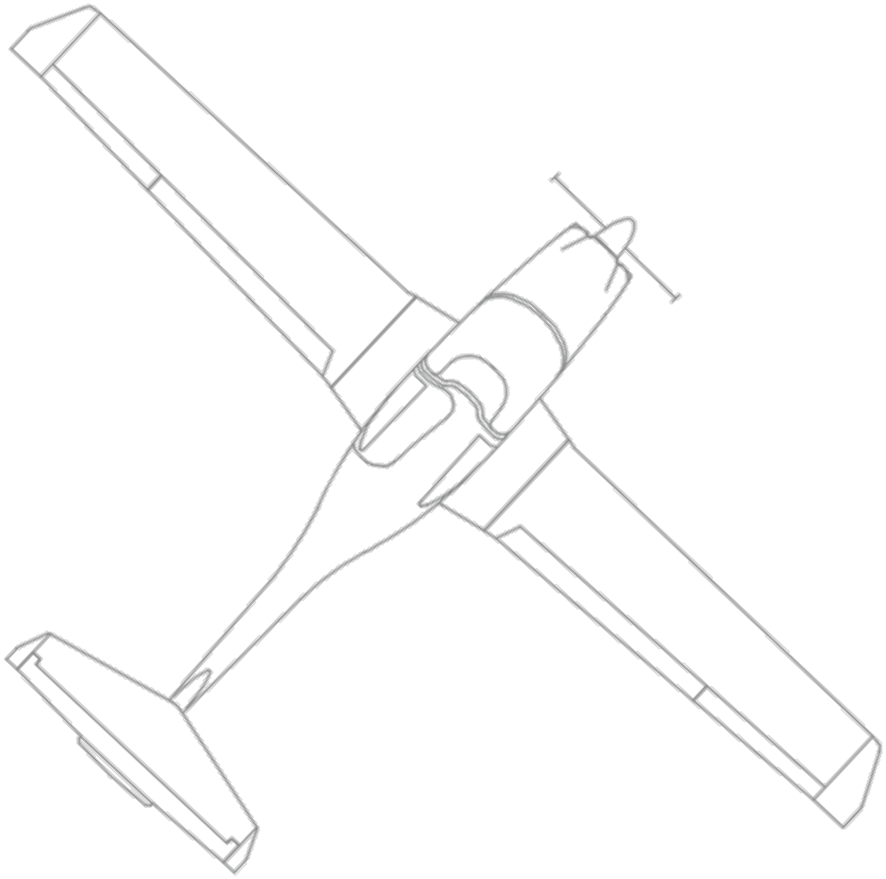
Singapore Youth Flying Club

Volume 3-1

# BFC – PPL Operations Manual



Edition 4, Update 12 [28 Aug 2020]
Next review: Aug 2022

# FOREWORD

1. The Singapore Youth Flying Club (SYFC) BFC_PPL Operations Manual is established for the safe and efficient flying operations of SYFC.

2. The objective of the manual is to provide guidance for operations and to standardise the flying procedures in SYFC for consistency in performance and safety in operations. The flying operations cover the CAAS approved PPL course as well as non-CAAS courses and other flying tasks. All Flying Instructors (FI), Assistant Flying Instructors (AFI) and Flying Members of SYFC are to be fully conversant with and strictly adhere to the contents within.

3. This manual is to be used in conjunction with Singapore Air Navigation Order, SASPs, CAAS Regulations, Seletar Aerodrome Procedures, SYFC BFC_PPL Training Manual and any other relevant Orders disseminated by the appropriate Authorities.

4. Suggestions for the improvement and update of any of the procedures herein are to be forwarded to:

**The Operations Manager**
**Singapore Youth Flying Club**
**515 West Camp Road**
**Singapore 797695**

General Manager,
Singapore Youth Flying Club

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# DISTRIBUTION LIST

1. This Distribution List pertains only to this Volume and details the number of printed copies distributed to internal and external agencies or appointment holders.

2. All official SYFC publications are implemented as electronic copies and stored in the SYFC server, which is accessible by staff.

3. Electronic copies of publications belonging to the Operations Department in SYFC are backed up in a portable storage device and accessible to staff in the event the copies in the SYFC server cannot be accessed.

4. **Hardcopy Distribution List.** Hardcopies of this manual have been distributed in accordance with the table below.

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# UPDATING & AMENDMENT PROCEDURES

1. When an amendment is required, the section or annex where it is needed will be reviewed in its entirety. This is to ensure that any related changes are updated as well.

2. The newly updated section or annex will indicate the 'Update Number', between the Edition and the effective date at the footer of all pages of the section or annex.

Eg: Edition 4, Update 1 [1 Jan 2020]

3. A bold vertical line at the margin will mark only the paragraphs, lines or diagrams where amendments were made. No handwritten amendments are allowed.

4. Copyholders are to effect the amendments before the effective date, replace the entire updated section or annex and record the amendments in the table below.

5. Sections and annexes that have not been updated will retain the last update number. The publication will adopt the latest update number and date. When a new edition is published, the update numbers will be reset.

## RECORD OF AMENDMENTS

This is to certify that the amendments promulgated below have been incorporated in this copy

| AMENDMENT DETAILS | | | | |
|---|---|---|---|---|
| Update | Date Entered | Amended by | Effective Date | Section / Annex Amended |
| 1 | 23 Oct 2015 | Daniel Tan | 24 Oct 2015 | Sect 5, Annex A. |
| 2 | 1 Apr 2016 | Toh BH | 1 Apr 2016 | Sect 11. |
| 3 | 10 Jul 2016 | Toh BH | 15 Jul 2016 | Sect 3, Sect 14. |
| 4 | 23 Aug 2016 | Daniel Tan | 24 Aug 2016 | Sect 3. (Manual review done, no change in Edition) |
| 5 | 18 May 2017 | Daniel Tan | 19 May 2017 | Sect 1, Sect 3, Sect 4, Sect 5, Sect 6, Sect 10. |
| 6 | 6 Jun 2017 | Daniel Tan | 6 Jun 2017 | Sect 5, Annex A. |
| 7 | 10 Aug 2018 | Toh BH | 10 Aug 2018 | Preamble (Table of Contents), Sect 3, Sect 5, Sect 7, Sect 9, Sect 12. (Manual review done, no change in Edition) |
| 8 | 20 Apr 2019 | Toh BH | 20 Apr 2019 | Sect 3 |
| 9 | 15 Aug 2019 | Daniel Tan | 15 Aug 2019 | Preamble (Table of Contents), Sect 13 |
| 10 | 25 Sep 2019 | Daniel Tan | 25 Sep 2019 | SYFC Form/Vol 3-1/Consent/01 |
| 11 | 14 Feb 2020 | Daniel Tan | 14 Feb 2020 | Preamble (Distribution List), Sect 3 |
| 12 | 28 Aug 2020 | Daniel Tan | 28 Aug 2020 | Preamble (Glossary of Terms removal), Manual review done, no change in Edition. |
| 13 | | | | |
| 14 | | | | |

# SECTION 1
# MISSION AND ORGANISATION

## 1. MISSION AND TASK

1.1. The mission of SYFC is to expose the youths of Singapore to aviation and to inculcate in them a passion for flying. To fulfill the mission, SYFC conducts flying training for school students leading to a CAAS Private Pilot Licence (PPL).

## 2. ANNUAL STUDENT INTAKE

2.1. The annual student intake for the BFC/PPL course is between 170 to 200 students and consists of part-time and full-time students.

## 3. RESOURCES

3.1. The aircraft trainer fleet consists of 13 DA40. Annual flying hours is about 5000 hrs. Augmenting the airborne training is a Flight Training Device (FTD).

3.2. The ground subjects training is largely through lectures, briefings, Computer Based Training (CBT), Computer Aided Instructions (CAI) and tests. Basic aviation knowledge is provided for the BFC while PPL students are prepared for CAAS PPL examinations. The Ground Subjects Programme is administered by the Ground School Instructor (GSI).

3.3. The flying staff establishment consists of an Operations Manager (OM), a Chief Flying Instructor (CFI) and up to 13 Flying Instructors (FIs). These may be supplemented by auxiliary pilots from the RSAF and volunteer FIs. The FTD training is conducted primarily by the 2 FTD Instructors and supplemented by FIs.

3.4. The Support Staff establishment consists of 2 Ops Assistants, 2 Technical Liaison Officers and 2 drivers in the Operations Department. The Corporate Support Department provides the corporate support services.

3.5. The servicing/maintenance of the aircraft and the salvage operations are outsourced to an aircraft maintenance contractor.

## 4. REGULATORY BODY

4.1. All the SYFC aircraft are civil registered under CAAS and all aircraft servicing, maintenance, modification and logistics operations are subject to CAAS regulations. Similarly, for all pilots, all aspects of flying, ground training, tests, qualification and licensing are subject to CAAS regulations.

## 5. BFC AND PPL COURSES

5.1. The BFC and PPL are part-time courses conducted for Singapore citizens studying in recognized school, such as Junior Colleges and Polytechnics. Full-time

courses may be provided if the opportunity arises. Each student intake goes through the Basic Flying Course (BFC) which consists of an Orientation Phase and 2 Flying Phases. The Orientation Phase consists of 5 sessions spread out over 5 Saturdays. It consists of ground lectures, CBT, CAI and FTD sessions and prepares the students for flying. In flying, BFC Phase I consists of 6 sorties of basic flight manoeuvres and BFC Phase II consists of 11 sorties of stalling and circuit exercises. The BFC lasts about 5 months for part-time students and about 3 months for full-time students.

5.2. The PPL course consists of 35 sorties of circuit consolidation, PFL, Instrument Flying and General Handling. There is no night or navigation flight training. Included in this course is the CAAS PPL ground examination consisting of 7 papers. The PPL phase lasts about 9 months for part-time students and about 5 months for full-time students.

## 6. OTHER FLYING TASKS

6.1. Besides the BFC and PPL courses, the other flying tasks are:

6.1.1. Flying Experience Programme (FEP) for secondary schools, NCC, SYFC applicants and RSAF personnel (NSF pilot potentials, scholars, AEOs, UAV operators, WSO).

6.1.2. Flying Appreciation Programme (FLAP) for DSTA/DSO engineers.

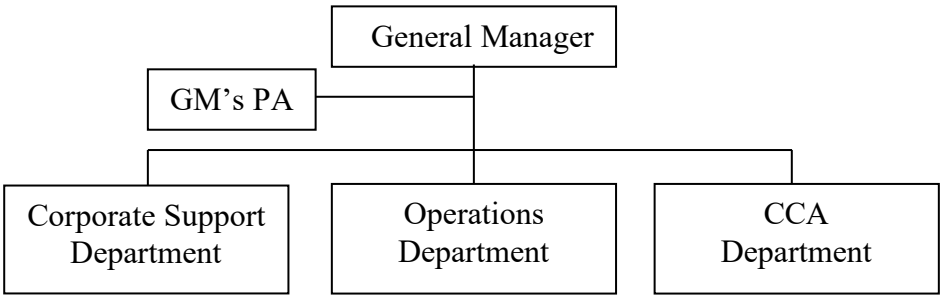
6.1.3. Flying Support for RSAF tasks, refresher flying for RSAF AFTI trainees.

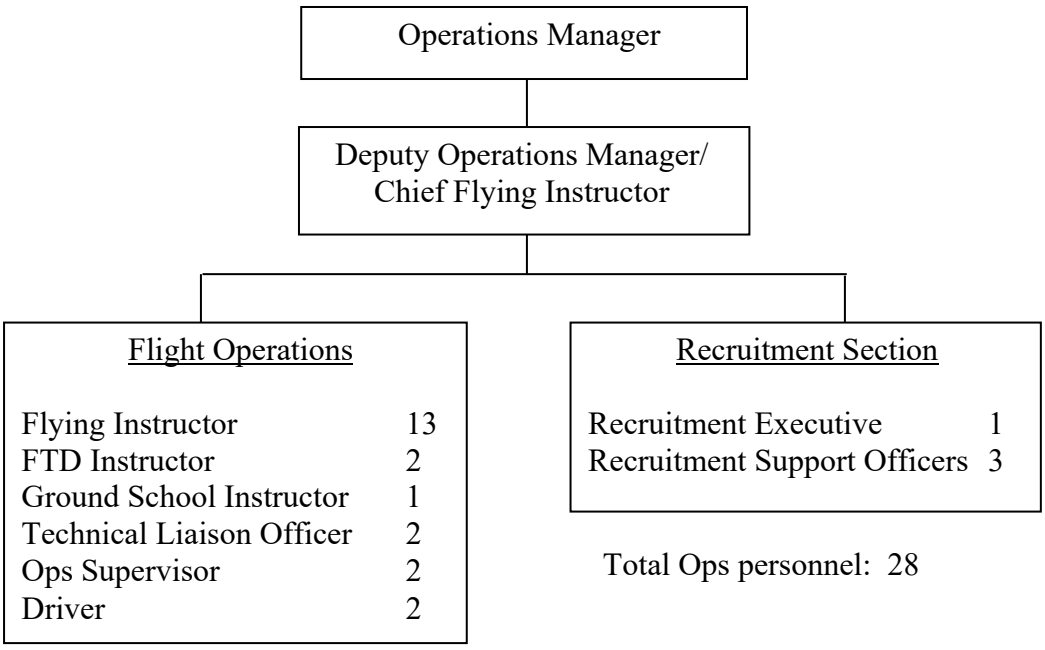
6.1.4. PPL Alumni, Publicity and Joyrides

6.1.5 Flying Instructors' training and conversions

## 7. ORGANISATION STRUCTURE

7.1. The organisation structure of SYFC and the Ops department are shown below. SYFC executives answer to a Management Committee which meets every two months. Overseeing the management of SYFC, at policy level, is a Board of Governors which meets every 6 months. The full organisation structure and job descriptions of personnel are found in SYFC Human Resources Manual.






