 03. When in the circuit, the pilot shall keep a look-out for light signals from Seletar Tower.
- 1.14.2 If departing aircraft experiences total radio communication failure outside the Seletar Control Zone, the pilot shall follow procedures as set out in paragraph 1.13.
- 1.14.3 At night, aircraft experiencing total radio communication failure will proceed to its flight planned alternate.

#### **1.15 RADIO FAILURE - SPECIAL PROCEDURES - SELETAR AP - HELICOPTERS**

- 1.15.1 Helicopters experiencing RTF failure should approach low level (not above 300ft) and fly past the Control Tower on the eastern side of the runway rocking laterally.
- 1.15.2 Unless the pilot unmistakably sees a green light from the Tower, he is not to assume that he is cleared to land but is to carry out the same procedure again.
- 1.15.3 In each circumstance, it is the pilot's responsibility to ensure that he is cleared of other circuit traffic and does not encroach on the approach of the runway.

#### **1.16 RADIO FAILURE - SPECIAL PROCEDURES - SELETAR AP - FIXED WING AIRCRAFT**

- 1.16.1 Aircraft experiencing radio failure are to descend on the western side of the runway to 600ft and rock the aircraft when passing abeam the Control Tower.
- 1.16.2 Unless the pilot unmistakably sees a green light from the Tower, he is not to assume that he is cleared to land but is to carry out the same procedure again.
- 1.16.3 When carrying out radio failure procedure, the pilot-in-command shall not infringe the helicopter circuit whenever it is active and shall keep a sharp look-out for helicopters and other aircraft operating in the aerodrome circuit.

#### **1.17 ACTION TAKEN BY ATC DURING RADIO FAILURE**

- 1.17.1 In addition to the action specified in paragraph 1.8.2, if unable to establish normal communication with an aircraft, ATC will:
- a) Maintain separation between the aircraft and other aircraft known to be operating in its vicinity;
  - b) Transmit essential information to the aircraft, including the flight levels reserved for its use, route to be flown, and any significant weather information, such as terminal weather, areas in which VMC may be expected, etc.;
  - c) Advise other acft in the vicinity of the presumed psn of the acft experiencing radio failure;
  - d) Use ground radar to check whether or not the aircraft is receiving and complying with ATC instructions, and to ensure separation from other aircraft;
  - e) Inform the operator concerned or his representative;
  - f) Inform the alternate aerodrome of the circumstances of the failure and request attempts to establish communication with the aircraft;
  - g) Inform all concerned and end all radio failure actions if communication with aircraft is established and when aircraft lands.

ENR 3 ATS ROUTES ENR 3.3 AREA NAVIGATION (RNAV) ROUTES						
Route Designator (RNP type) Name of Significant point Coordinates	Way-point IDENT of VOR/DME BRG & DIST ELEV DME Antenna	Geodesic DIST (NM)	Upper Limit Lower Limit  Minimum Flt Alt Airspace Classification	Direction of Cruising Levels		Remarks Controlling Unit Frequency
				Odd	Even	
1	2	3	4	5		6
<b>L644</b> (RNP 10)						
▲ DUDIS (WSJC/VVTS FIR BDRY) 070000N 1064834E	NIL					
▲ MABLI 041717N 1061247E	NIL	192° 165.8		↓	↓	<b>Lateral Limits:</b> 25NM either side of line joining DUDIS to KIKOR.  Singapore ACC FREQ: P123.7 MHz S127.3 MHz  Available only for flights departing from Hong Kong or north of Hong Kong to Jakarta.
▲ OPULA 033155N 1062118E	NIL	169° 45.9				
▲ ONAPO 032116N 1062318E	NIL	169° 10.8				
▲ OMLIV 025512N 1062812E	NIL	169° 26.4	FL460 FL240			
▲ OMBAP 023116N 1063242E	NIL	169° 24.2	FL250			
▲ OLSAM 020059N 1063824E	NIL	169° 30.7	Class A			
▲ OBLOT 014256N 1064147E	NIL	169° 18.3				
▲ OBGET 012307N 1064531E	NIL	169° 20.1				
▣ KIKOR (WSJC/WIIZ FIR BDRY) 002244S 1070524E	NIL	169° 107.2				
<b>M522</b>						
▲ VINIK (WSJC/RPHI FIR BDRY) 083830N 1161348E	NIL		FL 460 FL 135	↓	↓	Portion of M522 within the Singapore FIR has been delegated to Kota Kinabalu ACC for provision of ATS  Kinabalu ACC FREQ: 126.1 MHz
▲ NODIN (WSJC/WBFC FIR BDRY) 081100N 1161142E	NIL	27.5	FL 140  Class A-ABV FL150 Class B-BLW FL150			

ENR 3 ATS ROUTES ENR 3.3 AREA NAVIGATION (RNAV) ROUTES						
Route Designator (RNP Type) Name of Significant Points Coordinates	Way-point IDENT of VOR/DME BRG & DIST ELEV DME Antenna	Geodesic DIST (NM)	Upper Limit Lower Limit Minimum Flt Alt Airspace Classification	Direction of Cruising Levels		Remarks Controlling Unit Frequency
				Odd	Even	
1	2	3	4	5		6
<b>M630</b> (RNAV 5)						
▲ SUKRI 012306N 1025904E	NIL	37.3	<u>FL 460</u> 5 500ft ALT	↓		<b>Lateral Limits:</b> 11.5NM either side of line joining SUKRI to TPG.  <b>Flight Planning:</b> Southbound flight planning permitted for flights from Kuala Lumpur and airports beyond which are overflying beyond Singapore. Flights landing at Singapore Changi Airport to flight plan on A464.  Singapore ACC FREQ: P133.25 MHz S135.8 MHz
△ BOBAG 010230N 1032954E		61.3	6 000ft Class A-ABV FL150 Class B-BLW FL150			
▲ TANJUNG PINANG DVOR/DME (TPG) 005413N 1043052E						
<b>M635</b>						
▲ TEKONG DVOR/DME (VTK)* 012455N 1040120E	NIL	42.5	<u>FL 460</u> 5 500ft ALT	↓		* Kuala Lumpur / Singapore FIR boundary approximately 1.2NM north of VTK.  <b>Lateral Limits:</b> 25NM either side of line joining VTK to SURGA.  Singapore ACC FREQ: P134.4 MHz S128.1 MHz
▲ TANJUNG PINANG DVOR/DME (TPG) 005413N 1043052E		TPG 120.5° 58.5	58.5			
▲ ATPOM 002425N 1052114E	NIL	93.1		↑		
▣ SURGA (WSJC/WIIZ FIR BDRY) 003657S 1063119E						
<b>M646</b>						
▲ KAMIN (WBFC/WSJC FIR BDRY) 023442N 1085536E	NIL	69.6		↓		<b>Lateral Limits:</b> 25NM either side of line joining TOMAN to KAMIN.  Singapore ACC FREQ: P134.2 MHz S133.35MHz
▲ SABIP 020940N 1075044E	NIL	26.1	<u>FL 460</u> FL 240			
▲ ESPIT 020011N 1072624E	NIL	47.9	FL 250 Class A			
▲ OBLLOT 014256N 1064147E	NIL	58.5				
▲ TOMAN 012147N 1054717E				↑		
<b>M753</b>						
▲ IPRIX (VVTS/WSJC FIR BDRY) 070000N 1040755E	NIL	127.2	<u>FL 460</u> FL 155	↓	↑	<b>Lateral Limits:</b> 25NM either side of line joining ENREP to IPRIX.  Singapore ACC FREQ: P123.7 MHz S127.3 MHz
▲ ENREP 045223N 1041442E						

ENR 3. ATS ROUTES						
ENR 3.3 AREA NAVIGATION (RNAV) ROUTES						
Route Designator (RNP Type) Name of Significant Points Coordinates	Way-point IDENT of VOR/DME BRG/ DIST ELEV DME Antenna	Great Circle DIST (NM)	Upper Limits Lower Limits  Minimum Flt Alt Airspace Classification	Direction of Cruising Levels		Remarks Controlling Unit Frequency
				Odd	Even	
1	2	3	4	5		6
<b>M772</b> (RNP 10)						
▲ LAXOR (WSJC /RPHI FIR BDRY) 094937N 1144829E  ▲ BIDAG 073101N 1135544E  ▲ ASISU (WBFC /WSJC FIR BDRY) 055906N 1132046E	NIL  NIL  BRU 305° 113.3NM	020° 147.5  020° 97.9	FL 460 FL 240  FL 250  Class A		↑	<b>Lateral Limits:</b> 25NM either side of line joining ASISU to LAXOR.  Available only for flights departing from Jakarta to Hong Kong or to destinations beyond Hong Kong.
<b>M774</b> (RNAV)						
▲ TANJUNG PINANG DVOR/DME (TPG) 005413N 1043052E  ▲ OBDOS 002503N 1065551E  ▣ KADAR (WSJC/WIIZ FIR BDRY) 000647S 1074342E	NIL  TPG 101.3° 148.1NM  NIL	148.1  57.5	FL 460 5 500ft ALT  6 000ft ALT  Class A-ABV FL150 Class B-BLW FL150	↓  ↑		<b>Lateral Limits:</b> 25NM either side of line joining TPG to KADAR.  Route from OBDOS to KADAR is RNAV10.  Singapore ACC FREQ: P134.4MHz S128.1MHz
<b>M904</b>						
▲ TIDAR (WSJC/VTBB FIR BDRY) 065230.15N 1024959.82E  ▲ ODOON 063613.82N 1030129.41E  ▲ UPRON 060903.41N 1032039.98E  ▲ ENREP 045223N 1041442E	NIL  NIL  NIL	20  33  93	FL 460 FL 65  FL 70  Class A (FL290 and ABV)  FL 460 FL 145  FL 150  Class A (FL290 and ABV)  FL 460 FL 245  FL 250  Class A (FL290 and ABV)	↓  ↑		<b>Lateral Limits:</b> 25NM  Singapore ACC FREQ: P123.7MHz S127.3MHz

ENR 3 ATS ROUTES ENR 3.3 AREA NAVIGATION (RNAV) ROUTES						
Route Designator (RNP Type) Name of Significant Points Coordinates	Way-point IDENT of VOR/DME BRG & DIST ELEV DME Antenna	Great Circle DIST (NM)	Upper Limits Lower Limits Minimum Flt Alt Airspace Classification	Direction of Cruising Levels		Remarks Controlling Unit Frequency
				Odd	Even	
1	2	3	4	5		6
<b>N502</b>						
▲ BOBAG (R243/24 DME SJ) 010230N 1032954E	NIL	335° 105.3	FL 460 FL 275  FL 280	↑		<b>Lateral Limits:</b> 10NM on the western side and 5NM on the eastern side of line joining BOBAG to PARDI.  Singapore ACC FREQ: P134.4MHz S128.1MHz
▲ PARDI 003400S 1041300E	NIL					
<b>N875</b>						
▲ ENREP 045223N 1041442E	NIL	44.1	FL 460 FL 245  FL 250  Class B	↓          ↑		<b>Lateral Limits:</b> 25NM either side of line joining ENREP to ARUPA.  Singapore ACC FREQ: FREQ: P134.4MHz S128.1MHz
▲ NOPAT 042313N 1044756E	NIL	16.3				
▲ DAMOG 041225N 1050014E	NIL	20.6				
▲ SUSAR 035848N 1051547E	NIL	21.8				
▲ MUMSO 034420N 1053213E	NIL	21.3				
▲ ELGOR 033014N 1054818E	NIL	23.6				
▲ LEBIN 031438N 1060604E	NIL	79.5				
▲ BOBOB 022206N 1070558E	NIL	29.9				
▲ ESPIT 020011N 1072624E	NIL	48.3				
▲ NIMIX 012452N 1075926E	NIL	72.4				
▣ ARUPA 003140N 1084846E	PNK 316° 49.6NM					



## AD 2 AERODROMES

WSSS AD 2.1 AERODROME LOCATION INDICATOR AND NAME	
WSSS - SINGAPORE/Singapore Changi International	

WSSS AD 2.2 AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA		
1	ARP coordinates and site at AD	012133.16N 1035921.57E (Control Tower)
2	Direction and distance from (city)	061°, 17.2km from City Centre (The Fullerton, Singapore)
3	Elevation/Reference temperature	6.66m (21.85ft) / 32.4°C
4	Geoid Undulation (AD elevation position)	10.29m
5	MAG VAR /Annual change	27'E (2010) / negligible
6	AD Administration, address, telephone, telefax, AFS	
	RWY 02L/20R and RWY 02C/20C Changi Airport Group (Singapore) Pte Ltd Singapore Changi Airport P.O.Box 168, Singapore 918146 Tel: (65)65956868 or (65)65423223 AFS: WSSSYAYX	RWY 02R/20L Republic of Singapore Air Force Headquarters, Changi Air Base 508A, Cranwell Road Singapore 509863 Tel: (65) 65864033 (Base Operations)
7	Types of traffic permitted	IFR
8	Remarks	
	a) Scheduled Closure Periods for RWY 02L/20R and RWY 02C/20C: see AIP page WSSS AD 2-12. b) Not available to all non-scheduled civil aircraft types of 40-seater or below except in special circumstances. Aircraft larger than the above category shall not plan their arrival between 0900-1559UTC. c) Aircraft shall leave nose-in position (90 deg) with the aid of aircraft tow tractors. Reverse thrust or variable pitch propellers shall not be used. Aircraft operators shall make suitable arrangements. d) PPR for aircraft not equipped with RTF. e) A subsonic jet aircraft, unless otherwise exempted, is not permitted to operate in Singapore unless it possesses a noise certificate stating that it meets the noise standards of ICAO Annex 16, Volume 1, Chapter 3, or equivalent. The noise certificate may also take the form of a suitable statement contained in another document approved by the State of Registry of the aircraft. f) Direct transit area: Overnight transit in Singapore City, TEL: (65)65956868 or (65)65423223 g) RWY 02R/20L is solely for use by Republic of Singapore Air Force (RSAF) aircraft.	