## 8. FLYING RELATED FACILITIES

8.1. The main briefing and lecture rooms have a capacity for 25 students each.

8.2. For individual briefing, the briefing cubicles are used.

8.3. The Computer Aided Instruction (CAI) room is used for the conduct of CAI lessons and has a capacity for 25 students.

8.4. The DA40 Flight Training Devise (FTD) is used for pre-flight preparation for students, simulated IF and emergency handling for staff pilots.

8.5. The Operations Room is the operations, control and an information centre.

8.6. The Operations Supervisor Room is for Operations administration.

8.7. The covered aircraft parking sheds accommodate 14 aircraft.

8.8. The hangar is used for aircraft servicing and maintenance and has a capacity for 12 aircraft. Aircraft related stores and material are stored in the connecting annexes.

# SECTION 2
# SCOPE OF TRAINING AND OPERATIONS/TASKS

## 1. TRAINING

1.1. Training covers:

1.1.1 CAAS approved courses: BFC, PPL

1.1.2 SYFC staff flying courses: close formation, instruction on night flying, navigation.

1.2. The BFC and PPL courses cater only to students of Singapore citizenship studying at approved learning centres – IP/IB schools, Polytechnics and Junior Colleges. The flying syllabus does not include cross-country navigation training and hence leads to the issue of a PPL that is restricted for operations within Singapore only.

## 2. OPERATIONS/TASKS

2.1 Operations/Tasks cover:

2.1.1 RSAF tasks.

2.1.2 Flying Experience Programme (FEP).

2.1.3 Flying Appreciation Programme (FLAP).

2.1.4 Publicity/Joyrides.

2.1.5 Flying Instructors' in-house qualifications and currency flights.

## 3. REFERENCES

3.1. The details of the training courses and the FEP, FLAP, Joyrides are contained in the BFC_PPL Training Manual.

# SECTION 3
# OPERATIONS - GENERAL

## 1. FLIGHT AUTHORISATION

1.1. All flights on SYFC aircraft must be duly authorised.

1.2. A list of Authorising Officers with different levels of authorisation, is retained in the Ops Room. The OM or CFI is responsible for assessing the authorisation levels of the pilots based on their qualifications and experience, and recommends their authorisation levels to the GM for approval.

1.3. The Authorising Officer (AO) authorises a flight by signing for it in the Operations Management Information System (OMIS) after ensuring the following are carried out:

1.3.1. The PIC is current on type, qualified for the exercises he will be carrying out, and has a valid CAAS licence with the appropriate ratings for the flight.

1.3.2. In the case of an alumni or flying member going solo or acting as PIC, all the necessary requirements to act as PIC have been completed.

1.3.3. The Risk Assessment Management System (RAMS) is completed and risk is within acceptable range.

1.3.4. The SYFC Consent Form is completed where applicable.

1.3.5. For navigation flights, the Flight Plans and permits are checked and a copy of each is retained in the Ops Room.

1.3.6. The PIC is thoroughly briefed for the sortie.

## 2. RESPONSIBILITIES OF PIC

2.1. The PIC of the aircraft shall be overall in-charge of the crew, passengers and safety of the aircraft.

2.2. The PIC must check the following, where applicable, before flight:

2.2.1. The RAMS is completed and risk is within acceptable range and the flight is authorised.

2.2.2. The meteorological forecast and NOTAMs are checked.

2.2.3. There is sufficient fuel for the flight.

2.2.4. The aircraft is within C.G. limits and for flights with full fuel, 4 POB and baggage (aircraft is close to max AUW), a C of G calculation is performed to ensure the aircraft is within weight and balance limits.

2.2.5. All relevant documents are completed and carried on board.

2.2.6. The PIC has a valid and current flying licence and appropriate ratings for the flight.

2.3. The PIC shall occupy the left hand seat. However, a FI may also occupy the right hand seat as PIC in an instructional role.

## 3. FLYING EXECUTIVE OFFICER (FXO)

3.1. The FXO is a suitably qualified pilot appointed by the GM as his representative and as an extension of the command and control chain whenever there are flying activities. The following are eligible for FXO duty:

3.1.1. GM.

3.1.2. OM.

3.1.3. CFI.

3.1.4. Senior Flying Instructor as assigned by GM or OM.

3.2. The FXO duty is required whenever there is aircraft operation (from start-up to shut-down). More than one officer may be rostered throughout the day. Proper handing and taking over of duty must be carried out if there is a change of FXO whilst flying operations is in progress. The handing over brief is to include:

3.2.1. The weather situation in the areas of operations and diversion airfields.

3.2.2. The number of aircraft airborne and their status.

3.2.3. Any flying restrictions and relevant NOTAMS.

3.2.4. Changes in the flying programme.

3.3. The FXO will remain in the Ops Room for the duration of his tour of duty. He is not to leave his place of duty unless suitably replaced. Communication with airborne aircraft is by means of a VHF radio set in the Ops Room. The hand-held VHF set acts as a standby. The call-sign for the FXO is **'DOLPHIN'**. In the event of emergencies or special flights related to SYFC, he may execute his duties from the ATC Tower.

3.4. The Terms of Reference for the FXO are:

3.4.1. To check and monitor the following:

3.4.1.1. Daily flying programme and changes.

3.4.1.2. Weather (Forecasted and actual).

3.4.1.3. NOTAMS.

3.4.2. To alert pilots on potential hazards or offer safety pointers pertinent to their flights prior to the pilots stepping out for flights.

3.4.3. To monitor the flying programme and the flying environment to decide on the launch, recall, postponement or cancellation of flights, and recommend changes to the programme if needed.

3.4.4. To assist pilots experiencing emergencies with checklist actions, information and any necessary arrangements with external agencies.

3.4.5. To inform GM, OM and CFI immediately in the event of an incident involving SYFC aircraft, and events adversely affecting SYFC operations.

## 4. DUTY INSTRUCTOR

4.1. A FI shall be stationed at the Control Tower whenever there is student solo flying. This may be a dedicated FI rostered for duty or the FI sending a student solo after a dual check. He may cover more than one student solo. He is to be vigilant when stationed in the tower to monitor all SYFC students' solo flights and ground operations.

4.2. The DI is responsible for the following:

4.2.1. Check with the Ops Supervisors whether a charged spare battery is to be brought to the Tower for the handheld transceiver set before he leaves for duty.

4.2.2. Sign in and sign off his duty time in the DI logbook and record any flight or aircraft observations and occurrences.

4.2.3. Provide close liaison and advice to ATC controllers on flying matters whenever necessary.

4.2.4. Carry out a radio check on Skylark Ops frequency (129.0 MHz) with the solo student before the student takes-off. If this check is not successful, the solo flight is not to be carried out.

4.2.5. Closely monitor the student and be ready to intervene or provide assistance, via the radio, whenever a potential hazard arises. The DI is to report any breach of regulations to the FXO.

4.2.6. Provide advice to solo students whenever the need arises, especially in emergencies. If the situation requires, the DI shall instruct solo students via 129.0 MHz to land and terminate their sorties.

4.2.7. For 1st solo, the DI is to broadcast on 129.0 MHz to all Skylark aircraft that the 1st solo is getting airborne and when the 1st solo has landed.

4.2.8. Operation of the transceiver shall not in any way interfere with ATC functions, undermine ATC authority, misconstrue instructor intentions as ATC instructions, or cause confusion to the solo student.

4.3. The DI bag is kept at the Tower at SYFC's risk. It is to be secured by the DI after use. Any loss or damage of items is to be recorded in the logbook and reported to the OM or CFI.

4.4. A fully charged standby battery for the handheld transceiver is to be kept inside the DI bag. This will be the backup should the transceiver battery runs low. The DI is to return the weak battery to Ops for charging and the next DI going to the tower is to bring a freshly charged battery as a replacement standby battery.

## 5. INSTRUCTOR COVERING SOLO

5.1. An Instructor will be assigned to cover students' solo in the training areas and/or the circuit. If there are more than 2 student solos, two instructors may be assigned to cover the solo students.

5.2. The assigned FI will fulfill the responsibilities as laid down in Section 5, Para 12, of this manual.

## 6. OPERATIONAL CONTROL SYSTEM

6.1. **VHF Monitor**. Whenever SYFC aircraft are flying locally, the Ops Room will monitor 129.0 MHz.

6.2. **Comms Check (Check-In).** Pilots are required to carry out a radio check (Check-In) on 129.0 MHz with "Skylark Ops" before taxying out. If the transmission or reception of the radio call is impaired due to building obstruction the aircraft may taxy out of the shed to do the radio check again. Taxying out should only be done after ensuring that there are no other aircraft in the way. If the radio check is not successful, the aircraft should abort its mission. For a formation sortie, only the lead needs to check-in with "Skylark Ops".

6.3. PIC of aircraft will maintain continuous radio watch on the operating frequency on Com 1 and also monitor 129.0 MHz on Com 2. The standby frequency on Com 2 shall be set to International Distress Frequency 121.50 MHz.

## 7. FLYING SCHEDULE

7.1. Flying operations is scheduled from Tuesday to Sunday. Monday is a rest day. Daily operation is from 0730 to 1830 hrs with up to 4 waves of flying except for Sunday where it is from 0730 to 1630 hrs with 3 waves. Flights are planned based on Check-In times and aircrew is to report for flight one-hour prior. Four one-hour time slots have been allocated for training flights in Seletar Aerodrome. Circuit training will be scheduled within these slot times. Non circuit training flights will generally also be scheduled within the training slots but the schedulers may exercise some flexibility in order to maximise flying opportunities. The 4 training slot timings are as follows:

0930----1030 1200----1300 1500-----1600 1700----1800

7.2. Night flying is planned every quarter for pilots to attain their type rating and to maintain night currency.

## 8. FLYING AND FTD PROGRAMME

8.1. The Daily Flying and FTD programme shall be planned by the scheduling team and must be approved by the OM/CFI or their delegate before promulgation to external agencies such as Seletar ATC Tower.

8.2. The Daily Flying programme is to be completed on the working day prior and posted on the SYFC website. Students are also notified of flights via a text message.

## 9. RECORD KEEPING OF FLYING AND FTD SORTIES

9.1. Flight Operations will maintain a record of the Daily Flying and FTD programme, the flying hours achieved, the flying and FTD sorties carried out and the sorties cancelled.

9.2. The Ops Supervisor will tally the flying hours at the end of each flying day and verify the hours against the aircraft technical logs with the TLO.

9.3. The FTD sorties carried out and cancelled will be compiled at the end of each month by the FTDI and submitted to the Ops Supervisor for record keeping. Any changes or cancellations to the FTD programme is to be reconciled between the FTD office and Ops weekly.

## 10. DOCUMENTATION

10.1. **Documentation Before Flight.** The PIC must ensure that the following are satisfactorily completed before flight:

10.1.1. Sign out for the flight in the OMIS Authorisation Sheet. This includes filling in the Risk Assessment Matrix (RAM), reading the Orders (Hot Poops or Red Flag) and any read-and-sign folders, completion of the bold-face quiz and ensuring that all relevant personal currencies are valid. Any changes in the flying details must be approved by the FXO and duly reported to Seletar Tower as necessary.

10.1.2. Check the Tech Log for currencies and serviceability of the aircraft, remaining aircraft hours, fuel and oil states, and any restrictions or special instructions. If the PIC is fully satisfied, he shall then sign the Tech Log to accept the aircraft**.**

10.2. **Documentation After Flight.** The PIC is to carry out the following after flight:

10.2.1. Record all the flight information and any aircraft defect in the Tech Log and the OMIS.

10.3. **Definition of a Flight, Recording of flight time and Pilot logbook**

10.3.1 To constitute a sortie an aircraft must take-off, land and shutdown. If an aircraft lands due to ATC and subsequently takes off without shutting down it is still operating within the same flight.

10.3.2 For recording of flight time, the duration will be logged based on the aircraft's Hobbs meter.

10.3.3 All pilots and PPL students are to maintain the currency of their flight logbook. For FIs, their logbook is to be submitted to the OM or CFI for endorsement.

10.4. **Legal Document.** The Technical Log is a legal flight document. As such, any entry made in error is to be amended and initialed.

10.5. **Defect Report.**

10.5.1 If a defect is found on the ground which is serious enough to warrant the aircraft unserviceable, the aircraft must not be flown. If a defect occurs during flight, the aircraft must be recovered IAW established SOPs. The defect is to be reported to the Log Cell and entered into the Tech Log.

10.5.2 Any student finding an aircraft defect is to comply with the above paragraph and consult his Instructor before recording the defect in the Tech Log.