WSSS AD 2.3 OPERATIONAL HOURS						
1	<i>Aerodrome Administration:</i>					
	RWY 02L/20R and RWY 02C/20C	H24				
	RWY 02R/20L	2300-1100 SUN/MON to THU/FRI. Prior permission required from RSAF Headquarters via Changi Operations outside these hours and on public holidays.				
2	<i>Customs and Immigration</i>	H24		5	<i>ATS Reporting Office</i>	H24
3	<i>Health and Sanitation</i>	H24		6	<i>MET Briefing Office</i>	H24
4	<i>AIS Briefing Office</i>	H24		7	<i>Air Traffic Services</i>	H24

<b>WSSS AD 2.4 HANDLING SERVICES AND FACILITIES</b>		
1	<i>Cargo Handling Facilities</i>	Cargo terminals equipped with advanced storage stacker, material and pallet container handling systems, computerised cargo information, data and documentation systems. Forklift (10 tonnes), Aircraft Main Deck Loaders (27 tonnes), trailers (e.g. 20-40 containers) on hire from hauliers.
2	<i>Fuel / Oil Types</i>	JET A1 (for jet aircraft), Engine Oil - 2380, MJ02, 750, ET025. Lubricating Oil - Aeroshell 390, 750. Hydraulic Oil - Skydrol LD4, 500B4, 500B, Hyjet IV
3	<i>Fuelling Facilities / Capacity</i>	No limitation. H24 service.
4	<i>Hangar space for visiting aircraft</i>	By arrangement with SIA Engineering Company (SIAEC) or ST Aerospace Services Co. Maintenance hangars with multiple aircraft stands to accommodate up to A380 size aircraft.
5	<i>Repair facilities for visiting aircraft</i>	Major and minor maintenance and repairs for commercial aircraft up to and including A380, subject to availability of specialised equipment/spares/toolings.
6	<i>Remarks</i>	a) Marshalling Service: No pilot shall taxi an aircraft on its own into a gate/stand without the aid of a docking system or a marshaller.  b) Oxygen And Related Servicing: Oxygen for all cabin and aircraft system. No CO2 recharging facilities.

<b>WSSS AD 2.5 PASSENGER FACILITIES</b>		
1	<i>Hotels</i>	Rooms available inside transit area, adjacent to airport terminal and in the city but advisable advance booking.
2	<i>Restaurants</i>	Available in both transit and public areas.
3	<i>Transportation</i>	Buses, taxis and MRT train. Car rental service is available from 0700-2300 hrs daily
4	<i>Medical Facilities</i>	Available H24 at Airport Clinic. Ambulance. General Hospitals located at Simei (12km) and City (23km).
5	<i>Banks and Post Offices</i>	Available at airport
6	<i>Tourist Office</i>	Available at airport
7	<i>Remarks</i>	Internet address: <a href="http://www.changiairport.com.sg">http://www.changiairport.com.sg</a> for airport and flight information, shops and restaurants, facilities and services, flight connections and tourist information.

## SAFEGATE AIRCRAFT DOCKING GUIDANCE SYSTEM – SAFEDOCK

### 1. INTRODUCTION

1 The Safegate Aircraft Docking Guidance System - SAFEDOCK is a fully automatic aircraft docking guidance system installed at the fixed gates in Terminals 1, 2 and 3 of Singapore Changi Airport. There are two types of ADGS in Singapore Changi Airport, Safedock Type 1 ADGS and Safedock Type 2 ADGS.

### 2 DESCRIPTION OF SYSTEM

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

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

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

#### LED DISPLAY AND LASER SCANNING UNIT

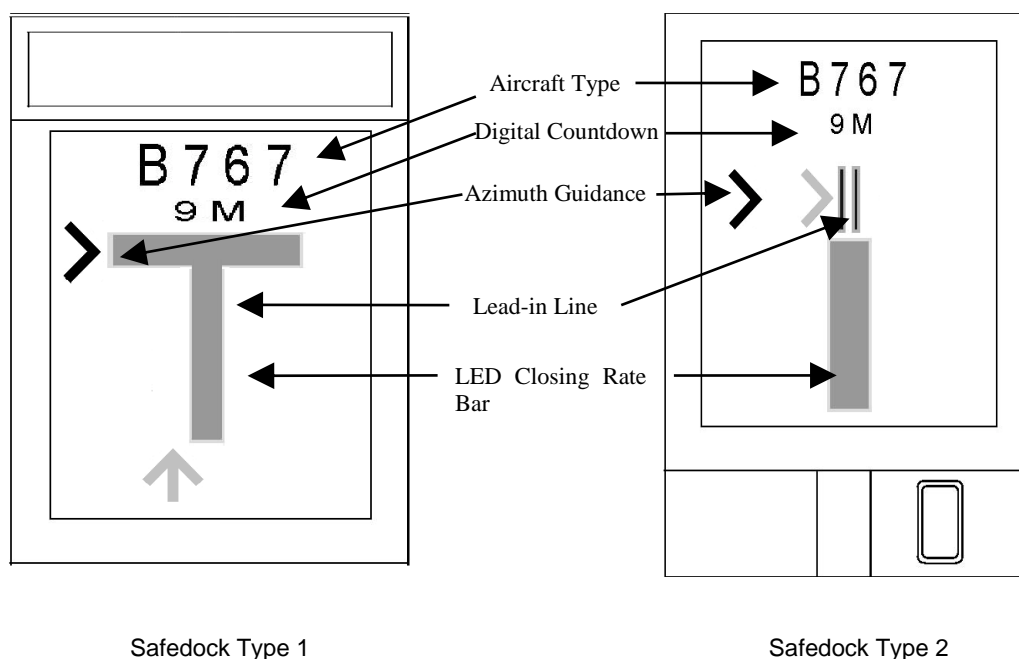


Figure A

**3. DOCKING PROCEDURES**

3.1 Check that the correct aircraft type is displayed. The scrolling arrows indicate that the system is activated (see figure 1).

3.2 Follow the lead-in line.

3.3 When the aircraft has been caught by the scanning unit, the scanning unit checks that the aircraft is the correct type and the display provides azimuth guidance information. When the solid yellow closing rate bar appears, the aircraft is being tracked by the system. (see figure 2).

3.4 Look for the flashing red arrow and solid yellow arrow which provide azimuth guidance information. The flashing red arrow shows which direction to steer, while the solid yellow arrow gives an indication of how far the aircraft is off the centreline (see figures 2 and 3).

3.5 When the aircraft is 15m from the stop position, closing rate information is given. "Distance to go" is indicated by turning off one row of LEDs (Laser Electronic Displays) for every half metre that the aircraft advances towards the stop position. From 15m to the stop position, a digital display will indicate the distance from the stop position for every 1m. At 3m from the stop position, the display will indicate the distance from the stop position for every 0.2m (see figures 3 and 4).

3.6 When the correct stop position is reached, all of the LEDs for the closing rate bar will be off, the word "STOP" will appear in the display. For Safedock Type 1 ADGS, the word "STOP" will be displayed in red with red border. For Safedock Type 2 ADGS, the word "STOP" will be displayed in yellow and two red, rectangular fields will light in the azimuth guidance area of the display (see figure 5).

3.7 If the aircraft stops in the correct position, "OK" will be displayed after a few seconds (see figure 6).

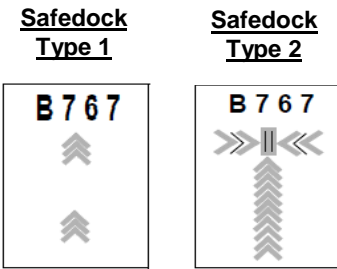


Figure 1  
System tracking for aircraft.

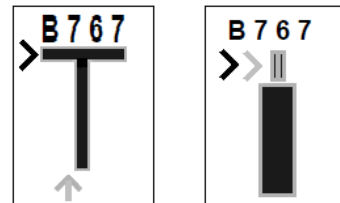


Figure 2  
Aircraft tracked by the system.  
(> depicts flashing red arrow.)  
(> or ↑ depicts solid yellow arrow.)

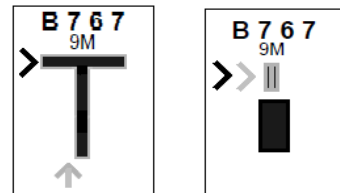


Figure 3  
LED closing rate bar starts diminishing when the aircraft is 15m from stopbar at one row for every 0.5m that the aircraft moves forward.

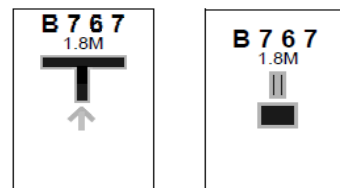


Figure 4  
LED closing rate bar getting shorter as aircraft moves nearer to stopbar.

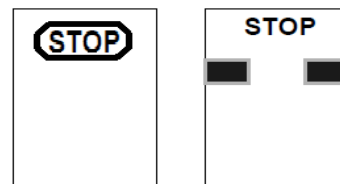


Figure 5  
Pilot to stop aircraft when "STOP" is displayed.

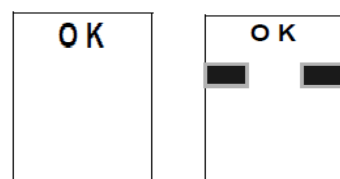


Figure 6  
Informs the pilot that everything is in order and he can shutdown engine.

3.8 If the aircraft has gone past the correct stop position, the display will show "TOO FAR" (see figure 7).

3.9 If some object is blocking the view towards the approaching aircraft or the detected aircraft is lost before 12m to the correct stop position, the system will show "WAIT" (see figure 8).

3.10 The aircraft must be identified at least 12m before the correct stop position. Otherwise, the display will show "WAIT", "STOP" and "ID FAIL" (see figures 8, 9 and 10).

**4. SAFETY MEASURES**

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

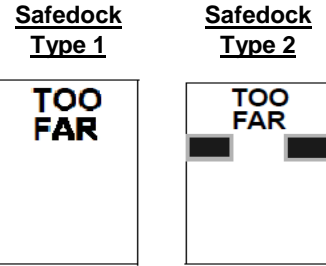
4.2 Pilot should not proceed beyond the passenger loading bridges unless the scrolling arrows (see figure 1) have been superseded by the solid yellow closing rate bar (see figure 2).

4.3 When using the docking system, pilots are to taxi into the aircraft stand at minimum speed. The system will display "SLOW" to inform the pilot if the aircraft's taxiing speed exceeded 1.2 m/s (see figure 11).