10.6. **GAIR/FAIR/SAIR**

10.6.1 Any accident/incident, on ground or in the air, is to be reported to the supervisors and management, through the GAIR/FAIR system. If there is doubt, refer to CFI/OM/GM. The reporting and rectification loop is to be followed up via the appropriate GAIR/FAIR forms. If the incident is reportable to CAAS a SAIR is to be submitted.

## 11. MANDATORY DOCUMENTS CARRIED IN AIRCRAFT

11.1. A set of Flight Reference Cards (FRC) must be carried in the aircraft. It is to be placed in the right forward side pocket of the cockpit.

11.2. The Airplane Flight Manual (AFM) and the Garmin G1000 Cockpit Reference Guide must be carried in the aircraft. They are to be placed in the rear pocket of the front seats.

## 12. SAFETY

12.1. Underpinning all operations is safety, which must not be compromised. A large part of this manual is written with safety in mind. All aspects of training and operations, on the ground and in the air, are constantly checked to identify and eradicate hazards to operations. While the Safety Manager running the Safety Programme strives to ensure that risks are minimised and all safety measures and procedures are complied with, every individual is involved and responsible for safety. Details of safety management are found in the Safety Manual.

## 13. CATEGORISATION OF PILOTS

13.1. Pilots with different flying qualifications and experience are subjected to different limitations, currency requirements and risk assessment scores. To facilitate assigning the appropriate limitations and currency requirements to pilots and student pilots operating in SYFC, pilots are categorised based on their flying experience and qualifications as follows:

| | |
|---|---|
| CAT A | 1. CAAS CPL Holder with a valid FI Rating on type operated by SYFC |
| CAT B | 1. CAAS CPL Holder with a valid AFI Rating on type operated by SYFC<br>2. CAAS CPL Holder with a valid Aircraft Rating on the type operated by SYFC<br>3. CAAS CPL Holder with a valid AFI/FI Rating on type other than that operated by SYFC |
| CAT C | 1. CAAS SPL or PPL Holder with valid foreign CPL or ATPL<br>2. Pilot operating on a CAAS validated foreign CPL or ATPL<br>3. CAAS PPL Holder with a valid Aircraft Rating on Group A aircraft<br>4. CAAS SPL or PPL Holder who is an ex-RSAF pilot<br>5. CAAS CPL Holder without a valid Aircraft Rating on the type operated by SYFC |
| CAT D | 1. CAAS SPL Holder with no prior flying experience or qualifications<br>2. CAAS SPL Holder with valid foreign Private Pilot or lower qualification<br>3. CAAS PPL Holder without a valid Aircraft Rating on Group A aircraft<br>4. Pilot operating on a CAAS validated foreign Private Pilot qualification |

## 14. DUTY AND FLIGHT TIME LIMITATIONS

14.1. All pilots must observe the limits as laid down in the ANO. In addition, SYFC imposes in-house duty and flight time limitations to further safeguard pilots from fatigue.

14.2. All pilots are not to work for more than 6 days continuously and rest periods shall not be less than 10 hours between working days.

14.3. Daily flying hours limits:

14.3.1. With the exception of navigation flights, CAT A, CAT B and CAT C pilots shall not be planned for more than 5 flights or 5 hours for a day and night combined. If the pilot's flight hours for the day have accumulated such that by adding the planned flight time of the next sortie, the 5-hour limit would be exceeded, that sortie shall not be flown. For CAT D pilots, the daily limits are 3 flights and 3 hours. The minimum rest period for CAT D pilots between flights (from landing to take-off) is 1 hour.

14.3.2. Pilots shall not be planned for 4 sorties or more in a day and night combined, if he/she has flown 2 consecutive days of 4 sorties per day. In any case, all pilots can call time out at any time if they feel that they are not fit to fly.

14.4. Monthly and yearly flying hours limits:

14.4.1. The flying hours limits for pilots are 50 hours/month, or 550 hours/year. With approval from GM/OM, the monthly hours may be increased to 55 hours.

14.5. Maximum Duration of flights:

14.5.1. Less navigation, all other day training flights shall not be planned to exceed 2.0 hours for dual and 1.3 hours for solo. For night, the limits are 1.4 hours and 1.2 hours, respectively.

14.5.2. For navigation flights, the limits are 4 hours for the longest flight and 6 hours total per day and night combined.

14.6. Minimum rest period for flight after a FTD session.

14.6.1. All pilots must have a minimum of 3 hours rest after a FTD session before embarking on a flight in any capacity except as a passenger.

## 15. CURRENCY AND CHECK FLIGHTS

15.1. **Flight Currency Period for Pilots.** The flight currency validity for the various category of pilots are as follows:

<table>
<tr><th rowspan="2">PILOT CAT</th><th rowspan="2">TOTAL FIXED-WING FLYING HOURS</th><th colspan="6">PIC HOURS ON TYPE</th></tr>
<tr><th>< 3</th><th>3 to < 5</th><th>5 to < 10</th><th>10 to < 20</th><th>20 to < 50</th><th>≥50</th></tr>
<tr><td>CAT A</td><td>N/A</td><td colspan="6">30 Days</td></tr>
<tr><td>CAT B</td><td>N/A</td><td colspan="4">21 Days</td><td colspan="2">30 Days</td></tr>
<tr><td rowspan="4">CAT C</td><td>< 75</td><td colspan="2">Same Wave</td><td>1 Day</td><td colspan="3">7 Days</td></tr>
<tr><td>75 to < 200</td><td colspan="2">Same Day</td><td>7 Days</td><td colspan="3">14 Days</td></tr>
<tr><td>200 to < 500</td><td colspan="2">1 Day</td><td>7 Days</td><td colspan="2">14 Days</td><td>21 Days</td></tr>
<tr><td>≥ 500</td><td colspan="3">7 Days</td><td>14 Days</td><td>21 Days</td><td>30 Days</td></tr>
<tr><td>CAT D</td><td>N/A</td><td>Same Wave</td><td>Same Day</td><td colspan="4">1 Day</td></tr>
</table>

15.2. **Regaining Flight Currency**. If currency has lapsed, one or more check flights are to be carried out by the OM/CFI or a FI assigned by the OM/CFI as follows:

| PILOT CAT | NUMBER OF DAYS SINCE LAST FLOWN ON TYPE | | |
|---|---|---|---|
| | **≤ 60 Days** | **61 to 90 Days** | **> 90 Days** |

| | | | |
|---|---|---|---|
| **CAT A & CAT B** | One dual check flight | One dual check flight and One RH seat check flight* | Two dual check flight and One RH seat check flight* |
| **CAT C & CAT D** | One dual check flight | Two dual check flights | |

*Applicable only to FI/AFI instructing on type operated by SYFC.

15.3. **FLEX Hours.** If a CAT D pilot on course has not flown for 14 days he may be given a flex sortie before resuming the course syllabus.

15.4. **FTDI.** FTDIs with a valid CAAS PPL would be allowed to maintain their PPL aircraft rating requirements in accordance with the SASP1.

15.5. **Renewal of Licence/COE/Ratings.** All pilots are responsible for ensuring that their licence and required ratings are valid. The onus is also on the pilots to ensure that they meet renewal requirements and that renewals are done timely so as to ensure continuity of their qualifications.

15.6 **Management Check Flight**. All non-management flying instructors are subjected to a check flight annually by GM/OM/CFI. The instructors are required to demonstrate proficiency in aircraft handling, instructional skills and standardised instructional techniques. Management may impose a similar annual check flight to check the flying proficiency of pilots who undertake flying tasks, such as for those conducting experiential flights for SYFC.

## 16. GENERAL HEALTH

16.1. A pilot is not to fly if he is not well.

16.2. Pilots feeling ill must seek medical attention from a registered medical doctor who is to be informed of the pilot's occupation in order to receive appropriate treatment.

16.3. No pilot shall fly under the influence of alcohol or its hangover effects. No beverage or food containing alcohol shall be consumed within a period of twelve (12) hours prior to commencing flying duties.

16.4. All pilots are to have adequate hydration before flight.

## 17. FLYING CLOTHING

17.1. SYFC Instructors and PPL students are to wear flight suits for local flights. In exceptional cases they may fly in civilian clothes. Other members/students are to wear flight suits or SYFC T-shirt with pants and shoes. Civilian clothes may be worn for flights overseas.

## 18. FIRE SAFETY

18.1. No person shall take into the aircraft any ignitable material other than safety matches or authorised life-saving or survival equipment.

## 19. MOBILE PHONE AND RECORDING DEVICES

19.1. Students and passengers. No student is to bring any mobile phone or recording devices over to the airside or into the aircraft. Disciplinary action, including termination from course and civil action may be taken against offenders. Pilots are responsible to ensure that passengers do likewise.

19.2. FIs. FIs may carry mobile phones for flights to be used in case of diversion or emergency situations.

# SECTION 4
# AIRCRAFT & GROUND OPERATIONS

## 1. CATEGORY OF A/C

1.1. SYFC operates the Diamond DA40-CS, a Group A aeroplane. It is IFR certified and may be operated as such provided the Pilot-In-Command (PIC) has the appropriate qualifications.

## 2. CREW REQUIREMENT

2.1. The DA40-CS can be flown by a single pilot. It can carry a maximum of four onboard.

## 3. EQUIPMENT NECESSARY FOR AIRWORTHINESS

3.1. Besides being IFR equipped, the following equipment are mandatory Civil Aviation Authority of Singapore (CAAS) requirements that must be installed in SYFC's aircraft:

3.1.1. A crash axe/fire extinguisher.

3.1.2. First aid equipment.

3.1.3. A life vest for each person on board (POB) for flights over water. A dinghy is to be carried if any part of a flight is more than 30 nm from land.

## 4. CARRIAGE OF DANGEROUS GOODS

4.1. The restriction on the carriage of Dangerous Goods in SYFC's aircraft shall be in compliance with the ANO.

## 5. AIRCRAFT MAINTENANCE

5.1. Aircraft maintenance is regulated by CAAS and is contracted to a CAAS approved aircraft maintenance contractor. Besides the relevant CAAS regulations and publications on aircraft maintenance, in-house, the Aircraft Maintenance Management Manual is the reference for the Quality Requirements pertaining to works and services performed by the aircraft Maintenance Contractor for SYFC.

## 6. WEIGHT AND BALANCE

6.1. A weight and balance check is to be carried out as per CAAS requirements. The Weight and Balance Form is shown at Annex A.

## 7. AIRCRAFT INSPECTIONS & CHECKS

### 7.1. Pre-Flight Inspection

7.1.1. Maintenance Contract personnel will carry out the Pre-Flight Inspection before each flight in accordance with the schedule laid down for the aircraft type, and will sign the aircraft tech log for its serviceability. When operating out of SYFC premises or where maintenance personnel are not available, aircrew may carry out the inspection.

7.1.2. **Tyre Serviceability Criteria**. SYFC will adhere to the tyre serviceability criteria set by the OEM. The current reference is the Michelin Aircraft Tire Care and Service Manual, a copy of which can be obtained from the Technical Liaison Office.

7.1.3. **Re-Fuelling**. Maintenance personnel and fuel bowser personnel will refuel the aircraft IAW established procedures. In particular, the aircraft must be earthed and vacated during refuelling. They are to ensure that the correct fuel is provided. The recommended fuel grade is AVGAS 100 LL. In the absence of maintenance personnel, aircrew may supervise the refuelling personnel for the task to ensure that the correct fuel and correct amount are provided.

7.1.4. The pilot is responsible for ensuring that the aircraft has sufficient fuel for flying.

## 8. PRE-FLIGHT CHECKS

8.1. **Checklists.** All aircraft checks are to be performed thoroughly, and in the correct sequence, according to the Flight Reference Cards. The Pilot-In-Command is responsible for all aircraft checks. On instructional flights the Instructor must monitor the checks done by the student. For pre-flight checks, students/pilots shall memorise and execute the checks as stipulated in the Flight Reference Card. The pilot is to pay particular attention to the integrity of the aircraft, the fuel and oil state, leaks, and the proper securing of panels, windows and doors. The currency of the databases is to be checked upon start-up. If any of the databases is not current (in yellow) it must not be used.

## 9. START-UP

9.1. In SYFC line, the aircraft is not to be started unless clearance is obtained from the marshaller.

9.2 The limits of the starting cycle are to be observed to avoid draining the battery and overheating the starter motor.

9.3. If the first engine start attempt is not successful, and if the mixture lever had been advanced (usually the case), ensure that it is retarded immediately to the cut-off position; otherwise the engine would be primed excessively and a flash fire may occur during restart. In any case wait at least 20 seconds before attempting to start again. The wait will

help drain off the excess fuel. The priority of the second start is to clear the engine (fuel pump off, mixture lever lean, throttle forward at mid position; then crank to clear the engine). If the engine kicks in during the 2nd attempt, continue as per normal start (mixture lever forward). If not, for the 3rd attempt, treat it as a normal start but with less priming.

## 10. COMMS CHECK

10.1. A Comms Check on 129.0 MHz, is to be carried out with Skylark Ops prior to taxying out. Skylark Ops will report on the transmission strength and also give the taxy sequence and assign the training area if de-confliction is necessary. The taxy sequence is with reference to aircraft within SYFC's dispersal.

## 11. TAXYING

11.1. **Brakes Check**. The following will be adopted:

11.1.1. Throttle - Idle

11.1.2. Marshaller - Signal 'Chocks Off"

11.1.3. Parking brakes - Released.

11.1.4. Throttle - As required to move aircraft forward.

11.1.5. Foot brakes - With power on, tap the foot brakes to check its effectiveness. There is no requirement to completely stop the aircraft. The instructor may check his brakes when convenient.

11.2. The brakes should not be used against power except to assist in steering.

11.3. Instrument Checks is to be done during the first turn after taxying out from the parking shed. The check in one direction is sufficient.

11.4. Good lookout must be maintained throughout. Avoid other aircraft and obstacles with sufficient clearance. If in doubt, stop. Give way to other aircraft or ground vehicles IAW taxy rules and regulations.

11.5. Taxying speed in the dispersal and in the vicinity of other aircraft and personnel must not exceed a fast walking pace. When clear of these, speed may be increased up to a fast jogging pace but not more than 12 kts (refer to GPS groundspeed read-out).

11.6. In the event of a failure of the foot brakes, shut down the engine and attempt to steer the aircraft clear of any obstruction and aircraft until it comes to a stop. Inform ATC/Ops of the emergency.

11.7. **Separation Between Aircraft.**

11.7.1 The PIC must ensure safe separation while taxying. Normal spacing between aircraft during taxy is about 4 aircraft length (100 feet) and about 2 aircraft length when stationary.

11.7.2 For engine run-up, where aircraft are parked 45o from the taxyline, distance between aircraft can be less than 2 aircraft lengths, however the pilot must ensure that there is sufficient wing clearance from the aircraft in front such that if the brakes fail to hold the aircraft, the wings will not collide.

## 12. ENGINE RUN-UP

12.1. Engine Run-Up is to be carried out at Taxiway WS1 with the aircraft positioned 45$^{o}$ to the taxy line. If there are more than 3 aircraft, the fourth aircraft may make use of WS2, facing WS1, provided there is no incoming traffic.

12.2. For multiple aircraft engine run-up, the first aircraft should be positioned close to the taxiway stop line, and the second aircraft should not be spaced out too far from the first to enable a third aircraft to be positioned there also.

12.3. When powering up to 2000 RPM for the engine run-up checks, ensure that the brakes are sufficiently pumped to prevent aircraft movement. Ensure that the brakes are holding before conducting the checks.

12.4. If the RPM is not holding steady (e.g. fluctuating ± 30 rpm), switching off the air-conditioner may alleviate the problem.

12.5. During the magneto check, if the engine rough-runs or the RPM drop limit is exceeded, too rich a mixture is usually the cause. Carry out the following:

| | |
|---|---|
| 12.5.1. Ignition Switch | - "Both" position, 2000 RPM. |
| 12.5.2. Mixture | - Slowly lean the mixture until the RPM peaks (about 1450° F on the EGT). |
| 12.5.3. Throttle | - Retard the throttle to 2000 RPM and repeat magneto checks. If the check is still unsatisfactory, set 2000 RPM for 1 min. Engine oil temperature should reach 180°F by then. Repeat the check. If the results are still unsatisfactory the aircraft must not be flown. |

12.6. Idle RPM. It is tuned with oil temperature at 175$^{o}$F to 800 RPM with air-conditioner OFF. The acceptable range would be 700 to 850 RPM.

## 13. TAXY INSTRUCTION

13.1. After completing the Engine Run-Up checks, the pilot is to switch to Ground Frequency for taxy clearance. Thereafter, taxy as instructed by ATC to the holding point. At the holding point, the aircraft is to stop one aircraft length from the stop line, especially so for solo students. This is to give sufficient reaction time to the DI in the event that the student inadvertently starts to enter the runway without clearance.

## 14. BEFORE TAKE-OFF CHECKS

14.1. The PIC must ensure that the FRC checks are carried out.

14.2. The following are included in the Captain's Brief:

14.2.1. For any emergency on the runway, abort take-off.

14.2.2. For Engine Failure After Take-Off (EFATO), carry out EFATO actions.

14.2.3. For any in-flight emergencies, refer to FRC.

## 15. TAKE-OFF CLEARANCE

15.1. After completing the pre-take-off checks at the appropriate holding point, the pilot is to switch to Tower Frequency and call ready. Thereafter, read back the take-off clearance and Take-off accordingly.

15.2. An aircraft is not to enter the runway unless cleared by Tower. Clearance is to be accompanied by the switching off of the red stop lights at the holding point, if available. If either the Tower's transmission is not clear, or if the stop lights are still illuminated, do not taxy; hold position and clarify with Tower.

15.3. Pilots are cautioned to distinguish between a take-off clearance and a clearance to enter the runway for other purposes such as backtrack or line up. In case of doubt, hold position and confirm with ATC.

15.4. A maximum of three dual aircraft may backtrack on the runway for line up, if permitted by ATC.

15.5. For student pilots backtracking for take-off, the minimum commencement point for take-off is the 4th marker.

15.6. Short-field take-off technique is recommended whenever Take-Off Distance Available (TODA) is less than 3000 ft.

## 16. AFTER LANDING TURN-OFF/VACATING RUNWAY-IN-USE

16.1. On the landing roll, the aircraft is to be stabilised before the brakes are applied gently and evenly to decelerate the aircraft. Brake pressure may be progressively increased as the aircraft slows down. Jamming of the brakes must be avoided to prevent tyre flat spots. Braking is to be carried out as soon as practicable. Students especially, are to ensure that the aircraft is decelerated sufficiently before turning off the runway. They are to concentrate on controlling the aircraft and decelerate it to a slow speed before requesting for turn-off. Any instruction from ATC is to be acknowledged with brevity. If the aircraft is moving too fast the turn-off should not be attempted, even if cleared by

ATC, and the aircraft should continue down the runway and turn off at the next available taxiway. If the overshoot is little, a 180° turn may be requested.

16.2. Prior to a student's 1st Solo, to avert the possibility of the solo student attempting to turn off the runway at high speed, discussion about landing using a longer landing run (full runway or otherwise), with subsequent turn off further down the runway or 180° turn round, must be discussed with the student.

## 17. AFTER LANDING CHECKS

17.1 Students are to perform the After Landing Checks with the aircraft stationary. Post 1st solo students, may, if cleared by their instructor, carry out the checks on the move. The return to the parking shed is via way WS2.

17.2 If the intention after landing is to proceed for take-off again, the mixture is to be leaned during the After Landing Checks as per SOP, and set to Full RICH again during the VABTO Checks prior to subsequent take-off.

## 18. TAXY INTO PARKING SHED

18.1. Solo students are not to taxy into the parking shed. They are to stop on the taxy line just abeam of the designated parking shed and shutdown. The ground marshallers will push the aircraft into the shed. For dual aircraft, the FI will taxy into parking sheds 6 and 9 due to tight clearance.

## 19. ENGINE CLEARING AND FUEL-AIR MIXTURE CHECK ON SHUTDOWN

19.1. To be carried out at the parking shed. Set 2000 RPM for 20 seconds then reduce throttle to idle, set mixture to full rich and note the idling rpm. The mixture lever is then retarded slowly and the maximum rise in RPM is to be noted. The ideal rise is between +25 to +50 RPM but up to +100 RPM is acceptable. If the rise is beyond this range the Mixture setting is likely to be too RICH. Report it to the maintenance crew.

19.2. During the engine run at 2000 RPM, if there is any marked difference in any of the 4 EGT readings (more than 150° F), the spark plugs in the cylinder with the highest EGT reading may have fouled. Engine clearing is to be carried out.

## 20. CHANGE OF PASSENGERS OR CREW

20.1. Before starting the engine and until the engine is shut down, the canopy must be closed and latched in position 1 or 2 (cooling gap) and the door must be closed and latched. During engine operation it is prohibited to enter or exit the airplane. For change of passengers or crew, the engine is to be shut down.

20.2. When sending a student solo from a dual-solo flight, the aircraft is to be shutdown for the FI to exit the aircraft. The FI is to monitor the student's startup of the engine. As the engine is hot, a shorter period of fuel priming of 1 second is recommended.

ANNEX A

# DA40 WEIGHT AND BALANCE CALCULATION

**PIC:** _____ **A/C REG:** 9V-YF **DATE:** _____

## CONVERSION FACTORS

### CAPACITIES

1 Imp Gal = 4.54 Litres

1 US Gal = 3.78 Litres

1 US Gal = 0.83 Imp Gal

### WEIGHTS

1 Imp Gal = 3.27 Kg

1 US Gal = 2.72 Kg

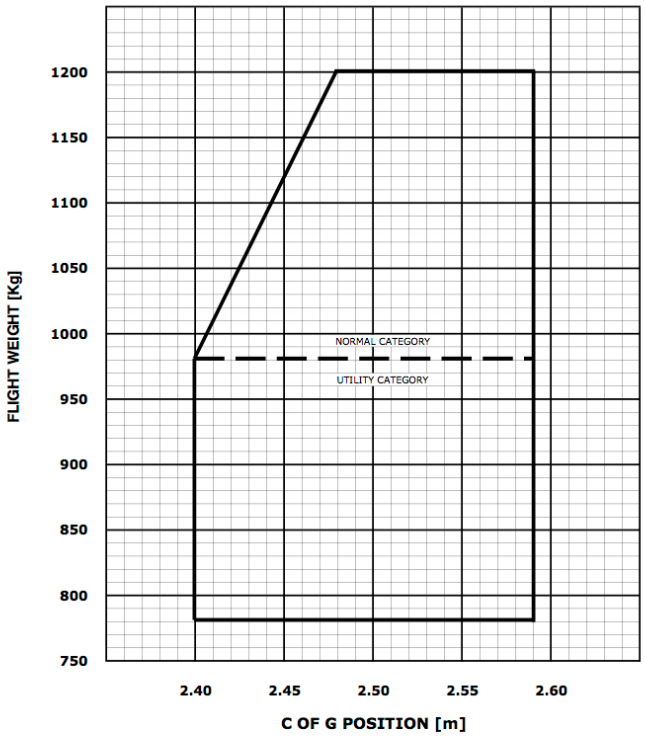
1 Litres = 0.72 Kg

1 Kg = 2.2 lbs

### MAX TAKE-OFF / LANDING WEIGHTS

| | MAX T/O | MAX LDG |
|---|---|---|
| NORMAL CAT | 1200 Kg | 1150 Kg |
| UTILITY CAT | 980 Kg | |

### PERMISSIBLE CENTRE OF GRAVITY RANGE




## AIRCRAFT LOADING

| ITEM | WEIGHT (Kg) | ARM (m) | MOMENT (Kg.m) | C.G. POSITION (m Aft of Datum) |
|---|---|---|---|---|
| Basic Empty Weight | | | | |
| Pilot-In-Command | | 2.30 | | |
| Co-Pilot | | 2.30 | | |
| Rear Seat Loads | | 3.25 | | |
| Baggage (Max 45 Kg - Fwd Ext) | | 3.89 | | Without Useable Fuel |
| Total Load without Useable Fuel | | | | |
| Useable Fuel (US Gal) | | 2.63 | | Fully Loaded |
| **TOTAL LOADED AIRCRAFT** | | | | |

**C.G. POSITION** of Loaded Airplane = Total Loaded Moment / Total Loaded Weight = _____ Metres **AFT of Datum** (Plot with **X**)

PIC Sign: _____ Licence Type / No: _____

# SECTION 5
# OPERATING PARAMETERS, LIMITATIONS & STUDENT SOLO

## 1. GENERAL HANDLING – SETTINGS, CHECKS AND PARAMETERS

1.1. **Take-Off.** For normal take-off the RPM is 2680 ± 20 RPM and the rotate speed is 59kts. In the normal training configuration, the critical field length for DA40 operations is 3,300 ft. Dual aircraft may conduct intersection take-off as appropriate. For dual aircraft, if in the process of lining up, take-off clearance is given, the aircraft need not come to a stop but may continue rolling for the take-off (timer started, landing lights "ON", full power applied).

1.2. **Cruise.** For training, the cruise power setting is 21″ MAP, 2400 RPM (21/2400), for about 100 KIAS. For navigation, refer to the cruise performance chart for economy/power cruise.

1.3. **Climbing.** The climb power setting and speed are respectively, full power and 75 KIAS. Above 5000 ft AMSL, the climb speed is 70 KIAS.

1.3.1. Lookout Weave is to be carried out every time the altimeter reading passes the 500 ft mark with at least a 30 degrees change of heading (e.g. Commence climb from 1500 ft, perform Lookout Weave at 2500 ft).

1.3.2. Engine Temperature and Pressure (T & P) are to be checked every time the altimeter reading passes the 1000 ft mark (e.g. Commence climb from 1500 ft, perform T & P Check at 2000 ft).

1.4. **Descent.** The descent power setting and speed is as follows:

1.4.1. Glide Descent – Idle Power, 75 KIAS, Ω 700 fpm

1.4.2. Cruise Descent – 12″ MAP/2400 RPM, 100 KIAS, Ω 750 fpm

1.4.3. Lookout Weave is to be carried out every time the altimeter reading passes the 500 ft mark with at least a 30 degrees change of heading.