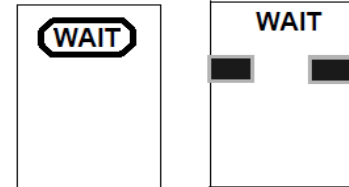
4.4 In bad weather conditions, the docking system may go into downgrade mode. The display will show the aircraft type and "SLOW" and the scrolling arrows are disabled (see figure 12). When the system has detected the aircraft, the solid yellow closing rate bar appears. Docking process is allowed to continue but pilots should exercise caution.

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

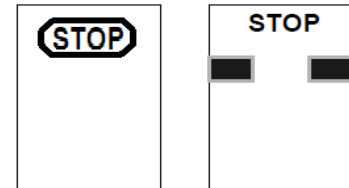
4.6 Pilot should stop the aircraft immediately if the display goes black during the docking process. The aircraft is to be marshalled into the stand manually.



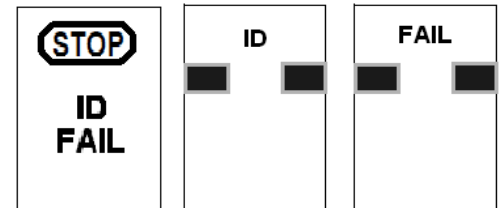
**Figure 7**  
Indicates that the aircraft has gone beyond the stopbar. Pilot to check with ground engineer on the next move.



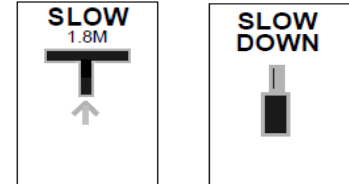
**Figure 8**  
Pilot to hold aircraft and wait for other instructions from the display.



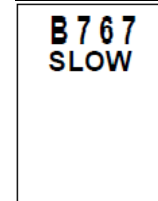
**Figure 9**  
"STOP" may appear suddenly in the process of docking. Pilot to stop immediately and wait for further instructions.



**Figure 10**  
Indicates the system fails to identify the aircraft.



**Figure 11**  
Informs the pilot that the aircraft travelling speed is too fast. Pilot to slow down the speed. Similar for both Safedock Type 1 and Type 2



**Figure 12**  
The system goes into 'downgrade' mode due to bad weather conditions, pilot will be prompted to slow down. Docking process will continue when the aircraft is detected but pilot should exercise caution.

*INTENTIONALLY*

*LEFT*

*BLANK*

APRON / ACFT STANDS	PUSHBACK PROCEDURES	PHRASEOLOGY USED BY SINGAPORE GROUND
B8	<p>The aircraft (on idle thrust) shall be pushed back:</p> <ul style="list-style-type: none"> <li>● onto TWY U1 to face South until its nosewheel is at the intersection of the aircraft stand lead-in line and TWY U1 centreline. The aircraft may breakaway from there.</li> </ul> <p><u>OR</u></p> <ul style="list-style-type: none"> <li>● onto TWY U1 to face North until its nosewheel is at the intersection of the lead-in line and TWY U1 centreline. The aircraft shall then be towed forward until its nosewheel is at the intersection of the aircraft stand B9 lead-in line and TWY U1 centreline. The aircraft may breakaway from there.</li> </ul>	<p>Pushback approved, to face South.</p> <p>Pushback approved, to face North.</p>
B9, B10	<p>The aircraft (on idle thrust) shall be pushed back onto TWY U1 until its nosewheel is at the intersection of the aircraft stand lead-in line and TWY U1 centreline. The aircraft may breakaway from there.</p>	<p>Pushback approved, to face North (or South).</p>
<b>MARS REMOTE</b>		
101, 101R	<p>The aircraft (on idle thrust) shall be pushed back to face East until its nosewheel is at the "END OF PUSH (EOP)" position. The aircraft shall then be towed forward until its nosewheel is at the "END OF TOW (EOT)" position on TWY L4 centreline. The aircraft may breakaway from there.</p>	<p>Standard pushback approved.</p>
101L	<p>The aircraft (on idle thrust) shall be pushed back onto TWY L4 centreline to face East. The aircraft shall then be towed forward along the centreline of TWY L4 until its nosewheel is at the "END OF TOW (EOT)" position. The aircraft may breakaway from there.</p>	<p>Standard pushback approved.</p>
102, 102R, 102L	<p>The aircraft (on idle thrust) shall be pushed back onto TWY L4 centreline to face East. The aircraft shall then be towed forward along the centreline of TWY L4 until the nose of the aircraft is behind the stopbar behind aircraft stand 102. The aircraft may breakaway from there.</p>	<p>Standard pushback approved.</p>
<b>EAST REMOTE</b>		
200, 201 202, 203	<p>The aircraft (on idle thrust) shall be pushed back onto TWY C6 to face North (or South).</p>	<p>Pushback approved, to face North (or South).</p>
200L	<p>The aircraft (on idle thrust) shall be pushed back:</p> <ul style="list-style-type: none"> <li>● onto Taxilane C6 centreline to face North until its nosewheel is on the end of push behind aircraft stand 200L. The aircraft may breakaway from there.</li> </ul> <p><u>OR</u></p> <ul style="list-style-type: none"> <li>● onto Taxilane C6 centreline to face South.</li> </ul>	<p>Pushback approved, to face North.</p> <p>Pushback approved, to face South.</p>
200R, 202L 202R	<p>The aircraft (on idle thrust) shall be pushed back onto Taxilane C6 centreline to face North (or South).</p>	<p>Pushback approved, to face North (or South).</p>
<b>SOUTH-EAST REMOTE</b>		
103, 104	<p>The aircraft (on idle thrust) shall be pushed back onto Taxilane L4 centreline to face East until the nose of the aircraft is behind the stopbar behind aircraft stand 102. The aircraft may breakaway from there.</p>	<p>Standard pushback approved.</p>
205, 206 207, 208	<p>The aircraft (on idle thrust) shall be pushed back onto TWY C7 to face North (or South).</p>	<p>Pushback approved, to face North (or South).</p>

APRON/ACFT STANDS	PUSHBACK PROCEDURES	PHRASEOLOGY USED BY SINGAPORE GROUND
209	The aircraft (on idle thrust) shall be pushed back to face North (or South) until its nosewheel is at the intersection of the lead-in line and TWY C7 centreline.	Pushback approved, to face North (or South).
<b><u>NORTH REMOTE</u></b>		
300, 303	The aircraft (on idle thrust) shall be pushed back: <ul style="list-style-type: none"> <li>• facing West until its nosewheel is at the intersection of the lead-in line and taxiway centreline.</li> </ul> <u>OR</u> <ul style="list-style-type: none"> <li>• facing East until its nosewheel is at the intersection of the lead-in line and taxiway centreline.</li> </ul>	Pushback approved, to face West.  Pushback approved, to face East.
301, 304 305	The aircraft (on idle thrust) shall be pushed back to face East (or West) until its nosewheel is at the intersection of the lead-in line and the taxiway centreline.	Pushback approved, to face East (or West).
302, 306	The aircraft (on idle thrust) shall be pushed back: <ul style="list-style-type: none"> <li>• to face East until its nosewheel is at the intersection of the lead-in line and the taxiway centreline.</li> </ul> <u>OR</u> <ul style="list-style-type: none"> <li>• to face West until its nosewheel is at the intersection of the lead-in line and TWY A6 centreline.</li> </ul>	Pushback approved, to face East.  Pushback approved, to face West.
307, 308 309, 310	The aircraft (on idle thrust) shall be pushed back to face East (or West) until its nosewheel is at the intersection of the lead-in line and TWY NC2 centreline.	Pushback approved, to face East (or West).
<b><u>NORTH-EAST REMOTE</u></b>		
400, 401, 402 403, 404	The aircraft (on idle thrust) shall be pushed back to face North (or South) until its nosewheel is at the intersection of the lead-in line and TWY A6 centreline.	Pushback approved, to face North (or South).
<b><u>WEST CARGO</u></b>		
502	The aircraft (on idle thrust) shall be pushed back to face North (or South). The aircraft may breakaway from here. There shall be no simultaneous pushback of aircraft unless with two aircraft stands separation.	Pushback approved, to face North (or South).
503, 504 505, 506	The aircraft (on idle thrust) shall be pushed back to face North (or South).	Pushback approved, to face North (or South).
507, 508	The aircraft (on idle thrust) shall be pushed back to face South.	Standard pushback approved
509	The aircraft (on idle thrust) shall be pushed back to face South until its nosewheel is at the intersection of the pushback line and TWY WC centreline.	Standard pushback approved
<b><u>EAST CARGO</u></b>		
601, 602	The aircraft (on idle thrust) shall be pushed back to face South until its nosewheel is at the intersection of the lead-in line and taxilane EA centreline.	Standard pushback approved
603	The aircraft (on idle thrust) shall be pushed back to face South until its nosewheel is at the intersection of the lead-in line and taxilane EA centreline. The aircraft shall then be towed forward along the centreline of taxilane EA till its nosewheel is on the "END OF TOW" marking behind aircraft stand 602.	Standard pushback approved
604	The aircraft (on idle thrust) shall be pushed back to face South until its nosewheel is at the position of "END OF PUSH". The aircraft shall then be towed forward along the centreline of taxilane EA till its nosewheel is on the "END OF TOW" marking behind aircraft stand 602.	Standard pushback approved



WSSS AD 2.11 METEOROLOGICAL INFORMATION PROVIDED		
1	<i>Associated MET Office</i>	Singapore Changi (WSSS)
2	<i>Hours of service</i>	H24
3	<i>Office responsible for TAF preparation Periods of validity</i>	Singapore Changi (WSSS) 12, 30
4	<i>Type of landing forecast, Interval of issuance</i>	TREND
5	<i>Briefing/consultation provided</i>	P
6	<i>Flight documentation, Language used</i>	Charts or Tabular forms, English
7	<i>Charts and other information available for briefing or consultation</i>	S, U, P
8	<i>Supplementary equipment available for providing information</i>	HRPT: High Resolution Picture Transmission APT: Automatic Picture Transmission MDWR: MET Doppler Weather Radar MAINT: Second WED of every month BTN 0200-0900 ALTN period: THU following the second WED.
9	<i>ATS units provided with information</i>	Singapore ACC, Singapore RCC
10	<i>Additional information</i>	TEL: 65422837 (MET Office)

WSSS AD 2.12 RUNWAY PHYSICAL CHARACTERISTICS					
<i>Designations RWY NR</i>	<i>TRUE BRG</i>	<i>Dimensions of RWY (m)</i>	<i>Strength (PCN) and surface of RWY and SWY</i>	<i>THR coordinates (THR Geoid Undulation)</i>	<i>THR elevation and highest elevation of TDZ of precision approach RWY</i>
1	2	3	4	5	6
02L	023.02°	4 000 x 60	72/F/B/W/U Bituminous concrete	012056.26N 1035838.83E (10.29m)	6.66m 6.23m
20R (Displaced THR)	203.02°	3 260 x 60	72/F/B/W/U Bituminous concrete	012233.95N 1035920.06E (10.29m)	4.01m 4.31m
02C	023.03°	4 000 x 60	72/F/B/W/U Bituminous concrete	011943.51N 1035905.86E (10.28m)	4.32m 4.52m
20C	203.03°	4 000 x 60	72/F/B/W/U Bituminous concrete	012143.37N 1035956.46E (10.28m)	4.58m 4.56m
02R	023°	2 750 x 60	72/F/B/W/U Asphalt	011958.05N 1040015.26E	-
20L	203°	2 750 x 60	72/F/B/W/U Asphalt	012120.45N 1040050.05E	-

Note: RWY 02R/20L is used solely by the Republic of Singapore Air Force (RSAF) aircraft.