1.4.4. Engine T & P are to be checked and the engine cleared (i.e. Increase power > 2000 RPM for 3 Seconds, then Closed) every time the altimeter reading passes the 1000 ft mark.

1.5. **Slow Speed Flying.** Slow speed flying may be conducted as follows:

1.5.1. Flaps (T/O) - 65 KIAS, power Ω 16″ MAP/2400 RPM.

1.5.2. No flaps - 70 KIAS, power Ω 16″ MAP/2400 RPM.

1.5.3. These manoeuvres are limited to a maximum of 20 degrees AOB, at constant speed and height.

1.6. **Turns.** The following turn parameters are used:

1.6.1. Medium Level Turns - 30 degree AOB, 21″ MAP/2400 RPM, 100 KIAS.

1.6.2. Climbing Turns - 15 degree AOB, Full Power.

1.6.3. Descending Turns - Max 30 degree AOB, power as required.

1.6.4. Steep Turns - 45 degree AOB, 23″ MAP/2400 RPM, Ω100 KIAS.

1.7. **Stalling.** The minimum recovery heights for stalling exercises are:

1.7.1. Dual sorties - 2500 ft AGL/AMSL.

1.7.2 Solo students - 5000 ft AGL/AMSL (done only in Bravo/Charlie).

1.8. **Endurance Flying.** Endurance flying is done by flying maximum duration with minimum fuel (mixture leaned for best economy) and maintaining level flight at lowest possible altitude. As a guide, 70 Kts without flaps or 65 Kts with T/O flaps are used as holding speeds. Mixture is leaned as required.

1.9. **Landing**. For normal landing the approach speed is 70 kts, however, landing in strong wind or turbulent wind condition a higher approach speed (plus 5 kts) should be selected.

## 2. FUEL MANAGEMENT

2.1. For local training flights the PIC is responsible for ensuring that the aircraft has sufficient fuel for the intended flight plus reserves by checking the fuel state physically prior to each flight. The minimum fuel in each tank must not be less than 10 US gallons prior to start-up. Recovery for landing is to be initiated immediately when any one fuel tank has 5 gallons or less fuel. “Minimum fuel” is to be declared when the fuel state is such that the aircraft would land with less than 45 minutes of endurance remaining.

2.2. For effective fuel management in flight, to ensure minimum fuel imbalance between the two fuel tanks, the following practices are to be adopted:

2.2.1. Departure after take-off. Switch tank every 15 minutes during FILER check based on timer. When rejoined for circuit, initially switch tank at the 15 minute mark and thereafter during every downwind check.

2.2.2. Circuit after take-off. Switch tank during every downwind check. When departing for training area, note the time (on timer) of the last switch and thereafter base the first FILER check (15 mins later) on the time of the last switch.

2.3. **Selection Of Fuel Pump.** The fuel pump is to be switched **ON** for take-off and remains **ON** throughout circuit training. On departure, it is to be switched **OFF** 1500 feet and above. Above 5000 feet it is to be switched **ON**. For join/rejoin, during the FIE Checks, it should be **ON** until after landing. Notwithstanding the aforesaid, it is to be selected **ON** whenever the fuel pressure drops below 14 PSI during any operation.

2.4. **Mixture Control** Management of mixture is as per FRC. It is to be set for economy cruise during navigation or for smooth running at any height. During training

flights which do not involve significant power changes, e.g. EOC, S & L, steep turn, etc, the mixture is to be leaned as per SOP (-100° F of peak).

## 3. LANDING LIGHT OPERATIONS

3.1. The landing light is to be switched on throughout the flight. For night flying it may be switched off for negative light approach.

## 4. WEATHER LIMITATIONS

4.1. **VFR.** Unless the PIC has a valid Instrument Rating to execute flights in Instrument Metrological Conditions (IMC), flights are to be flown in accordance with Visual Flight Rules (VFR). To comply with VFR an aircraft must be able to maintain the following minima:

4.1.1. Forward flight visibility of at least 5 nm.

4.1.2. Able to maintain separation from cloud by at least 1 nm horizontally and 1000 ft vertically.

4.2. In uncontrolled airspace, an aircraft may operate under VFR below 3000 ft with a flight visibility of at least 1 nm, provided it remains clear of cloud and within sight of ground or water.

4.3. **Special VFR Flight (SVFR).** SVFR flights may be conducted in IMC or at night or in controlled airspace following special instructions and permission given by the appropriate Air Traffic Control unit. Refer to AIP for details.

4.4. **Seletar Airfield State and Weather Diversion.** As Seletar is a VFR airfield and some FIs are not instrument rated, extra care is to be taken when operating out of Seletar in marginal weather conditions. Refer to Annex A, Weather Criteria for Flying Matrix, for the conditions of operations. If the diversion airfields' colour states are not available on weekends, airborne assessment of the airfield colour states is to be made to determine the suitability for flying.

4.5. **Weather monitoring and PIREPS.** Besides the monitoring of the weather by the FXO via the weather radar picture, all FIs are to constantly monitor the weather and provide, as appropriate, PIREPs to the FXO on weather in the circuit, transit route and training areas. This is especially so with regards to area solo students. The DI/FXO is to recall aircraft to the circuit whenever the weather is observed to be deteriorating. Landing in rain/shower by solo students is to be avoided.

4.6. **Meteorological Warning.** When a thunderstorm Met Warning is issued by the Met Office, all outdoor activities are to cease by the Met Warning onset time. No further take-off is permitted. If airborne, aircraft in the circuit are to land and shutdown before onset time. Aircraft in the training areas that received the WARNING late or are delayed in the recovery due to aerodrome congestion, may hold off, fuel permitting, until the weather improves. If the Met warning expires, flying may continue. For showers, flying may continue.

4.7 **Gusty condition.** Add ½ of the gust factor, but not less than 5 Knots, to the approach speed, e.g. wind 040/5, gusting 10, the gust factor is (10 – 5) ÷ 2 = 2½ Kts. As it is less than 5 Kts, 5 Kts is added to the approach speed.

## 5. LOW FLYING

5.1. An aircraft shall not fly over any congested area of a City, Town or settlement below 1500 feet above the highest fixed object within 2000 feet of the aircraft.

5.2. **Minimum Height In Area Alpha Low.** Area Alpha low extends from ground to 2000 feet. However, SYFC's aircraft are limited to a minimum of 1500 feet AMSL to avoid the masts at Bukit Timah and live firing areas within Area Alpha.

## 6. TRAINING AREAS

6.1. The 3 main training areas are Alpha (high & low), Bravo (high & low) and Charlie (high & low). The boundaries and height limits of the Alpha, Bravo and Charlie training areas are as stipulated in Section 11.

6.2. Training is normally carried out in Alpha High, Bravo Low and Charlie Low. It is for day operations only in VMC. If training is carried out in Alpha Low, clearance is needed from PLAB Approach. The minimum height for operations at Alpha Low is ground level. However, for SYFC, the imposed minimum height is 1500 ft.

6.3. Instrument Approaches for staff currency may be carried out at PLAB if available. Prior arrangement with the RSAF is needed for operations at PLAB. Navigation flights are conducted to regional destinations.

## 7. DECONFLICTION AND SEPARATION

7.1. **Maximum Number of Aircraft**. The maximum number of speaking units for Area Alpha is 4, and for Bravo and Charlie is 5 each, and if combined, 7. If weather conditions warrant reducing the number of aircraft in the training areas, pilots are to advise Skylark Ops accordingly.

7.2. **Transition to and from Training Areas**. A traffic congestion point is the Peirce Reservoir area where transition to and from the training areas occurs. For de-confliction the vertical and lateral separations as shown in Annex B to this section, are to be observed.

7.3. **Operating Height Advisories**. Once established in the training area and on every “Ops Normal” call, pilots are to announce their operating height or height band.

## 8. VERTICAL AND LATERAL SEPARATION IN TRAINING AREAS

8.1. All pilots, when operating in Training Area Alpha, Bravo and Charlie, are to observe the following:

8.1.1. **Vertical Separation**. In the three Training Areas, pilots are to maintain a minimum of 500 feet vertical separation from other aircraft whenever possible.

8.1.2. **Lateral Separation.** In Training Area Alpha, in order to keep better lateral separation, aircraft are to keep to the Eastern side of Bukit Timah Expressway (BKE) when heading North, and to the Western side when heading South i.e. BKE to the Port side of the aircraft at all times.

## 9. STUDENT FIRST SOLO FLIGHT

9.1. The documentation before flight IAW Section 3, Para 10.1 of the Ops Manual are required to be completed before the flight.

9.2. After the flight, the student must complete the documentation after flight IAW Section 3, Para 10.2 of the Ops Manual.

9.3. Students must complete all the Pre-Solo requirements and must have passed the Pre-Solo Quiz. Their primary Instructor, by Sortie 15, must mark the Pre-Solo Quiz. Students will not be sent 1st solo prior to Sortie 15.

9.4. Assistant Flying Instructors (AFI) are not allowed to send students 1st Solo.

9.5. The instructor must inform Tower of student's 1st solo flight so that priority is accorded. The sortie profile consists of a normal take-off, circuit and landing, except for go-around situations due to unsafe approach or landing.

9.6. The flying conditions (wind, visibility, traffic) must be conducive for the flight and the student must be fit to handle the 1st solo. There should be no major changes between the dual check and the 1st solo, e.g. no change of runway, unless the student is familiar with the changed runway. He is to advise ATC accordingly should any matter arise that may jeopardise the safety of the 1st solo.

9.7. The instructor must ensure that the comms procedure is fully briefed to the student. A comms check on 129.0 MHz is to be done prior to the student taxying and the DI is to broadcast on 129.0 MHz to all Skylark aircraft that the 1st solo student is getting airborne. The DI must closely supervise the flight and is to remain in the Tower until the student has stopped the aircraft at the location for shutdown.

## 10. SUBSEQUENT STUDENT SOLO FLIGHTS

10.1. All documentation in Section 3, Para 10 are to be completed before and after flight. Students must be thoroughly briefed on the sortie profile.

10.2. Students with less than 3 hours solo may be sent solo only within the same wave. Students with 3 hours to less than 5 hours solo may be sent solo, after a satisfactory dual check within the same day. Those with more than 5 hours solo may be sent solo after a satisfactory dual check the day prior.

10.3 The student's solo flight shall be authorised by the instructor who cleared the solo unless the instructor is not available; in which case, the FXO will authorise the student's solo flight.

10.4. For landing, solo students are allowed to do so via only a Normal approach from a Normal or Low Level circuit pattern. The exception to this is when in an emergency situation where a landing should be made as soon as possible. In such a case, the student may land off an approach that he/she has been cleared solo for.

10.5. The DI for a solo may not be the FI that cleared the student solo. Solo students may taxy out of SYFC on their own for their flights. Returning solos are not to taxy into the parking shed but stop outside of it for their shutdown.

## 11. STUDENT SOLO RESTRICTIONS

11.1. Solo PPL students are not allowed to leave Seletar circuit until they have achieved 5 hours solo. The student must be checked out before he can go to the training areas. There should always be solo coverage in the training area.

11.2. PPL holders/PPL students are not to carry out exercises, which are not briefed by the Instructor/Authorising Officer for that particular Sortie.

11.3. PPL holders/PPL students must carry out go-around actions when faced with any of the 9 Mandatory go-around situations.

11.4. PPL holders/ PPL students are not allowed to carry out the following:

11.5.1. Practise Engine Failure After Take-Off (Fan stop).

11.5.2. Practise Radio or Electrical Failure Procedures.

11.5.3. Practise Forced Landing in the training areas.

11.5.4. Low-Level circuits below 500 ft.

11.5. PPL holders/ PPL students must carry out the Line-Up Checks whilst stationary, prior to take-off, i.e. no rolling take-off.

## 12. STUDENT SOLO COVERAGE

12.1. An Instructor must be airborne to cover solo whenever a PPL student solo flight is in progress. The instructor's responsibilities are as follows:

12.1.1. Escort solo student/s for diversions if required. The instructor should be close formation qualified.

12.1.2. Report any severe weather conditions experienced to the DI and FXO.

12.1.3. Assist and advise solo student/s when necessary, especially in the event of any emergencies.

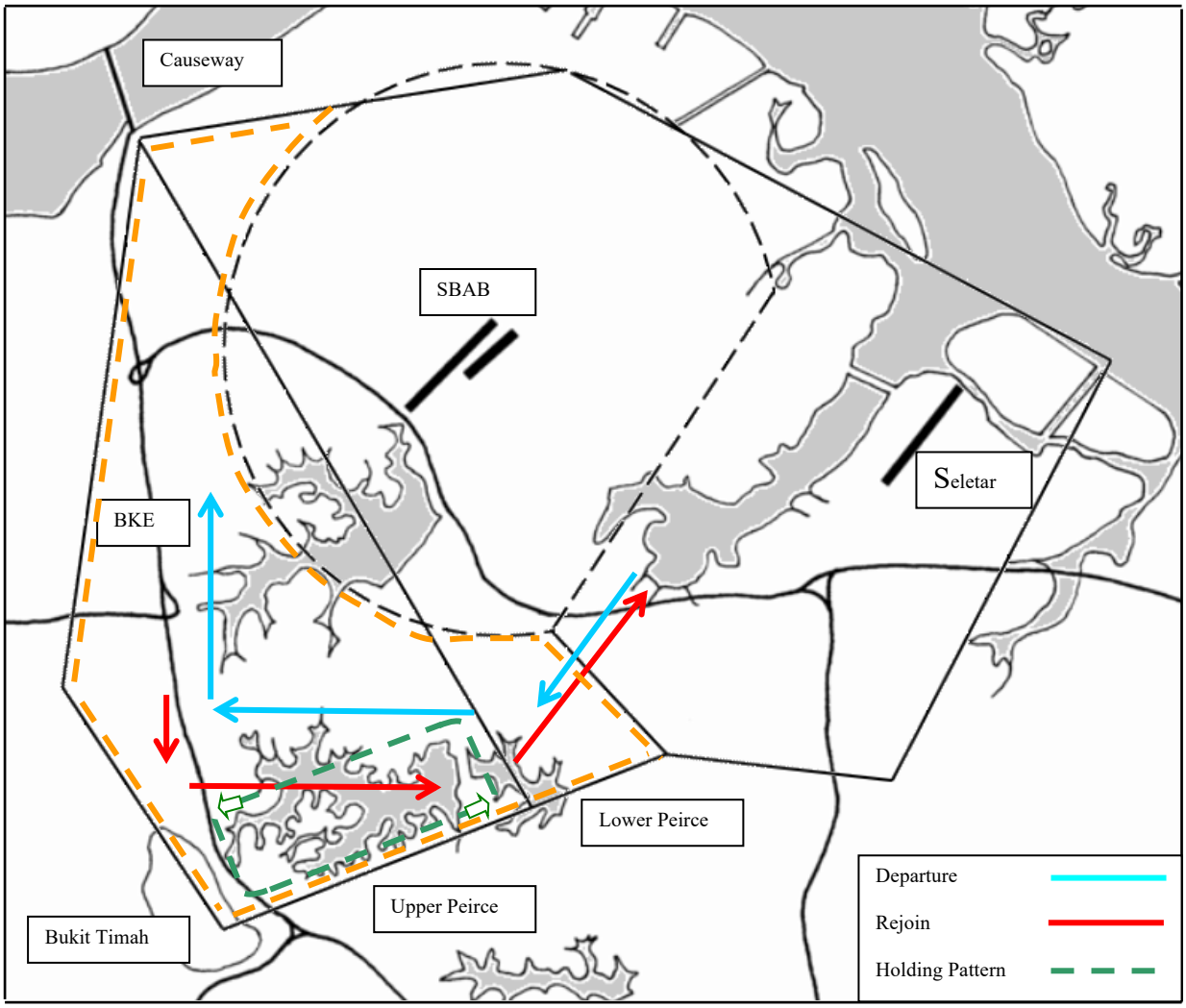
**ANNEX A**

# WEATHER CRITERIA FOR FLYING MATRIX

| WEATHER CONDITION | | SORTIE TYPE | | | | | |
|---|---|---|---|---|---|---|---|
| | | **ALL Dual Training Flights in Training Area (VFR)** | **ALL Dual Circuit Training at Departure A/F (VFR)** | **Student Solo Area & Ccts (VFR)** | **Navigation & other Tasks (VFR)** | **Night Flights (VFR)** | **IFR Navigation & Urgent Missions** |
| **Departure Airfield** | **VMC** | No Restrictions | No Restrictions | No Restrictions | No Restrictions | No Restrictions | No Restrictions |
| **Pri OR Sec Diversion** | **Y2 or Better** | | | | | | |
| **Departure Airfield** | **VMC** | DUAL Only (Divert SVFR) | DUAL Only (Divert SVFR) | HOLD T/O LAND ASAP | No Restrictions | Circuits Only | IR Pilots only |
| **Pri AND Sec Diversion** | **A1** | | | | | | |
| **Departure Airfield** | **VMC** | HOLD T/O LAND ASAP | HOLD T/O LAND ASAP | HOLD T/O LAND ASAP | HOLD T/O Recover to Land | HOLD T/O LAND ASAP | IR Pilots only |
| **Pri AND Sec Diversion** | **A2 or worse** | | | | | | |
| **Departure Airfield** | **IMC (Weather)** | HOLD T/O LAND ASAP | HOLD T/O LAND ASAP | HOLD T/O LAND ASAP | HOLD T/O Go to Destination or Divert | HOLD T/O LAND ASAP | IR Pilots only |
| **Departure Airfield** | **IMC (Vis ) – Haze/Mist** Vis ≥ 1.5km / Cloud ≥ 1500' | Dual Only | HOLD T/O LAND ASAP | HOLD T/O LAND ASAP | No Restrictions | HOLD T/O LAND ASAP | IR Pilots only |
| **Pri OR Sec Diversion** | **Y2 or Better** | | | | | | |
| **Weather Warning** | **Thunderstorm Warning** | HOLD T/O Recover to LAND or HOLD in Area | HOLD T/O LAND ASAP | HOLD T/O LAND ASAP | HOLD T/O Go to Destination or Divert | HOLD T/O LAND ASAP | HOLD T/O Recover to LAND or HOLD in Area |
| **Runway Surface** | **Damp** | No Restrictions | No Restrictions | FI's Discretion | No Restrictions | No Restrictions | No Restrictions |
| | **Wet** | Dual Only | Dual Only | HOLD T/O LAND ASAP | Min 3000 ft Runway | HOLD T/O LAND ASAP | No Restrictions |
| **Temperature (OAT)** | **35OC (with Aircon)** | No Restrictions | No Restrictions | No Restrictions | No Restrictions | N.A. | No Restrictions |
| | **35OC (NO Aircon)** | No Restrictions | HOLD T/O LAND ASAP | Area Only | No Restrictions | N.A. | No Restrictions |
| | **≥ 36OC (Must have Aircon)** | No Restrictions | FI's Discretion | HOLD T/O LAND ASAP | No Restrictions | N.A. | No Restrictions |
| **Surface Wind Limits (knots)** | **Max strength** | 20 | 20 | 15 | 20 | 20 | 20 |
| | **Max X-wind** | 15 | 15 | 10 (5 for 1st Solo) | 15 - CPL / 12 - PPL | 15 | 15 - CPL / 12 - PPL |

**ANNEX B**

# TRAFFIC DECONFLICTION AT PEIRCE




## DEPARTURE FOR AREA ALPHA

1. Transit at 1500 ft. Before Lower Peirce, turn Westerly before climbing for area.

## REJOIN FROM AREA ALPHA

1. Rejoin south of Upper Peirce. If rejoin is delayed, hold as per holding pattern (Left hand race track pattern, heading 060° and 240°).

# SECTION 6
# CIRCUIT FLYING PROCEDURES

## 1. CIRCUIT HEIGHT

1.1. **Circuit Height.** The circuit heights at Seletar, based on QNH, are as follows:

1.1.1. Normal and Flapless circuits are to be flown at 800 ft. For Flapless circuit and short-field stop and go, an advisory call is to be made on upwind.

1.1.2. Glide circuits are to be flown at 1500 ft. Clearance must be obtained from ATC.

1.1.3. Low-Level circuits are to be flown at 500 ft. Clearance must be obtained from ATC.

## 2. FIXED WING CIRCUIT DIRECTION

2.1. Runway dimensions and visual circuit direction for SEL, PLA and SBAB are as follows:

2.1.1. **SEL.**

1.2.1.1. Runway 03 (6024 x 150 ft) - Left-hand pattern.

1.2.1.2. Runway 21 (6024 x 150 ft) - Right-hand pattern.

2.1.2. **PLAB.**

1.2.2.1. Runway 02 (12400 x 200 ft) - Left-hand pattern.

1.2.2.2. Runway 20 (12400 x 200 ft) - Right-hand pattern.

2.1.3. **SBAB.**

1.2.3.1. Runway 05 (3000 x 100 ft) - Left-hand pattern.

1.2.3.2. Runway 23 (3000 x 100 ft) - Right-hand pattern.

## 3. NUMBER OF AIRCRAFT IN THE CIRCUIT

3.1. The following shall apply at Seletar Airport for Day and Night circuits:

3.1.1. **Day.** Not more than 5 aircraft are allowed to be in the circuit pattern at any one time.

3.1.2. **Night.** Not more than 4 similar aircraft type are allowed to be in the circuit pattern at any one time.

## 4. PRACTICE ENGINE FAILURE AFTER TAKE-OFF (EFATO)

4.1. Only Instructors may initiate EFATO. Positive clearance must be obtained from ATC prior to commencement. The following must be observed:

4.1.1. **Height limits.**

4.1.1.1. Minimum height to commence - 500 ft AGL.

4.1.1.2. Minimum height on recovery - 200 ft AGL.

4.1.2. **R/T Calls.**

4.1.2.1. Call "C/S, Request Fan stop" before commencing.

4.1.2.2. Call "C/S, Climbing" after completion.

4.1.3. **Forced Landing Areas.** Refer to Section 9, Para 3.

4.1.4. **Power Setting & Flaps.** To avoid throttle at idle setting, set 1500 rpm with flaps UP, to simulate a 75 kts glide descent.

## 5. MANDATORY GO-AROUND

5.1 Pilots/students are to execute a 'Go-Around' in any of the following situations.

5.1.1. Not Lined-Up on Final approach by 300 ft AGL.

5.1.2. Not cleared for Touch-And-Go or Land by 200 ft AGL.

5.1.3. Instructed by Tower to do so.

5.1.4. Given a landing sequence and cannot locate aircraft ahead.

5.1.5. Runway obstructed at or below 200 ft AGL.

5.1.6. Airspeed drops by more than 5 Kts of approach speed on Final.

5.1.7. Not touched down by ½ the runway length in Seletar.

5.1.8. Not satisfied with the approach or landing.

5.1.9. Exceeded 30 degrees AOB on turn to final.

## 6. GO AROUND PROCEDURES

6.1. Pilots/students are to execute the following procedures when going around:

6.1.1. Apply Full Power and select Climb Attitude.

6.1.2. Flaps – from Landing to Take-off, immediately.

6.1.3. Call "C/S, Go-Around".

6.1.4. Above 200 ft AGL, 65 KIAS, carry out After Take-Off Checks.

6.1.5. Turn to the 'Live-Side' (west of the runway) and fly parallel to the runway. If touch and go or landing clearance has been given prior to the go-around decision aircraft may over-fly the runway. In PLAB, Go-Around is done on the 'Dead side' of runway in use.

6.1.6. Climb at 75 KIAS and continue circuit pattern.

## 7. HELICOPTER CIRCUIT (Helizone)

7.1. The Helizone is on the 'Dead side' of the Seletar runway. The normal circuit altitude is 600ft. Minimum height over Helizone for fixed wing aircraft is 1500 ft. All pilots must keep clear of this Zone at all times especially during approach, Go-Around and Take-Off.

## 8. CHANGE OF RUNWAY

8.1. A runway change may be directed by the tower should there be a significant change in wind direction. The Procedures are in Annex A. ATC may deviate from the standard procedures, in which case specific instructions will be given to pilots.

## 9. CONTINUOUS CIRCUITS

9.1 For solo students who are practicing ONE type of circuit, an orbit (go around), is to be conducted after 3 consecutive touch and go, unless the 4th is for a landing.

## 10. ADVISORY CALLS

10.1. Advisory calls to ATC and other aircraft are to be made on upwind for full stop, flapless and short field landing (stop & go). For the stop and go, ATC clearance will be confirmed on final.

## 11. AIM-POINT

11.1. To enable the aircraft to glide to the runway from the end of downwind (45° to the runway), the aim-point for approaches (normal, flapless, low level) will be the 1st marker.

## 12. CLEARANCE SELF-CHECK ON FINAL.

12.1 On final to land or touch and go, by 250 ft AGL, the pilot is to self-check for clearance and avoidance of inadvertently applying brakes during touch down by saying

aloud “cleared/not cleared, to land/touch and go, feet low”. The “Minimums” function on the Garmin1000 PFD may also be set to 250 feet as an additional aid.

**ANNEX A**

## SELETAR AIRPORT RUNWAY CHANGE PROCEDURES

### FROM RUNWAY 21 TO RUNWAY 03

Pilot Actions:

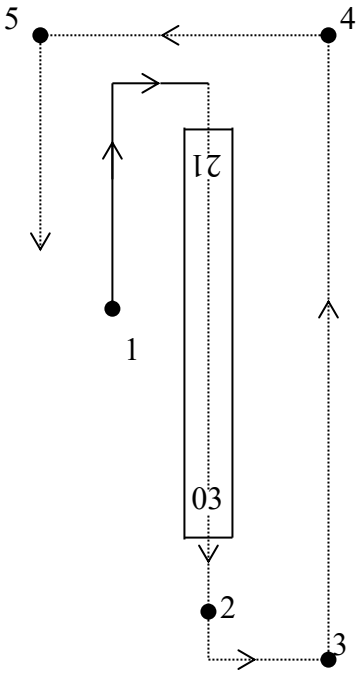
1. Maintain 1000 ft. Continue Normal circuit pattern and over fly the Runway.

2. On passing the threshold of Runway 03, climb to 1500 ft. Turn left on passing approximately 1 nm after the threshold of Runway 03.