<b>WSSS AD 2.12 RUNWAY PHYSICAL CHARACTERISTICS (continued)</b>					
<i>Slope of RWY-SWY Transverse / Longitudinal</i>	<i>SWY Dimensions (m)</i>	<i>CWY Dimensions (m)</i>	<i>STRIP Dimensions (m)</i>	<i>OFZ</i>	<i>Remarks</i>
7	8	9	10	11	12
RWY 02L 0.76 / 0.24%	60 X 60	270 X 150	4 240 X 300	Yes	Scheduled closure of runways (see below)
RWY 20R 1.45 / 0.25%	60 X 60	270 X 150	4 240 X 300		
RWY 02C 1.50 / 0.03%	60 X 60	270 X 150	4 240 X 300		
RWY 20C 1.38 / 0.07%	60 X 60	270 X 150	4 240 X 300		
RWY 02R	150 X 60	-	3 050 X 300	-	Hookwire cable installed 450m (1476ft) from the southern THR and 457m (1500ft) from the northern THR.
RWY 20L	150 X 60	-	3 050 X 300	-	

Remarks (continued from above)	
<b>Scheduled Closure of RWY 02L/20R</b>	
1a)	BTN 1700-2300 on first FRI, third MON and third WED of every month ( <i>preventive maintenance work</i> ). In the event of an emergency, RWY will be re-opened within 30 minutes.
1b)	BTN 0225-0240 0630-0635 1000-1005 2300-2305 daily ( <i>inspection</i> ). In the event of an emergency, RWY will be re-opened within 5 minutes.
1c)	BTN 1745-1915 daily ( <i>maintenance</i> ). In the event of an emergency, RWY will be re-opened in 30 minutes.
<b>Scheduled Closure of RWY 02C/20C</b>	
2a)	BTN 1700-2300 on second FRI, fourth MON and fourth WED of every month ( <i>preventive maintenance work</i> ). In the event of an emergency, RWY will be re-opened within 30 minutes.
2b)	BTN 0300-0315 0650-0655 1020-1025 1720-1730 2320-2325 daily ( <i>inspection</i> ). In the event of emergency, RWY will be re-opened within 5 minutes.
2c)	BTN 1930-2100 daily ( <i>maintenance</i> ). In the event of emergency, RWY will be re-opened in 30 minutes.

### 13. TAKE-OFF AND LANDING

13.1 Departing aircraft will normally be directed by ATC to use the full length of the runway for take-off. On obtaining an ATC clearance the aircraft shall enter the runway via designated taxiways:

- RWY 02C - TWY E10 or E11
- RWY 02L - TWY W8, W9 or W10
- RWY 20C - TWY E1, E2
- RWY 20R - TWY W1, W2

13.2 The pilot-in-command shall not take-off or land without a clearance from Aerodrome Control.

13.3 The pilot-in-command shall not run-up on the runway in use unless authorised by Aerodrome Control. Engine run-ups in the holding pan or taxiway holding point clear of the runway in use may be carried out subject to approval by Aerodrome Control.

13.4 After landing, the pilot-in-command shall vacate the runway by the shortest suitable route and to contact Ground Control who will issue specific taxi route instructions to its assigned aircraft stand.

13.5 Aircraft with radio communication failure shall vacate the runway and stop on the taxiway and watch for light signals from Aerodrome Control.

### 14. ARRIVING AIRCRAFT

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

### 15. LIGHT AIRCRAFT OPERATIONS

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

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

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

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

## WSSS AD 2.23 ADDITIONAL INFORMATION

### 1. BIRD CONCENTRATION IN THE VICINITY OF THE AIRPORT

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

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

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

<b>WSSS AD 2.24 CHARTS RELATED TO SINGAPORE CHANGI AIRPORT</b>	
Location of RWY 02R/20L in relation to RWY 02L/20R and RWY 02C/20C	WSSS AD 2-29
Aerodrome Chart - ICAO	WSSS AD 2-31
Aerodrome Advisory Chart	WSSS AD 2-33
Aerodrome Obstacle Chart - ICAO - TYPE A - RWY 02L/20R	WSSS AD 2-37
Aerodrome Obstacle Chart - ICAO - TYPE A - RWY 02C/20C	WSSS AD 2-39
Aerodrome Obstacle Chart - ICAO - TYPE B	WSSS AD 2-41
Precision Approach Terrain Chart - ICAO - RWY 02L	WSSS AD 2-43
Precision Approach Terrain Chart - ICAO - RWY 20C	WSSS AD 2-45
RNAV <sub>(GNSS)</sub> SIDs and STARs - Introduction	WSSS AD 2-47 to 2-50
Continuous Descent Operation (CDO) for Arrivals into Singapore Changi Airport	WSSS AD 2-50-1/4
RNAV <sub>(GNSS)</sub> SID - RWY 02L/20R - ANITO 5E / ANITO 4F	WSSS AD 2-51 to 2-52
RNAV <sub>(GNSS)</sub> SID - RWY 02C/20C - ANITO 5A / ANITO 4B	WSSS AD 2-53 to 2-54
RNAV <sub>(GNSS)</sub> SID - RWY 02L/20R - BOBAG 1E / BOBAG 1F	WSSS AD 2-55 to 2-56
RNAV <sub>(GNSS)</sub> SID - RWY 02C/20C - BOBAG 1A / BOBAG 1B	WSSS AD 2-57 to 2-58
RNAV <sub>(GNSS)</sub> SID - RWY 02L/20R - TOMAN 1E / TOMAN 1F	WSSS AD 2-63 to 2-64
RNAV <sub>(GNSS)</sub> SID - RWY 02C/20C - TOMAN 1A / TOMAN 1B	WSSS AD 2-65 to 2-66
RNAV <sub>(GNSS)</sub> SID - RWY 02L/20R - VENPA 1E / VENPA 1F	WSSS AD 2-67 to 2-68
RNAV <sub>(GNSS)</sub> SID - RWY 02C/20C - VENPA 1A / VENPA 1B	WSSS AD 2-69 to 2-70
<b>RNAV<sub>(GNSS)</sub> SID - RWY 02L/20R - AROSO 1E / AROSO 1F</b>	<b>WSSS AD 2-71 to 2-72</b>
<b>RNAV<sub>(GNSS)</sub> SID - RWY 02L/20R - MASBO 1E / MABSO 1F</b>	<b>WSSS AD 2-71-1 to 2-72-1</b>
<b>RNAV<sub>(GNSS)</sub> SID - RWY 02C/20C - AROSO 1A / AROSO 1B</b>	<b>WSSS AD 2-73 to 2-74</b>
<b>RNAV<sub>(GNSS)</sub> SID - RWY 02C/20C - MASBO 1A / MABSO 1B</b>	<b>WSSS AD 2-73-1 to 2-74-1</b>
<b>RNAV<sub>(GNSS)</sub> SID - RWY 02L/20R - MERSING 4E / MERSING 5F</b>	<b>WSSS AD 2-75 to 2-76</b>
<b>RNAV<sub>(GNSS)</sub> SID - RWY 02C/20C - MERSING 4A / MERSING 5B</b>	<b>WSSS AD 2-77 to 2-78</b>
RNAV <sub>(GNSS)</sub> STAR - RWY 02L/02C - BOBAG 1A	WSSS AD 2-81 to 2-82
RNAV <sub>(GNSS)</sub> CDO - RWY 02L - BOBAG 1K	WSSS AD 2-81-1 to 2-82-1
RNAV <sub>(GNSS)</sub> STAR - RWY 20R/20C - BOBAG 1B	WSSS AD 2-83 to 2-84
RNAV <sub>(GNSS)</sub> CDO - RWY 20R - BOBAG 1L	WSSS AD 2-83-1 to 2-84-1
RNAV <sub>(GNSS)</sub> STAR - RWY 02L/02C - LAVAX 1A	WSSS AD 2-85 to 2-86
RNAV <sub>(GNSS)</sub> CDO - RWY 02L - LAVAX 1K	WSSS AD 2-85-1 to 2-86-1/2
RNAV <sub>(GNSS)</sub> STAR - RWY 20R/20C - LAVAX 1B	WSSS AD 2-87 to 2-88
RNAV <sub>(GNSS)</sub> CDO - RWY 20R - LAVAX 1L	WSSS AD 2-87-1 to 2-88-1/2
RNAV <sub>(GNSS)</sub> STAR - RWY 20R/20C - LELIB 2B	WSSS AD 2-89 to 2-90
RNAV <sub>(GNSS)</sub> STAR - RWY 02L/02C - PASPU 1A	WSSS AD 2-91 to 2-92
RNAV <sub>(GNSS)</sub> CDO - RWY 02L - PASPU 1K	WSSS AD 2-91-1 to 2-92-1/2
RNAV <sub>(GNSS)</sub> STAR - RWY 20R/20C - PASPU 1B	WSSS AD 2-93 to 2-94
RNAV <sub>(GNSS)</sub> CDO - RWY 20R - PASPU 1L	WSSS AD 2-93-1 to 2-94-1/2
RNAV <sub>(GNSS)</sub> STAR - RWY 02L/02C - REMES 5A	WSSS AD 2-97 to 2-98
RNAV <sub>(GNSS)</sub> CDO - RWY 02L - REMES 1K	WSSS AD 2-97-1 to 2-98-1
RNAV <sub>(GNSS)</sub> STAR - RWY 20R/20C - REMES 6B	WSSS AD 2-99 to 2-100
RNAV <sub>(GNSS)</sub> CDO - RWY 20R - REMES 1L	WSSS AD 2-99-1 to 2-100-1
Instrument Approach Chart - ICAO - RWY 02L - ICW ILS/DME	WSSS AD 2-101
Instrument Approach Chart - ICAO - RWY 02C - ICE ILS/DME	WSSS AD 2-103
Instrument Approach Chart - ICAO - RWY 02C - VTK DVOR/DME	WSSS AD 2-105
Instrument Approach Chart - ICAO - RWY 02R - ICX ILS/DME	WSSS AD 2-107
Instrument Approach Chart - ICAO - RWY 20R - ICH ILS/DME	WSSS AD 2-109
Instrument Approach Chart - ICAO - RWY 20C - ICC ILS/DME	WSSS AD 2-111
Instrument Approach Chart - ICAO - RWY 20C - VTK DVOR/DME	WSSS AD 2-113
Instrument Approach Chart - ICAO - RWY 20L - ICZ ILS/DME	WSSS AD 2-115
Instrument Approach Chart - ICAO - RWY 02L - RNAV <sub>(GNSS)</sub>	WSSS AD 2-117
Instrument Approach Chart - ICAO - RWY 20R - RNAV <sub>(GNSS)</sub>	WSSS AD 2-119
Visual Approach Chart - ICAO	WSSS AD 2-121

**AERODROME CHART - ICAO**

01° 21' 33"N  
103°59' 22"E

**AERODROME ELEVATION 6.66m**

TWR 118.6 / 118.25  
GND 124.3  
DELIVERY 121.65

**SINGAPORE/SINGAPORE CHANGI**

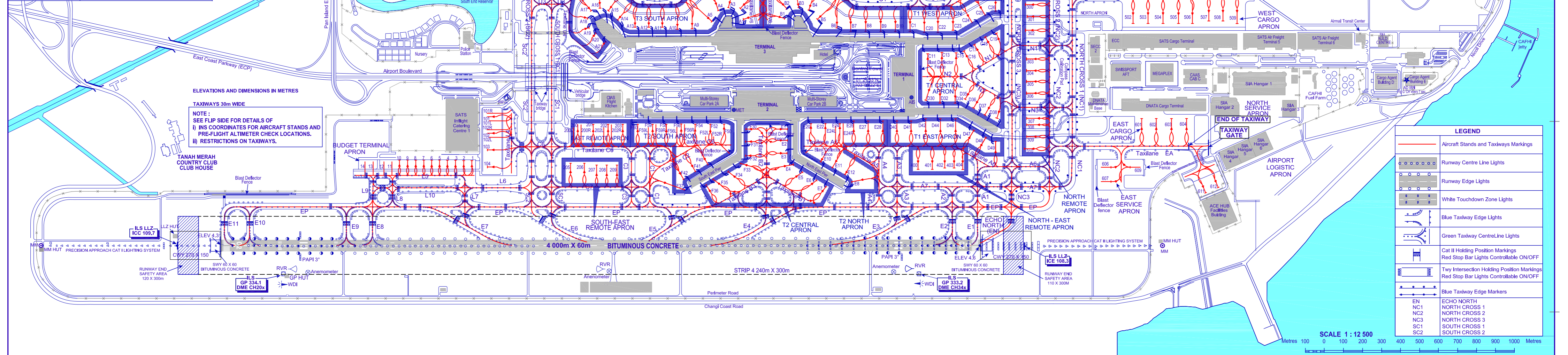
PAPI 3° (MEHT)*				
Pilot's eye height over the threshold when the following PAPI lights come into view.	RUNWAY			
	02L	20R	02C	20C
2 White lights and 2 red lights	20.6m	20.0m	20.4m	20.4m
3 White lights and 1 red light	23.1m	22.6m	23.1m	23.1m
4 White lights	25.6m	25.0m	25.5m	25.5m

\* 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	GEOD 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	All runways and taxiways
20C	203°	01 21 43.37N 103 59 56.46E	10.28m	

APRONS	BEARING STRENGTH
	PCN 71/R/B/W/U

ANNUAL CHANGE NEGLIGIBLE  
VAR 27E (2010)



ELEVATIONS AND DIMENSIONS IN METRES  
TAXIWAYS 30m WIDE  
NOTE:  
i) INS COORDINATES FOR AIRCRAFT STANDS AND PRE-FLIGHT ALTIMETER CHECK LOCATIONS.  
ii) RESTRICTIONS ON TAXIWAYS.