3. Fly along the Eastern side of the Runway. (DO NOT infringe Paya Lebar CTR.)

4. On passing abeam the threshold of Runway 21, turn left onto Crosswind and thence to Downwind for Runway 03.

5. Descend to circuit altitude at the beginning of Downwind leg.



## SELETAR AIRPORT RUNWAY CHANGE PROCEDURES

### FROM RUNWAY 03 TO RUNWAY 21

Pilot Actions:

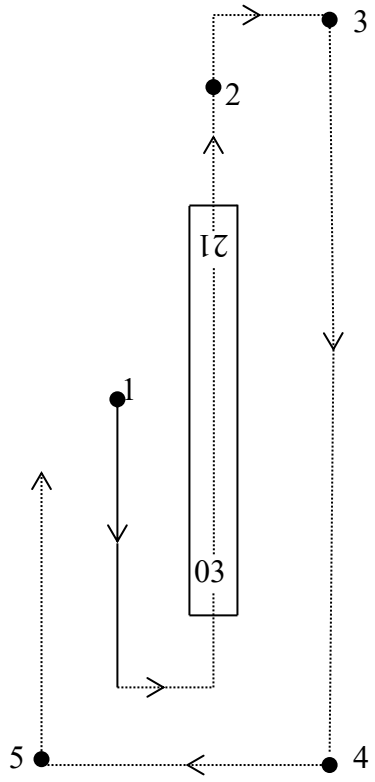
1. Maintain 1000 ft. Continue Normal circuit pattern and over fly the Runway.

2. On passing the threshold of Runway 21, climb to 1500 ft. Turn right on passing the Seletar coastline.

3. Fly along the Eastern side of the Runway. (DO NOT infringe Paya Lebar CTR.)

4. On passing abeam the threshold of Runway 03, turn right onto Crosswind and thence to Downwind for Runway 21.

5. Descend to circuit altitude at the beginning of Downwind leg.



# SECTION 7
# INSTRUMENT FLYING

## 1. INSTRUMENT FLYING REQUIREMENTS

1.1. The PPL syllabus requires 2 sessions of Instrument Flying (IF) in the Flight Training Device (FTD) and 4 hours of simulated Basic Instrument Flying training for students to appreciate flying by sole reference to Instruments.

1.2. FIs are to maintain proficiency in IF and the requirement is a minimum of 0.7 simulated or actual IF hours every 3 months. The proficiency flight can be carried out in the FTD or as a mutual SCT flight for two FIs. Operational or training flights that include at least 0.7 simulated or actual IF hours are also eligible for count towards meeting the IF proficiency requirement.

1.3. All simulated IF practices must have a SYFC qualified Safety Pilot onboard. He is responsible for the safe conduct of the flight when the other pilot is flying the simulated IF.

1.4. The goggle/hood is to be used only after Take-Off and above 200 ft AGL.

## 2. IF EXERCISES

2.1. Only the following simulated IF exercises are allowed:

2.1.1. Straight and Level.

2.1.2. Climbing and Descending with and without turns.

2.1.3. Turning, maximum 30 degrees AOB for confidence building is permitted, otherwise Rate 1 turns will suffice.

2.1.4. Unusual Attitude Recovery.

2.1.5. Limited Panel flying (Instructors only).

2.1.6. Radial intercepts (instructors only).

2.1.7. IF Approaches (Instructors only).

## 3. SIMULATED IF APPROACHES (Instructors Only)

3.1. For simulated VOR and ILS approaches into PLAB, prior clearance and coordination are required with RSAF and PLAB. Such simulated approaches for non-IF rated pilots would be deemed as visual straight-in approaches.

3.2. If the aircraft's navigation and approach databases are to be used for navigation and IF approaches, they must be current.

# SECTION 8
# NIGHT FLYING PROCEDURES

## 1. GENERAL

1.1. CAAS flying licence holders are required to maintain night flying currency in accordance with the SASP.

## 2. QUALIFICATIONS AND REQUIREMENTS

2.1. The PIC must possess the appropriate licence or rating to fly at night.

2.2. He must be current on type.

## 3. BRIEFING

3.1. All pilots involved must attend the Night Flying Brief.

3.2. The following information is to be briefed:

3.2.1. Weather for the duration of flight.

3.2.2. Airfield State and other Night Flying Activities.

3.2.3. Airfield lighting.

3.2.4. ATC and Emergency procedures.

3.2.5. Night Flying Programme and Practice Diversions.

## 4. TORCH-LIGHT

4.1. A serviceable torchlight must be carried in the aircraft.

## 5. AIRCRAFT LIGHT SIGNALS

5.1. The following light signals are to be followed:

5.1.1. Aircraft Manned - Position lights ON.

5.1.2. Ready to start - Strobe lights ON.

5.1.3. Ready to taxy - Taxy light ON.

5.1.4. Radio Failure - Flash-landing light.

5.2. If the strobe, position lights, taxy or landing lights are unserviceable, the aircraft is not to be flown. If aircraft is on the ground, it must return and if airborne, land as soon as possible.

## 6. PRACTISE NO LANDING LIGHT

6.1. Pilots practising landing without landing light are to call “Negative Lights” on Final approach.

6.2. The Landing light must be switched back ON during the roller.

## 7. R/T CALL

7.1. After Landing, when clear of the runway, the pilot is to call "C/S Clear".

## 8. EMERGENCIES

8.1. Radio Failure Procedures at night are similar to day procedures except the landing light is flashed instead of rocking the wings.

8.2. If Total Electric Failure occurs, the following procedures are to be adopted with the help of torchlight.

8.2.1. Check Master Switch ON.

8.2.2. Adopt No Radio Procedures Close and Open Throttle abeam the Tower to attract attention.

8.2.3. Handheld torch may also be used to attract attention. Follow light signals from the Tower.

## 9. RESTRICTIONS

9.1. Practice Emergencies are not allowed.

9.2. Only Normal and Flapless circuits are allowed at night. There is no requirement to make an advisory call on upwind when doing a flapless circuit.

9.3. For Night Diversion Procedures, refer to Section 9, Para 6.

# SECTION 9
# EMERGENCIES

## 1. EMERGENCY PROCEDURES

1.1. Aircraft experiencing emergencies normally carry out the emergency procedures as per the POH/Flight Reference Card (FRC). Due to the complexities of forced landing, precautionary forced landing and several other emergencies, the handling and contingencies for these emergencies are discussed here.

## 2. FORCED LANDING

2.1 A forced landing is one where due to flight controls, engine or other problems, the flight cannot continue as normal and the aircraft is forced to land e.g. engine failure, partial loss of power, engine shutdown.

2.2. The success of a forced landing will depend on the pilot's sound judgement and planning. He is to consider his position, weather, wind, height and distance to the nearest suitable forced landing area in planning his approach and forced landing pattern.

2.3. The drills and procedures for a forced landing are as per FRC and other relevant documents. In the FRC, following the "immediate actions", the pilot should fly the aircraft at glide speed, determine the best forced landing area within his glide range and fly towards it. He should then assess the aircraft problem by the "troubleshoot checks" and attempt to "restart" the engine if feasible and height permitting. The flight path and forced landing pattern should be such that the aircraft will force land in the direction of the wind. A Distress call should be transmitted as appropriate on the frequency in use, or on 121.5 MHz. This will facilitate ATC response to the emergency. The shutdown checks should be carried out when it is no longer feasible to restart the engine or if height does not permit further attempts.

2.4. The distress call should include the following information:

2.4.1. Nature of emergency.

2.4.2. Intention of pilot.

2.4.3. Present position, height and heading.

2.4.4. Any other relevant information.

Example: MAYDAY, MAYDAY, MAYDAY
Paya Lebar Approach
Skylark 80,
Engine Failure
Forced Landing, Seletar, RWY 21
2 Miles, West of Seletar, 4000 Feet
Heading 090
One POB, SPL

2.5. The forced landing pattern is to be flown to position the aircraft at "high key" and "low key" positions, relative to the forced landing area and direction of landing. Flaps should be used to touch down at the intended point and to land as slow as practicable. Refer to the Pre-Flight Briefing Guide for the standard pattern. Variations to the standard pattern may be applicable such as "off-set high key", depending on the position of the aircraft and direction of landing.

## 3. FORCED LANDING AREAS

3.1. **Training Areas and transition**. While operating in Training Areas Alpha, Bravo and Charlie and during transition to and from them, Seletar Airport, SBAB, reservoirs and suitable large tracts of open areas may be considered for forced landing.

3.2. **EFATO**. For Engine Failure After Take-Off (EFATO) at Seletar, the choice of forced landing area depends on the position and energy of the aircraft, wind and weather conditions. The landscape and terrain around the aerodrome may change and pilots are advised to constantly keep an eye out for suitable forced landing areas.

## 4. PRECAUTIONARY FORCED LANDING

4.1 A precautionary forced landing is one where the aircraft has developed a problem (mainly engine related) or is suspected of experiencing one soon but is still flyable and able to maintain height. Potential complications necessitate that the aircraft recover via a forced landing pattern. Should such complications arise during approach; the glide profile will enable the aircraft to reach the runway safely. The emergency procedures to handle the specific problem are as laid out in the FRC, and a "PAN" call is to be made to seek priority for assistance and recovery.

## 5. PRACTISE

5.1. When practising emergencies no actions are to be taken that could result in an actual emergency, e.g. the engine is not to be shut-down deliberately in flight in order to practise restarting it or to do a PFL. Only instructors are permitted to initiate practise emergencies.

5.2. Practise emergencies can be broadly categorised under Practised Forced Landing (PFL) and Practised Precautionary Forced Landing (PPFL). To differentiate between the two the FI must state it clearly to the student. In an actual situation, the pilot must state it in full and not use the acronym PFL.

### 5.3. Precautionary/Practice Forced Landing (PFL).

5.3.1. Aircraft recovering from the Area may recover via a PFL, Positive clearance must be obtained from Seletar Tower through Paya Lebar Approach.

5.3.2. Aircraft in the circuit may also request for clearance to climb to the required altitude to execute a PFL. In such a case, the aircraft is deemed to have left the circuit pattern.

5.3.3. All the aircraft in the circuit are to be located before the request to commence PFL. It is the onus of the pilot commencing the PFL to ensure he is able to fit into the circuit pattern without disrupting the traffic in the pattern.

5.3.4 When cleared to commence, the pilot is to report 'leaving 2500 ft'. ATC may inform the pilot of the number of aircraft in the circuit. If the pilot is unable or misjudged his spacing and could not safely fit into the downwind sequence, he is to terminate the PFL before 'Low Key' (1500 ft).

5.3.5. Pilots are to report “Late downwind high” (Low Key) for circuit sequence.

5.3.6. PFLs are to be carried out as follows:

5.3.6.1. Throttle to idle.

5.3.6.2. Engine should be cleared as per Glide Descent or by Low Key if PFL was commenced from 2500 ft.

## 6. DIVERSION

6.1. PLAB and SBAB are the preferred diversion airfields for emergencies and weather. Refer to Section 5, Paragraph 4 for weather and diversion limitations.

### 6.2. Diversion Procedures for Paya Lebar Air Base, PLAB (Primary Diversion Airfield).

6.2.1. Request diversion instructions from Paya Lebar Approach.

6.2.2. A diverting aircraft will usually be directed to fly from Area Alpha or via MacRitchie Reservoir to PLAB at a given altitude. Alternatively, the aircraft may be directed to fly direct from Seletar to PLAB or via Punggol Point. Once on PLAB Tower frequency, instructions will be given by ATC for the join. Pilots can expect to be instructed to join direct downwind or base for the runway in use.

6.2.3. Pilots are to be familiar with PLAB layout before carrying out diversion. Normal circuits are flown at 1000 ft and low-level circuits are not permitted.

6.2.4. In military airfields, ATC does not provide a sequence number when the pilot makes a downwind call. Also, a Base Call is made instead of a Final Call.

### 6.3. Diversion Procedures for Sembawang Air Base, SBAB (Secondary Diversion Airfield).

6.3.1. Request for joining instructions from Paya Lebar Approach.

6.3.2. Overhead joining procedures and descent for Downwind and Finals are similar to Seletar rejoin procedures.

6.3.3. Pilots are to be familiar with SBAB layout before carrying out diversion. Normal and low-level circuits are flown at 1000 ft and 800 ft respectively.

6.4. **Night Diversion Procedures.**

6.4.1. Request for diversion instructions from Seletar Tower.

6.4.2. Aircraft will be diverted to PLAB via Punggol Point at 1500 ft.

6.4.3. Joining procedure for PLAB at night is the same as for daytime.

## 7. CHASE/ESCORT PROCEDURES.

7.1. **Requirement.** Chase/Escort by another aircraft arises under the following circumstances:

7.1.1. Emergency/weather diversion involving solo students or pilots unfamiliar with the diversion procedures and/or the diversion airfield.

7.1.2. Aircraft requiring assistance from another aircraft, e.g. ASI failure.

7.2. **Initiation.** Aircraft requiring the assistance is to inform ATC and also raise it to Skylark Ops. FXO will assign an aircraft to the task, usually the aircraft covering solo. Chase pilots must be close formation qualified. If there is a likelihood of the chased aircraft blocking the runway while landing, and time permitting, the FXO shall recall all other aircraft for landing before the emergency aircraft.