LEGEND	
	Aircraft Stands and Taxiway Markings
	Runway Centre Line Lights
	Runway Edge Lights
	White Touchdown Zone Lights
	Blue Taxiway Edge Lights
	Green Taxiway Centre Line Lights
	Cat II Holding Position Markings
	Red Stop Bar Lights Controllable ON/OFF
	Twy Intersection Holding Position Markings
	Red Stop Bar Lights Controllable ON/OFF
	Blue Taxiway Edge Markers
EN	ECHO NORTH
NC1	NORTH CROSS 1
NC2	NORTH CROSS 2
NC3	NORTH CROSS 3
SC1	SOUTH CROSS 1
SC2	SOUTH CROSS 2

SCALE 1 : 12 500  
Metres 100 0 100 200 300 400 500 600 700 800 900 1000 Metres



<b>WSSL AD 2.8 APRONS, TAXIWAYS AND CHECK LOCATIONS/POSITIONS DATA</b>		
1	<i>Apron surface and strength</i>	Surface: Bituminous concrete (aircraft stand C7) Strength: PCN47/F/C/X/U Surface: Concrete (all other aircraft stands) Strength: PCN45/R/C/W/U
2	<i>Taxiway width, surface and strength</i>	Width: 23m (75.5ft), 18m (59.1ft) TWY EC4 8m (26.2ft) TWY WS1 and WS2 Surface: Bituminous concrete Strength: PCN47/F/C/X/U
3	<i>Remarks</i>	

<b>WSSL AD 2.9 SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS</b>		
1	<i>Use of aircraft stand ID signs, TWY guidelines and visual docking/parking guidance system of aircraft stands</i>	Taxiing guidance signs at all intersections with TWY and RWY at all holding positions. Guidelines at apron. Nose-in guidance at aircraft stands.
2	<i>RWY and TWY markings and LGT</i>	
<p><u>RWY LGT:</u> refer to page WSSL AD 2-5 for details. RWY Turn Pad LGT / Markings: Only AVBL at THR RWY 03. Yellow turnpad centreline.</p> <p><u>TWY LGT:</u> TWY Edge LGT: Blue LGT, inset, elevated and omni-directional. TWY markings: Yellow TWY centreline.</p> <p><u>MARKING AIDS:</u> Threshold, touchdown zone, centre line stripes and RWY designation. RWY width outline from bituminous concrete surface by white lines.</p> <p><u>AIMING POINT MARKINGS:</u> RWY 03: coincident with PAPI origin located 311.6m from THR respectively. RWY 21: coincident with PAPI origin located 232.8m from THR respectively.</p>		
3	<i>Stop Bars: Red LGT across taxiways W1, W2, W3, E2, E3 and E4, flushed with TWY surface.</i>	

<b>WSSL AD 2.9 SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS</b>	
<b>4</b>	<b>Remarks</b>
	<p>a) Aircraft operators/ground handlers shall be responsible for the safe and smooth operations of aircraft at the aircraft stands.</p> <p>b) To enhance airside safety, all aircraft larger than Code A (i.e. up to but not including 15m wingspan) shall be marshalled into the aircraft stands.</p> <p>c) Arriving aircraft will be assigned an aircraft stand. A ground handler shall marshal the aircraft into the aircraft stand.</p> <p>d) A ground handler shall be at the aircraft stand when the aircraft is ready to depart. When the pilot signals that he is ready to taxi, the ground handler shall ensure that the area around the aircraft is clear before marshalling the aircraft out of the aircraft stand.</p> <p>e) Only Code A aircraft, Code B aircraft, aircraft type Global Express, Global 5000, Global Express XRS, Fokker 50, Fokker 100, Gulfstream 500, Gulfstream 550, ATR 72-500, DASH 7 and Falcon 7X are allowed to self-power out from aircraft stands C1, C2, C3, C4, C5 and C6.</p> <p>f) Aircraft at stand C1 shall self-power out towards the north only.</p> <p>g) Aircraft at stand C6 shall self-power towards the south only.</p> <p>h) Aircraft at stands C2, C3, C4 and C5 are allowed to self-power out towards the south or the north.</p> <p>i) Aircraft can self-power in from the north as well as the south via TWY WA.</p> <p>j) All personnel, tow tugs and equipment shall be cleared from the aircraft stand and red chevron markings on the adjacent aircraft stands before self-power out can commence.</p> <p>k) Aircraft with wingspan larger than 28.35m are not allowed to park at aircraft stand C7. Refuelling will not be allowed at aircraft stand C7.</p>



WSSL AD 2.12 RUNWAY PHYSICAL CHARACTERISTICS							
Designations RWY NR	TRUE BRG	Dimensions of RWY (m)	Strength (PCN) and Surface of RWY and SWY	THR coordinates (THR GEOID Undulation)	THR Elevation	RWY End Elevation	Highest Elevation of Touchdown Zone
1	2	3	4	5	6	7	8
03	033.33°	1836 x 46	47/F/C/X/U Bituminous concrete	012430.845N 1035143.792E (24m)	14m	5m	13m
21	213.33°	1836 x 46	47/F/C/X/U Bituminous concrete	012520.789N 1035216.425E (15m)	5m	14m	10m
CWY Dimensions		STRIP Dimensions (m)		OFZ	Remarks (continued below)		
9		10		11	12		
60m X 150m		1956m X 150m		Not applicable	RESA RWY 03 - 90m X 92m RESA RWY 21 - 240m X 92m		

12	Remarks:
<b>Scheduled closure periods for RWY 03/21</b>	
a) BTN 1600-2300 first FRI of EV month or second FRI if the first FRI is a public holiday. RWY CLSD to all TFC except medivac and EMERG flights. Advance notice of 30 minutes is required for EMERG opening of RWY.	
b) BTN 0500-0515, 1030-1045, 1600-1615 and 2300-2315 daily for RWY inspection. Aircraft to expect delay.	
c) BTN 1600-1800 EV TUE and FRI of EV month. RWY CLSD to all TFC except medivac and EMERG flights. Advance notice of 30 minutes is required for EMERG opening of RWY.	
<b>Runway turn pad</b>	
a) A lighted turn pad with centreline marking is provided at the threshold of RWY 03 which is able to serve aircraft up to B757-200.	

WSSL AD 2.13 DECLARED DISTANCES					
RWY Designator	TORA (m)	TODA (m)	ASDA (m)	LDA (m)	Remarks
1	2	3	4	5	6
03	1 836	1 896	1 836	1 836	
21	1 836	1 896	1 836	1 836	

WSSL AD 2.14 APPROACH AND RUNWAY LIGHTING								
RWY Designator	APCH LGT Type LEN INTST	THR LGT Colour WBAR	VASIS (MEHT) PAPI	TDZ LGT LEN	RWY CL LGT,LEN spacing, Colour, INTST	RWY Edge LGT LEN, spacing Colour, INTST	RWY End LGT Colour WBAR	SWY LGT LEN Colour
1	2	3	4	5	6	7	8	9
03	Simple APCH LGT consisting of 4 rows of barettes of 3 LGT each and 1 crossbar of 13 LGT. White, elevated, uni-directional APCH LGT and white, omni-directional CGL on top of elevated APCH LGT.	Green with THR IDENT LGT	PAPI 3°(both sides of RWY) 2 white 2 red LGT (17.720m) 3 white 1 red LGT (20.323m) 4 white LGT (22.927m). ACFT with eye-to-wheel HGT greater than 6.3m are ADZ to fly with 2 white 2 red LGT visible so as to achieve sufficient wheel CLR.	Nil	Nil	White with yellow on last 600m of either end. Elevated, omni-directional and brilliancy controlled.	Red	Nil
21	APCH LGT consisting of 1 row of inset APCH LGT of 4 LGT and 4 rows of barettes of 4 LGT each. White, inset uni-directional APCH LGT and white, omni-directional CGL on top of White, elevated uni-directional APCH LGT.	Green with THR IDENT LGT	PAPI 3.5°(both sides of RWY) 2 white 2 red LGT (17.720m) 3 white 1 red LGT (19.286m) 4 white LGT (20.871m). ACFT with eye-to-wheel HGT greater than 6.3m are ADZ to fly with 2 white 2 red LGT visible so as to achieve sufficient wheel CLR.	Nil	Nil	White with yellow on last 600m of either end. Elevated, omni-directional and brilliancy controlled.	Red	Nil
RWY 21 THR and RWY END LGT symmetrically disposed in 2 groups with a gap between the groups. RWY 21 THR and RWY END LGT reinstated to inset fitting.								

<b>WSSL AD 2.15 OTHER LIGHTING, SECONDARY POWER SUPPLY</b>		
1	<i>ABN/IBN location, characteristics and hours of operation</i>	<p><u>ABN</u>: 012448.001N 1035207.961E (on top of Control Tower) ALTN FLG W G EV 2.5 SEC HN and IMC</p> <p><u>IBN</u>: 012459.52N 1035155.84E (on top of West Substation) Flashing G 'SL' repeatedly HN and IMC</p>
2	<i>LDI location and LGT Anemometer location and LGT</i>	Cup anemometers and wind vanes and windsocks at ends of RWY.
3	<i>TWY edge and centre line marking</i>	TWY Edge LGT: Blue, elevated and omni-directional TWY Centreline Marking: Yellow
4	<i>Secondary power supply/ switch-over time</i>	Automatic standby generator power supply available for airfield lighting.
5	<i>Remarks</i>	Vehicles painted yellow or displaying checkered red/white or orange/white flag at highest point of vehicle. WDI lighted.

<b>WSSL AD 2.16 HELICOPTER LANDING AREA</b>	
See charts WSSL AD 2-13 and WSSL AD 2-15	

<b>WSSL AD 2.17 ATS AIRSPACE</b>		
1	<i>Designation and Lateral Limits</i>	<p><b>SELETAR CTR</b> 012703N 1035009E 012825N 1035009E 012900N 1035425E 012534N 1035454E thence along international boundary to 012556N 1035326E 012227N 1035158E 012232N 1035016E 012327N 1034922E 012607N 1035053E and thence an arc of 2NM radius (centred at position 012527N 1034856E) joining 012607N 1035053E and 012703N 1035009E</p> <p><b>SELETAR CONTROL ZONE 'A'</b> Portion of Seletar CTR within Singapore FIR is known as Seletar CTR 'A'.</p> <p><b>SELETAR CONTROL ZONE 'B'</b> The part in the Kuala Lumpur FIR is known as Seletar CTR 'B' and is bounded by 012825N 1035009E, 012900N 1035425E, 012534N 1035454E thence along the Peninsular Malaysia/Singapore international boundary to 012808N 1035010E to 012825N 1035009E from GND/sea level to 3,000ft. It will be activated only with prior approval of Johor Bahru ATC. (see chart WSSL AD 2-33).</p>
2	<i>Vertical Limits</i>	SFC to 3,000ft ALT
3	<i>Airspace Classification</i>	C
4	<i>ATS Unit Call sign Language(s)</i>	Seletar Tower English
5	<i>Transition Altitude</i>	11,000ft (3,350m)
6	<i>Remarks</i>	Nil

### 3. WRONG APPROACHES AND LANDINGS OF AIRCRAFT BOUND FOR SELETAR AERODROME AND SEMBAWANG MILITARY AERODROME

#### 3.1 INTRODUCTION

- 3.1.1 The attention of all pilots is drawn to the existence of RSAF Sembawang Aerodrome, 3NM to the west of Seletar Aerodrome. The runway at Sembawang is orientated in almost the same direction as the runway at Seletar Aerodrome i.e. 03/21 for Seletar Aerodrome and 05/23 for Sembawang. Due to the close proximity of these two runways, pilots are cautioned against mistaking Sembawang Aerodrome for Seletar Aerodrome and thus making an inadvertent visual landing or approach to land at Sembawang.
- 3.1.2 Erroneous approaches or landings usually occurred in marginal weather conditions. In almost every instance, the prevailing weather at the time of the incident contributed towards a hasty and erroneous identification of the correct aerodrome.
- 3.1.3 There is intensive local flying at both aerodromes during the day and night. As pilot training is the major activity at both aerodromes, the risk of collision is very great if a wrong approach or landing is made at either of the two aerodromes.

#### 3.2 POINTS TO BEAR IN MIND WHEN APPROACHING SELETAR AD OR SEMBAWANG AD

- 3.2.1 The following points are highlighted to serve as a guide to assist pilots in identifying Seletar AD or Sembawang AD and should be remembered and followed:
- The runways at Seletar and Sembawang are almost identically aligned. Extra vigilance, therefore, is required when approaching either aerodrome, or when commencing an approach to land.
  - Make full use of available navigational and landing aids, and positively identify each aid used.
  - Adhere strictly to the joining instructions issued by ATC.

#### 3.3 AERODROME CHARACTERISTICS OF SELETAR AND SEMBAWANG AERODROMES

Aeronautical Service	Seletar AD	Sembawang AD	Significant Differences and Remarks
RWY Designation	03/21	05/23	Exercise caution due to almost similar RWY alignment
Location	Adjacent to the Straits of Johor on the eastern bank of Seletar River. Seletar AD is situated APRX 3NM NW of Paya Lebar AP.	APRX 3NM west of Seletar AD and 3NM inland from the Straits of Johor	Seletar RWY commences almost from the edge of the shore. Also note that Sembawang AD is inland and not next to the sea.
RWY LGT	White/Amber RWY edge LGT	Nil	Sembawang AD has no RWY LGT
Approach LGT	Simple approach LGT available for RWY 03 approach, consisting of 4 rows of barettes and 1 crossbar (5th row). <u>RWY 03</u> - white, elevated, uni-directional approach LGT and white, omni-directional CGL on top of elevated approach LGT. Approach LGT available for RWY 21 approach, consisting of 1 row of inset approach LGT (1st row) and 4 rows of barettes. <u>RWY 21</u> - white, inset and elevated, uni-directional approach LGT and white, omni-directional CGL on top of elevated approach LGT.	Nil	No visual approach slope indicator at Sembawang AD
IBN	Flashing Green 'SL'	Flashing R 'AG' EV 20 SEC HN and IMC	Nil
ABN	ALTN Flashing W G EV 2.5 SEC	Nil	Sembawang AD has no ABN
Parking Apron	Relatively large aircraft parking apron to the west of RWY, connected to the RWY by three taxiways	Small aircraft parking apron	Differences in size and location of the parking apron

## WSSL AD 2.21 NOISE ABATEMENT PROCEDURES

- 1.1 To alleviate the problem of noise, all aircraft on AWY G579 between Sinjon (SJ) and Jaybee (JB) shall operate at/above 5,000ft.
- 1.2 Aircraft are restricted from overflying built-up residential areas around Seletar AP (refer to charts WSSL AD 2-21, WSSL AD 2-23, WSSL AD 2-25 and WSSL AD 2-27) at an altitude of below 1,500ft. Aircraft types which are unable to safely manoeuvre clear of the built-up residential areas are not allowed to operate at Seletar AP.
- 1.3 Freighter flights are not permitted between 1400-2300.
- 1.4 No engine run up shall be permitted between 1400-2300.

## WSSL AD 2.22 FLIGHT PROCEDURES

### 1. PROCEDURES FOR ARRIVALS INTO SELETAR AERODROME

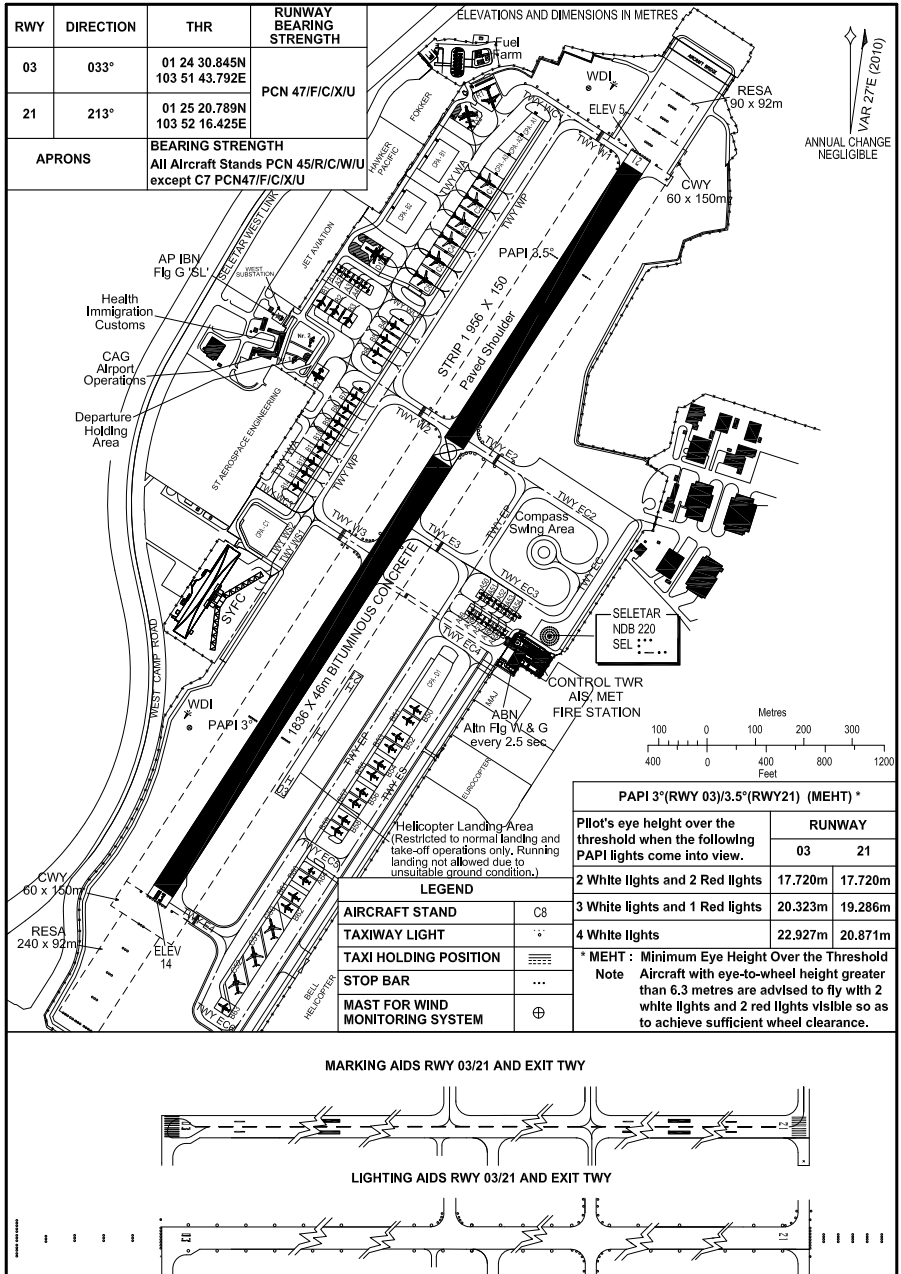
#### 1.1 Introduction

- 1.1.1 Aircraft on VFR flight plan, routing via East of JB Town to Seletar shall follow the joining procedures as described in paragraph 1.2 and illustrated in charts WSSL AD2-21, WSSL AD2-23 and WSSL AD2-33.
- 1.1.2 Aircraft returning from Light Aircraft Training Areas shall follow the joining procedures as described in paragraph 1.3 and illustrated in charts WSSL AD2-21 and WSSL AD2-23.
- 1.1.3 Aircraft on IFR flight plan, routing via JB or KK to Seletar shall be vectored under radar for a visual approach. Paya Lebar Approach shall provide the radar service. When Paya Lebar Approach is closed, Singapore Approach shall provide the service. Unless authorised by ATC, pilots shall follow the joining procedures as described in paragraph 1.4 and 1.5. The joining procedures are illustrated in charts WSSL AD2-25, WSSL AD2-27, WSSL AD2-35 and WSSL AD2-37.
- 1.1.4 When within 5km of the aerodrome reference point, aircraft are to fly; at a manoeuvring speed of not more than 170kt unless otherwise authorised by ATC. All aircraft are required to keep well clear of Sembawang ATZ and Paya Lebar CTR.
- 1.1.5 Circuit traffic already downwind shall have priority. Arriving aircraft shall position and sequence itself accordingly, unless directed otherwise by ATC.
- 1.1.6 Pilots shall not fly east of the runway. This is due to tall buildings up to 90m (296ft) AMSL to the east of Seletar CTR (the location is depicted in charts WSSL AD2-21 to WSSL AD2-27).

#### 1.2 Joining Procedures for VFR flights from East of JB Town

- 1.2.1 Aircraft on VFR flight plan joining Seletar CTR from East of JB Town are to descend to altitude cleared by ATC. From East of JB Town descend in VMC to altitude cleared by ATC and proceed to POINT 'X' (located 012830N 1034954E or radial 297/7DME from PU DVOR/DME) keeping clear of WMP228 and then direct to overhead the airfield.
- 1.2.2 When overhead the airfield, the joining aircraft shall make a turn overflying the runway and after passing abeam the Control Tower, commence descent as cleared to cross the upwind end of the runway at 1,500ft. Passing over the end of the runway, descend to circuit altitude as cleared by ATC. Pilots shall ensure to keep clear of Sembawang ATZ and Paya Lebar CTR and not to fly east of the runway. This is to keep clear of tall buildings up to 90m AMSL to the east of Seletar CTR. The area where the tall buildings are located is indicated in the Seletar Visual Approach Charts WSSL AD 2-21 to WSSL AD 2-27. Procedures are illustrated in the following charts:
  - i) WSSL AD 2-21: VAC - RWY 03
  - ii) WSSL AD 2-23: VAC - RWY 21
- 1.2.3 Traffic permitting and in good visibility, joining aircraft may be cleared to join directly for right base when landing on RWY 21 or turn downwind for RWY 03 from Position 'A'.

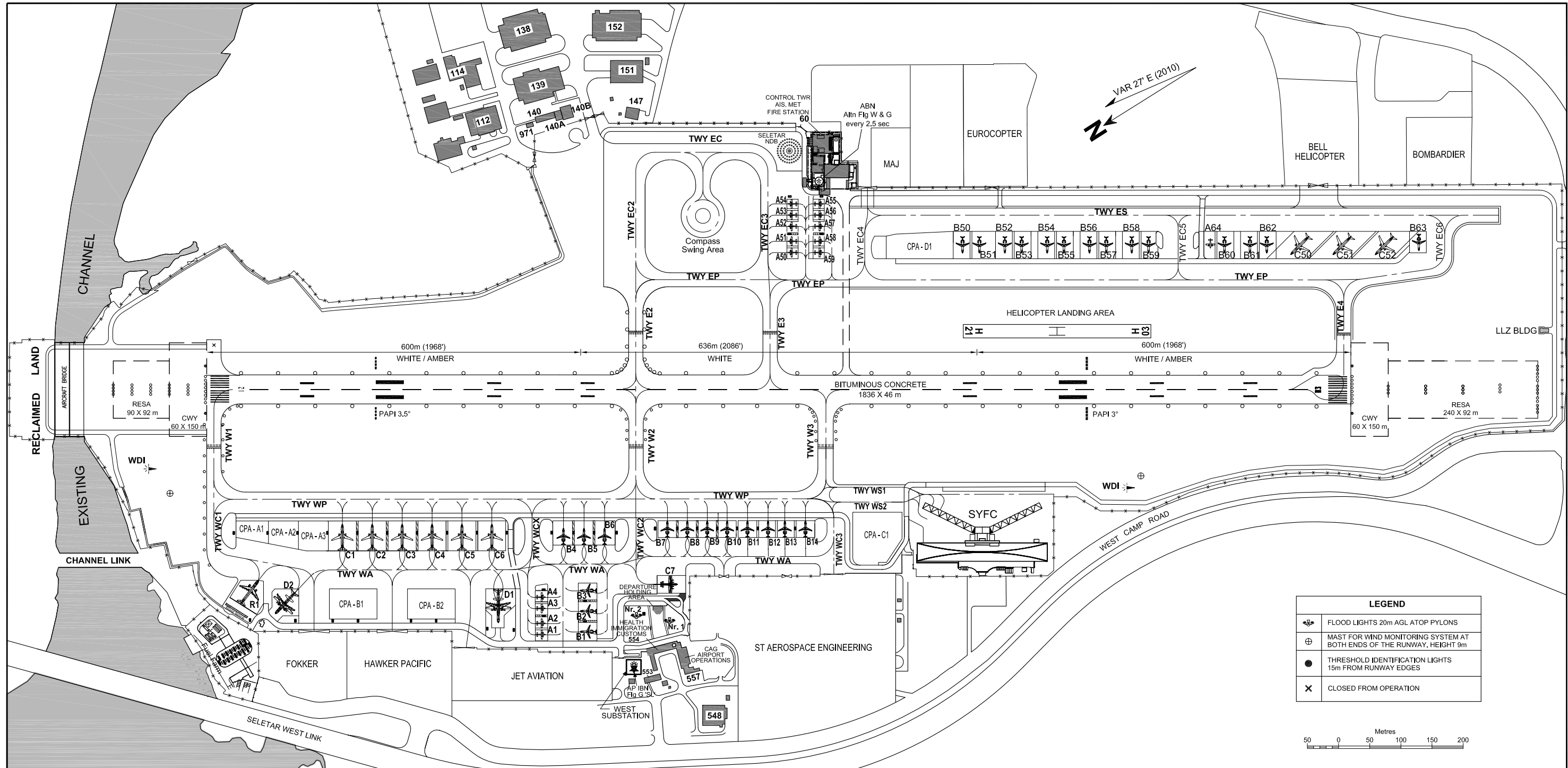
AERODROME CHART - ICAO 01° 25' 01"N 103° 52' 04"E ELEV 14m TWR 118.45 121.6 SINGAPORE/SELETAR



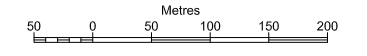
## INS COORDINATES FOR AIRCRAFT STANDS

STAND NR	NORTH LATITUDE	EAST LONGITUDE	ELEVATION
A1	01 25 13.101	103 51 56.167	6.131m (20.114ft)
A2	01 25 12.779	103 51 56.652	6.319m (20.731ft)
A3	01 25 12.350	103 51 57.301	6.538m (21.450ft)
A4	01 25 12.029	103 51 57.787	6.702m (21.988ft)
A50	01 24 51.431	103 52 05.764	7.757m (25.449ft)
A51	01 24 51.109	103 52 06.251	7.890m (25.886ft)
A52	01 24 50.680	103 52 06.899	8.049m (26.407ft)
A53	01 24 50.358	103 52 07.386	8.168m (26.798ft)
A54	01 24 50.036	103 52 07.872	8.297m (27.221ft)
A55	01 24 48.591	103 52 06.929	8.691m (28.514ft)
A56	01 24 48.913	103 52 06.442	8.527m (27.976ft)
A57	01 24 49.235	103 52 05.955	8.361m (27.431ft)
A58	01 24 49.664	103 52 05.307	8.130m (26.673ft)
A59	01 24 49.986	103 52 04.820	7.972m (26.155ft)
B1	01 25 11.402	103 51 55.230	6.271m (20.574ft)
B2	01 25 10.812	103 51 56.122	6.595m (21.637ft)
B3	01 25 10.220	103 51 57.014	6.922m (22.710ft)
B4	01 25 09.179	103 52 00.361	7.654m (25.111ft)
B5	01 25 08.257	103 51 59.759	7.889m (25.882ft)
B6	01 25 07.346	103 51 59.164	8.125m (26.656ft)
B7	01 25 04.505	103 51 57.521	8.368m (27.454ft)
B8	01 25 03.634	103 51 56.952	8.352m (27.401ft)
B9	01 25 02.764	103 51 56.383	8.328m (27.322ft)
B10	01 25 01.716	103 51 56.082	8.299m (27.227ft)
B11	01 25 01.006	103 51 55.237	8.303m (27.240ft)
B12	01 25 00.108	103 51 54.649	8.417m (27.614ft)
B13	01 24 59.374	103 51 54.169	8.515m (27.936ft)
B14	01 24 58.477	103 51 53.582	8.520m (27.952ft)
B50	01 24 43.888	103 52 00.873	8.800m (28.871ft)
B51	01 24 43.154	103 52 00.394	8.896m (29.186ft)
B52	01 24 42.063	103 51 59.682	9.041m (29.662ft)
B53	01 24 41.329	103 51 59.202	9.136m (29.973ft)
B54	01 24 40.154	103 51 58.435	9.296m (30.498ft)
B55	01 24 39.420	103 51 57.955	9.391m (30.810ft)
B56	01 24 38.348	103 51 57.253	9.538m (31.292ft)
B57	01 24 37.614	103 51 56.774	9.632m (31.601ft)
B58	01 24 36.463	103 51 56.021	9.786m (32.106ft)
B59	01 24 35.728	103 51 55.542	9.887m (32.437ft)
B60	01 24 32.415	103 51 53.375	11.004m (36.102ft)
B61	01 24 31.265	103 51 52.624	10.129m (33.231ft)
B62	01 24 30.531	103 51 52.144	10.216m (33.517ft)
B63	01 24 23.859	103 51 47.938	10.580m (34.711ft)
C1	01 25 18.803	103 52 06.626	5.043m (16.545ft)
C2	01 25 17.498	103 52 05.773	5.380m (17.650ft)
C3	01 25 16.192	103 52 04.920	5.716m (18.753ft)
C4	01 25 14.886	103 52 04.069	6.186m (20.295ft)
C5	01 25 13.580	103 52 03.214	6.793m (22.286ft)
C6	01 25 12.274	103 52 02.361	7.297m (23.940ft)
C7	01 25 05.903	103 51 54.572	7.174m (23.537ft)
C50	01 24 29.477	103 51 51.396	10.361m (33.992ft)
C51	01 24 27.626	103 51 50.188	10.575m (34.694ft)
C52	01 24 25.779	103 51 48.980	10.724m (35.183ft)
D1	01 25 14.663	103 51 58.151	6.359m (20.862ft)
D2	01 25 24.032	103 52 04.804	3.413m (11.197ft)

### SELETAR AERODROME LAYOUT OF SIGNIFICANT AERODROME BUILDINGS AND APRON FACILITIES



LEGEND	
	FLOOD LIGHTS 20m AGL ATOP PYLONS
	MAST FOR WIND MONITORING SYSTEM AT BOTH ENDS OF THE RUNWAY, HEIGHT 9m
	THRESHOLD IDENTIFICATION LIGHTS 15m FROM RUNWAY EDGES
	CLOSED FROM OPERATION



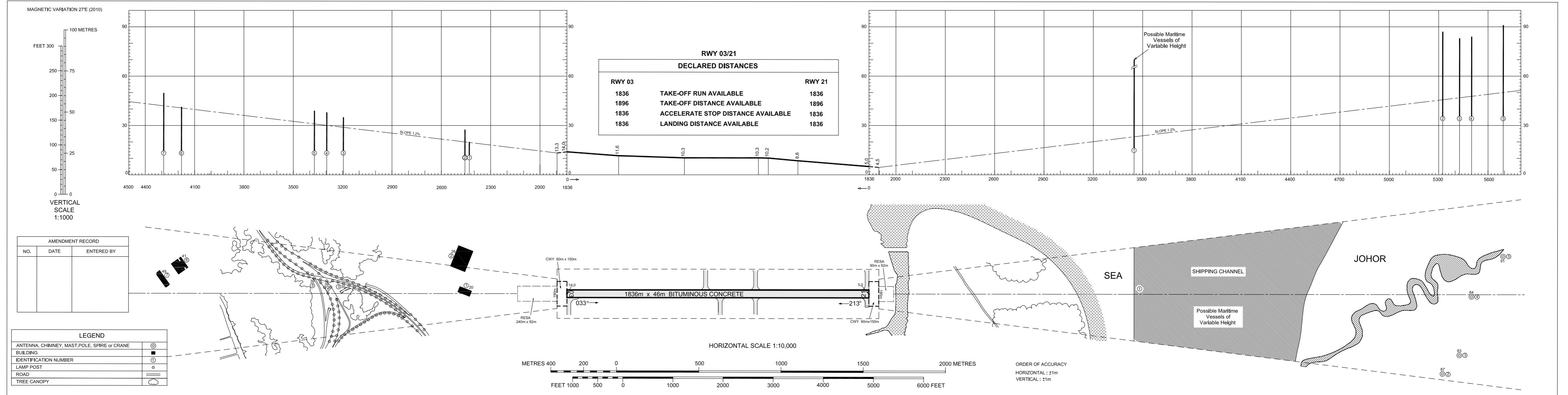




DIMENSIONS AND ELEVATIONS IN METRES

**AERODROME OBSTACLE CHART - ICAO  
TYPE A (OPERATING LIMITATIONS)**

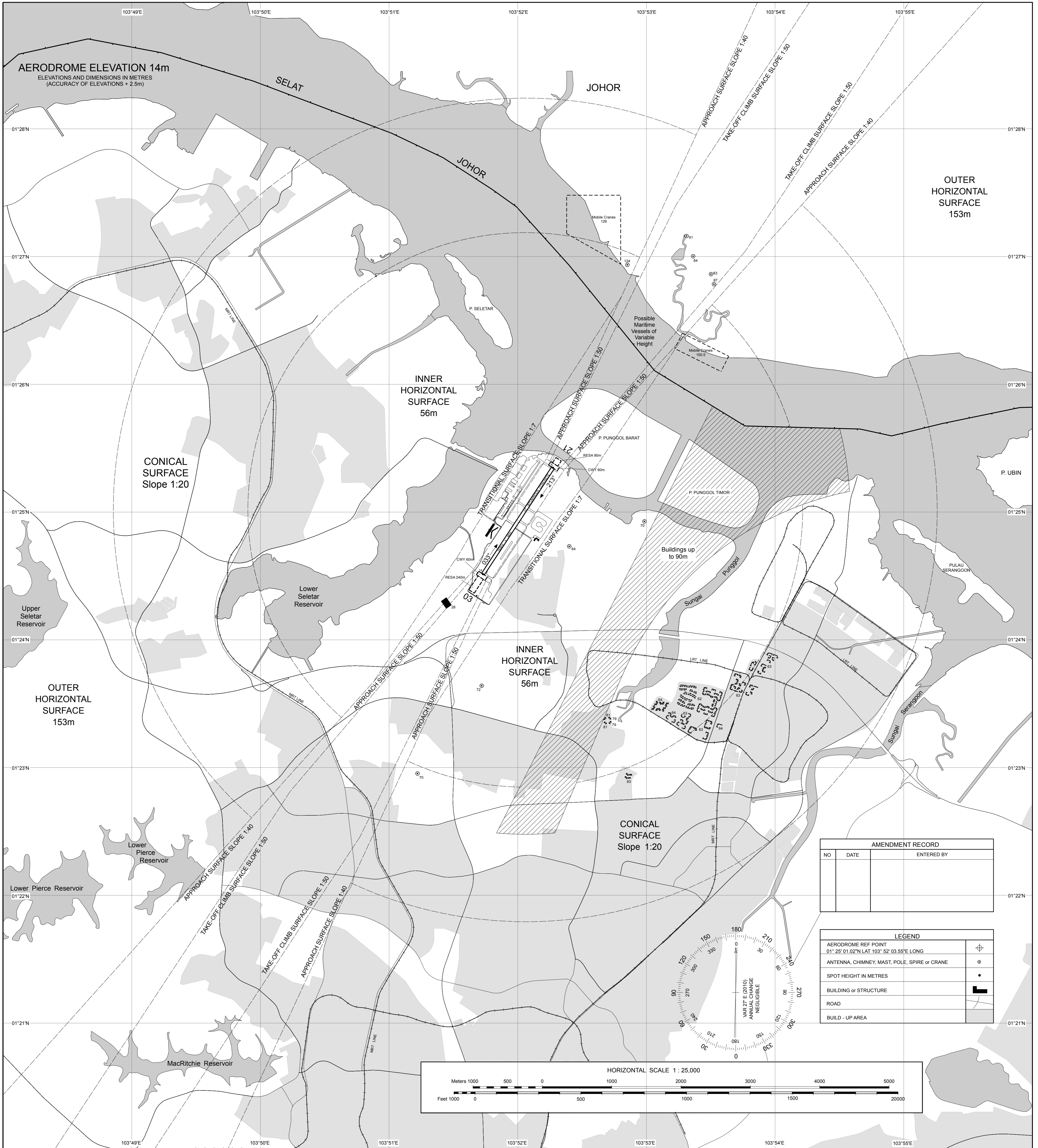
SINGAPORE/Singapore Seletar





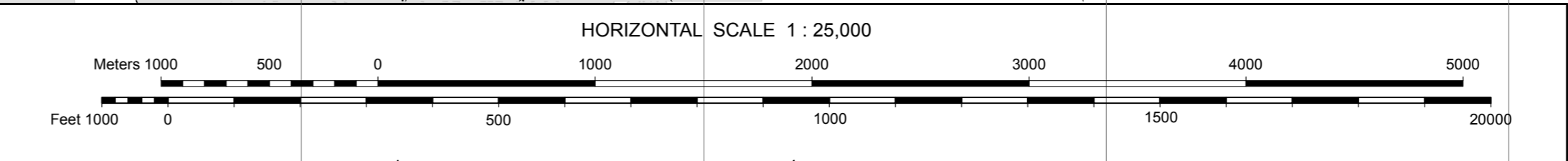
**AERODROME OBSTACLE CHART - ICAO  
TYPE B**

SINGAPORE / Seletar



AMENDMENT RECORD		
NO	DATE	ENTERED BY

LEGEND	
AERODROME REF POINT 01° 25' 01.02"N LAT 103° 52' 03.58"E LONG	⊕
ANTENNA, CHIMNEY, MAST, POLE, SPIRE or CRANE	⊙
SPOT HEIGHT IN METRES	•
BUILDING or STRUCTURE	■
ROAD	—
BUILD-UP AREA	▨





**WSAP AD 2.1 AERODROME LOCATION INDICATOR AND NAME**

WSAP - Paya Lebar Airport

**WSAP AD 2.2 AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA**

1	<i>ARP coordinates and site at AD</i>	012120.6N 1035410.0E (Paya Lebar IBN)
2	<i>Direction and distance from (city)</i>	-
3	<i>Elevation/Reference temperature</i>	20m (65ft) / 31.5°C
4	<i>MAG VAR</i>	27°E (2010)
5	<i>AD Administration, address, telephone, telefax, telex, AFS</i>	Paya Lebar Airport Singapore 539906 Tel: 63813222 (Base Operations Centre) AFS: WSAPYWYX
6	<i>Types of traffic permitted</i>	IFR
7	<i>Remarks</i>	Operator: Republic of Singapore Air Force. Alternate/Emergency Diversionary Aerodrome for Singapore Changi Airport (see page WSAP AD 2-9)

**WSAP AD 2.3 OPERATIONAL HOURS**

1	<i>Aerodrome Administration</i>	BTN 2300-1100 SUN/MON to THU/FRI, 2300-0500 FRI/SAT; Public holidays and outside operating hours prior permission required from RSAF Headquarters via Paya Lebar Operations.
2	<i>Customs and Immigration</i>	by prior arrangement only
3	<i>Health and Sanitation</i>	by prior arrangement only
4	<i>AIS Briefing Office</i>	-
5	<i>ATS Reporting Office</i>	-
6	<i>MET Briefing Office</i>	H24
7	<i>Air Traffic Services</i>	H24
8	<i>Remarks</i>	AD may be closed periodically for Foreign Object Damage (FOD) walk. Actual emergency or diversion will be accepted at 30 min notification. Such closure will be published via NOTAM.

**WSAP AD 2.4 HANDLING SERVICES AND FACILITIES**

1	<i>Cargo Handling Facilities</i>	-
2	<i>Fuel / Oil Types</i>	JET A1, Oil
3	<i>Fuelling Facilities / Capacity</i>	BTN 2300-1100 SUN/MON to THU/FRI; 2300-0500 FRI/SAT; Public holidays and outside operating hours prior permission required from RSAF Headquarters via Paya Lebar Operations.
4	<i>Hangar space for visiting aircraft</i>	-
5	<i>Repair facilities for visiting aircraft</i>	-
6	<i>Remarks</i>	Nil

<b>WSAP AD 2.5 PASSENGER FACILITIES</b>		
1	<i>Hotels</i>	Nil
2	<i>Restaurants</i>	Nil
3	<i>Transportation</i>	Nil
4	<i>Medical Facilities</i>	Nil
5	<i>Banks and Post Offices</i>	Nil
6	<i>Tourist Office</i>	Nil
7	<i>Remarks</i>	Nil

<b>WSAP AD 2.6 RESCUE AND FIRE FIGHTING SERVICES</b>		
1	<i>AD category for fire fighting</i>	CAT 9
2	<i>Rescue equipment</i>	Adequately provided as recommended by ICAO
3	<i>Capability for removal of disabled aircraft</i>	Sufficient salvage equipment provided by Airfield Ground Services section at military bases.
4	<i>Remarks</i>	All Airport Emergency Services personnel are trained in rescue and fire-fighting as well as medical first-aid.

<b>WSAP AD 2.7 SEASONAL AVAILABILITY - CLEARING</b>	
The aerodrome is available throughout the year.	

<b>WSAP AD 2.8 APRONS, TAXIWAYS AND CHECK LOCATIONS/POSITIONS DATA</b>		
1.	<i>Apron surface and strength</i>	Strength: LCN80 - Flexible (Apron A) Strength: LCN100 - PCN71/R/B/W/U (Apron B) Strength: LCN100 - PCN72/F/B/W/U (Apron C) Strength: LCN80 - Flexible (Jet Apron/Jet Apron Extension)
2.	<i>Taxiway width, surface and strength</i>	Strength: PCN72/F/B/W/U
3.	<i>Remarks</i>	TWY between TWY W1 and TWY W2 closed to all code C and above aircraft. Pilots to exercise caution.



<b>WSAP AD 2.10 AERODROME OBSTACLES</b>		
<b>IN APPROACH / TKOF AREAS</b>		
<i>RWY/Area affected</i>	<i>OBST type, ELEV, Markings/LGT</i>	<i>Location/Coordinates</i>
1	2	3
a) RWY 02 APCH RWY 20 TKOF	Industrial buildings, HGT 83ft AMSL. OBST LGTD	Located on either side of approach funnel 2300ft from RWY 02 THR.
b) RWY 02 APCH RWY 20 TKOF	Structure (water tower), HGT 229ft AMSL, marked and LGTD	012022N 1035436E (east of RWY)
c) RWY 02/20 APCH RWY 02/20 TKOF	LLS LLZ co-located with LLZ antennae, HGT 17ft AGL.	LLZ RWY 02 LOC1324ft from RWY 20 THR. LLZ RWY 20 LOC1525ft from RWY 02 THR.

<b>IN CIRCLING AREA AND AT AERODROME</b>	
<i>OBST type, ELEV, Markings/LGT</i>	<i>Location/Coordinates</i>
1	2
a) ILS GP huts co-located with GP antenna mast (HGT 53ft AGL).	GP RWY 02 located 296ft west of western edge of RWY and 858ft from RWY 02 THR. GP RWY 20 located 296ft west of western edge of RWY and 984ft from RWY 20 THR.
b) PAR hut, HGT 39ft AGL, marked and LGTD.	211ft E of eastern edge of RWY, 7089ft north of RWY 02 THR.
c) 2 x Frangible PAR Moving Target Indicator (MTI) reflectors.	RWY 02 MTI reflectors, HGT 16ft AGL, located 213ft east of eastern edge of RWY, 4389ft from RWY 02 THR. RWY 20 MTI reflectors, HGT 16ft AGL, located 209ft east of eastern edge of RWY, 2911ft from RWY 20 THR.
d) Arrestor hookwire installed 1200ft from RWY 02 THR, 1100ft from RWY 20 THR	Within the RWY strip. Retriever Unit located 52ft from both sides of the RWY edges, 4ft in HGT.
e) Arrestor barrier installed 210ft south of RWY 02 THR, 118ft north of RWY 20 THR	Within the RWY strip.
f) Surface wind direction sleeves (HGT 25ft AGL).	344ft west of western edge of RWY for both sides, 458ft from RWY 02 THR and 307ft from RWY 20 THR.
g) AWOS stanchions (HGT 23ft AGL).	296ft west of western edge of RWY on both sides, 658ft from RWY 02 THR and 654ft from RWY 20 THR.
h) One wheel structure (HGT 178m AMSL).	erected at 011726N 1035150E, BRG 216 DEG, DIST 5NM from WSAP ARP - within WSAP CTR). Structure marked/ LGTD.
i) One Building (HGT 245m AMSL).	erected at 011642N 1035105E, BRG 216 DEG, DIST 6.2NM from WSAP ARP - within WSAP CTR). Building marked/ LGTD.
j) Mobile aircraft arrestor gear (HGT 2m AGL)	12m from edge of western taxiway between TWY W1 and W2 at 415m south of TWY W1. Lighted at night.
k) Lightning protection system, HGT 218ft AMSL	erected at 012203.36N 1035509.39E.

<b>WSAP AD 2.11 METEOROLOGICAL INFORMATION PROVIDED</b>		
1	<i>Associated MET Office</i>	Paya Lebar (WSAP)
2	<i>Hours of service</i>	H24
3	<i>Office responsible for TAF preparation and Periods of validity</i>	Paya Lebar (WSAP), 9, 24
4	<i>Type of landing forecast and Interval of issuance</i>	Nil
5	<i>Briefing/consultation provided</i>	P
6	<i>Flight documentation and Language(s) used</i>	Charts or Tabular forms, English
7	<i>Charts and other information available for briefing or consultation</i>	S, U, P
8	<i>Supplementary equipment available for providing information</i>	APT, WXR
9	<i>ATS units provided with information</i>	-
10	<i>Additional information</i>	TEL: 63813156 (Met Office)

**WSAP AD 2.12 RUNWAY PHYSICAL CHARACTERISTICS**

<i>Designations RWY NR</i>	<i>TRUE &amp; MAG BRG</i>	<i>Dimensions of RWY (m)</i>	<i>Strength (PCN) and surface of RWY/SWY</i>	<i>THR Coordinates</i>	<i>THR ELEV and highest ELEV of TDZ of precision APP RWY</i>
1	2	3	4	5	6
02	023° GEO 023° MAG	3 780 x 61	72/F/B/W/U Bituminous concrete	012041.08N 1035410.36E	13.2m (43ft)
20	203° GEO 203° MAG	3 780 x 61	72/F/B/W/U Bituminous concrete	012234.41N 1035458.53E	19.3m (63ft)
<i>Designations RWY NR</i>	<i>Slope of (RWY - SWY)</i>	<i>(SWY) dimensions</i>	<i>(CWY) dimensions</i>	<i>Strip dimensions</i>	<i>OFZ</i>
1	7	8	9	10	11
02	-	305m	305m	-	-
20	-	305m	305m	-	-

12	Remarks
	<p>a) Intensive fixed wing flying operation west of runway.                      b) Helizone adjacent west of runway up to 800ft QNH.                      c) Arrestor Barrier both ends of runway. Pilots are to land at least 500ft up the THR of RWY in use.                      d) Hookwire cable installed 335m inwards from RWY 20 THR and 360m inwards from RWY 02 THR.                      e) Intense bird activity after rain, and up to 2 hour after dusk and dawn.                      f) Pilots making approaches for RWY 20 are to take note of the high ground, 32m AMSL, 1NM north of RWY 20 THR and to exercise caution.                      g) Threshold markings consist of 16 stripes.</p>

**WSAP AD 2.13 DECLARED DISTANCES**

<i>RWY Designator</i>	<i>TORA(m)</i>	<i>TODA(m)</i>	<i>ASDA(m)</i>	<i>LDA(m)</i>	<i>Remarks</i>
1	2	3	4	5	6
02	3 780	4 085	4 085	3 780	Nil
20	3 780	4 085	4 085	3 780	Nil

**WSAP AD 2.14 APPROACH AND RUNWAY LIGHTING**

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

**WSAP AD 2.15 OTHER LIGHTING, SECONDARY POWER SUPPLY**

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