7.3. **Communication.** The chaser is to establish communication with the chasee on 129.0MHz to establish his position, fuel state and, if applicable, the nature of his emergency. If the chasee is in the training area, the chaser will nominate a prominent RV point and a height for the RV.

7.4. **Rendezvous.** The RV point should be close to Seletar, i.e. Peirce or the overhead, weather permitting. The chasee is to establish a left hand orbit with 30 deg AOB and set power to 21/2400 RPM. As soon as the pair holds hands, the chaser may direct the chasee to fly as appropriate to facilitate the chaser's join up. The chaser shall join from slightly below the chasee's height, on his left, into arrowhead formation. If hand signals are required the chaser shall close up to close formation.

7.5. **Emergency/Weather Diversion.** The chaser will stay in arrowhead formation and direct the chasee for the diversion giving instructions for heading/direction and height on Com 2 (129.MHz). He will communicate with ATC (Skylark XX, YY combined), leading the frequency changes on Com 1 and checking in with the chasee on every frequency change. On joining the circuit, he shall direct the chasee onto downwind, base and finals, providing guidance on position, height, power setting and airspeed. He shall fly outside of turns and configure his flaps setting to enhance his arrowhead manoeuvring. When the chasee is sufficiently positioned on finals for

landing, the chaser will inform the chasee to land while he himself executes a go around. Under no circumstances is the chaser to land before the chasee, especially a student solo.

7.6. **Other Chase Assistance.** Most emergencies can be handled independently and do not require chase assistance. For some emergencies, such as the two below, and especially with solo students involved, chase assistance is invaluable.

7.6.1. **ASI failure.**

7.6.1.1. In the case of a student or pilot who is not close formation qualified, chasing rather than leading is required. The procedures for area join up and rejoin remain the same with a PAN call and combined recovery. Once in the circuit the chaser shall direct the chasee in manoeuvre, power setting and flaps to set him up for long finals. The chaser shall have more flaps than the chasee to enhance manoeuvring. The chasee shall fly the approach normally with the chaser calling out the airspeed every few seconds. The chaser shall break away at 100 ft AGL.

7.6.1.2. For the pilot who is close formation qualified, he shall join up in arrowhead formation with the Shepherd aircraft. The Shepherd shall lead him down to 100 ft AGL on the approach. Thereafter the Shepherd will call "breaking off", leaving the emergency aircraft to continue the approach to land.

7.6.2. **Stuck Throttle.** In a stuck throttle emergency where an engine shutdown may be required, chase assistance is necessary for the inexperienced solo student. The stuck throttle may occur at various power settings. In general, there are 2 main scenarios.

7.6.2.1. **Power insufficient to maintain level flight (less than 15" MAP).** This will be a case of forced landing. If the chase aircraft can join up in time it can render assistance in R/T calls and advise the solo student on when to shutdown the engine, setting flaps, manoeuvring and positioning the aircraft for forced landing. ATC is to be informed of the deliberate engine shutdown.

7.6.2.2. **Power sufficient to maintain level flight (15" MAP and above).** If the stuck power setting is high, appropriate flaps should be lowered to reduce speed below 80 kts. (observe limits, lower airspeed, if necessary, by climbing/manoeuvring). A lower speed will facilitate the subsequent descent. The chaser shall ask for the chasee's airspeed for the join-up and recovery will be as above. Once in the circuit the chaser will position the chasee for engine shutdown (base or long finals). Once the engine has been shutdown the flaps may be raised (and lowered again when necessary) for a glide approach. The desired touchdown point is abeam the PAPI (2nd or 3rd marker).

## 8. RADIO FAILURE IN THE AIR

8.1. A total radio failure occurs when the pilot can neither transmit nor receive radio calls on both VHF radios. It is possible that only the receiver failed. In such a case the pilot should transmit "in the blind" when executing the no radio procedures - "C/S Transmitting Blind", followed by the message.

## 9. NO RADIO REJOINS AND CIRCUIT PROCEDURES

9.1. If total radio failure or receiver failure occurs, pilots are to adopt the following procedures:

9.1.1. Join overhead 2000 ft, maintain good lookout for other aircraft.

9.1.2. Identify circuit direction by observing aircraft in circuit and wind direction.

9.1.3. Carry out a normal rejoin for a normal circuit, maintain good separation with other aircraft.

9.1.4. When on Finals, level off at 600 ft, select T/O flaps and landing light "ON", power select Ω 20"MAP to fly at 90 KTS, Max RPM.

9.1.5. Fly on the western side of the runway, and rock aircraft wings from beginning to end of runway. Thereafter carry out the Go-Around procedure.

9.1.6. Fly the normal circuit pattern.

9.1.7. When on downwind, expect to see an intermittent green light from Tower, indicating clearance to continue to Final.

9.1.8. On final, a steady green light indicates clearance to land.

9.1.9. If no light signal is observed, repeat the procedures again, if still no light signals are observed, land off the next approach if runway is clear.

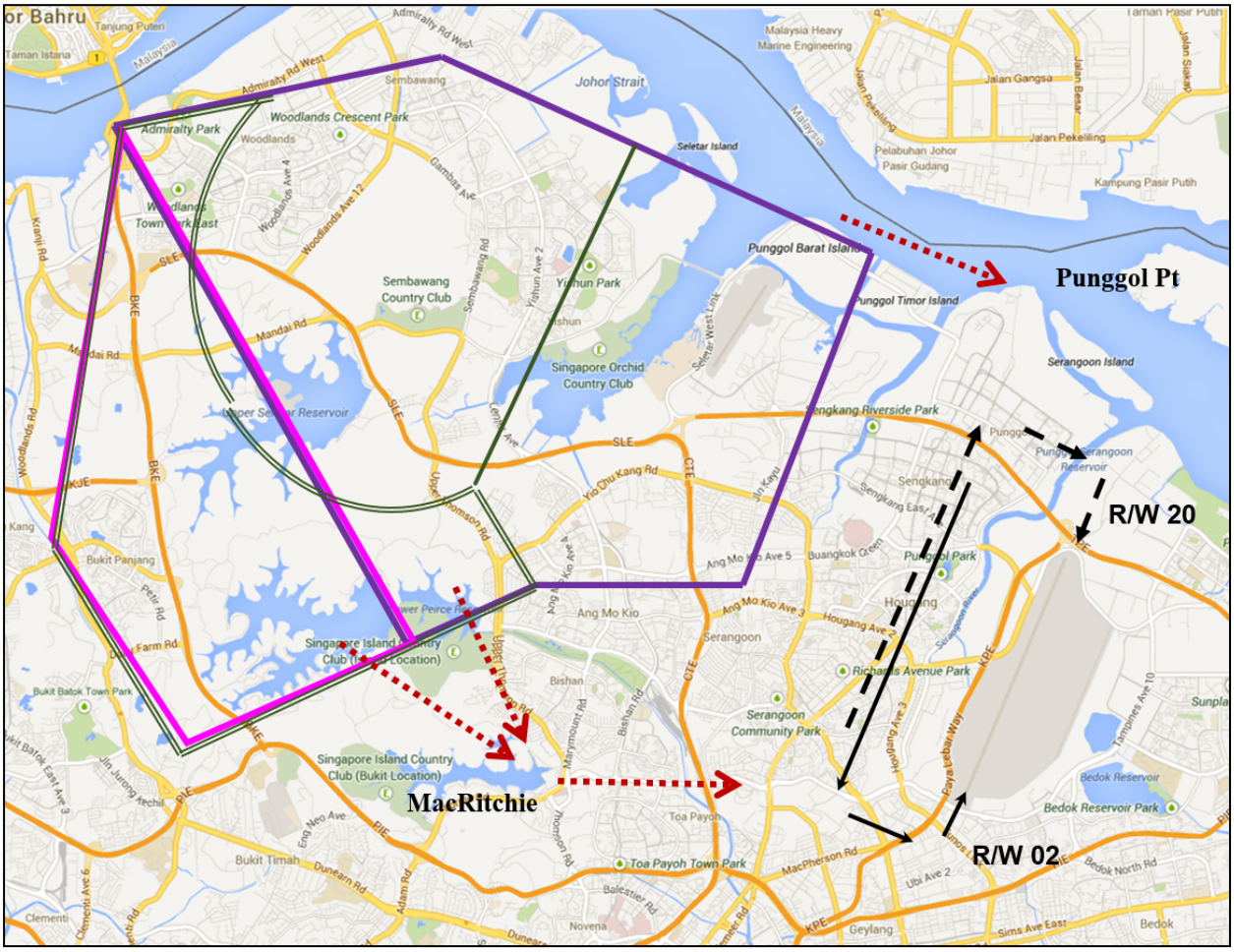
9.1.10. For the relevant light signals from Tower refer to Section 11, Para 12.

## 10. ENGINE OVERSPEED

10.1. All pilots are to be familiar with what constitutes an 'Engine Overspeed' and a 'Momentary Engine Overspeed' and apply the appropriate measures should an overspeed occurs. Details can be found in Lycoming SB 369L, a copy of which can be obtained from the Technical Liaison Office.

**ANNEX A**

# DIVERSION TO PLA FROM SELETAR & LATA




1. From Seletar Airport via Punggol Point:
   a. Follow clearances from Seletar ATC and Paya Lebar ATC.
   b. Likely route - fly along the coast towards Punggol Point, then turn right to
      i. Join downwind for RWY 02
      ii. Join right base for RWY 20, or
      iii. Track for overhead RWY 20 and subsequent descent to downwind.

2. From LATA via MacRitchie:
   a. Follow clearances from Paya Lebar Approach and Paya Lebar ATC
   b. Likely route – fly from Peirce Reservoir towards eastern end of MacRitchie Reservoir, then track easterly to
      i. Join downwind for RWY 20
      ii. Join left base for RWY 02, or
      iii. Track for overhead RWY 02 and subsequent descent to downwind.

# SECTION 10
# NAVIGATION

## 1. PREPARATION

1.1. Navigation planning should primarily be done on the Garmin 1000 system. Pilots may prepare a map for backup, in which case, a proper pilotage chart is to be used. The Tactical Pilotage Chart (TPC) of 1:500,000 scale is recommended.

## 2. ALTITUDE

2.1. **Safety Altitude**. Safety Altitude for each leg is calculated as follows; highest Point (10 nm on each side of track) + 10% +1500 ft, rounded **UP** to the nearest 100 ft.

e.g. 3142 ft (Highest Point)
314 ft (10% of 3142 ft)
1500 ft
= 4956 ft
∴ Safety Altitude is **5000 ft** (rounded **UP** to nearest 100 ft).

2.2. **Minimum Altitude.** The minimum altitude is 500 ft AGL. Aircraft may descend from en-route altitude down to 500 ft AGL in order to maintain visual with flight path ahead.

## 3. PERMITS AND FLIGHT PLANS

3.1. The PIC is to ensure that all required over-flight permits, diplomatic clearances and such have been applied for and granted.

3.2. The PIC is to ensure that a Flight Plan is submitted to the AIS in Seletar or an appropriate agency.

## 4. WEATHER

4.1. The following is practised:

4.1.1. Weather information is readily available from a variety of sources. Pilots should ensure they have the prevailing weather report of the departure airfield and the forecasted weather for the destination airfield, diversion airfields, airfields en-route and the route.

4.1.2. During the flight, if the weather for the destination Airfield or the route ahead is required, pilots can request a report from the Controlling Agency.

## 5. RESTRICTIONS

5.1. The following restrictions apply:

5.1.1. Minimum En-route Altitude is 500 ft AGL.

5.1.2. Do not over-fly Towns, Controlled Airspace, Danger, Restricted or Prohibited Areas, and avoid over-flying Mosques on Fridays.

## 6. NAVIGATION AND AIR DATABASES

6.1. Outdated databases must not be used for navigation and instrument approaches. These pertain to navigation, airway, airspace, airfield, instrument approaches and procedures. In place of electronic databases, a current paper form may be used.

## 7. EQUIPMENT / DOCUMENTS

7.1. The following documents and equipment are to be carried in the aircraft for Navigation flights:

7.1.1. Aircraft Technical Log Book

7.1.2. Certificate of Airworthiness (C of A)

7.1.3. Certificate of Registration (C of R)

7.1.4. Passports with minimum 6 months validity from the return date

7.1.5. Valid Individual Aircrew Licence

7.1.6. Customs and Immigration, navigation documents

7.1.7. Jungle survival pack for flights over forested areas

7.1.8. Dinghy pack for flights over water 30nm or more from land

7.1.3. Portable VHF radio (Optional)

7.1.4. Portable GPS set (Optional)

## 8. NAVIGATION LOG

8.1. A Navigation Log is to be prepared and brought for the flight.

## 9. TIMINGS

9.1. All timings are in UTC.

## 10. TURNING POINT

10.1. Turning Point Checks are to be carried out as follows:

10.1.1. **H** - Heading (Set next heading and select Reference Point).

10.1.2. **A** - Altitude (Check correct attitude).

10.1.3. **T** - Time (Note Time O/H the Check Point).

10.1.4. **P** - Position report (calculate ETA for next turning point and position report).

10.1.5. **F** - Fuel (Fuel tank on fuller tank, check content sufficient).

10.1.6. **I** - Instruments (Check annunciators and instruments as per FRC)

10.1.7. **L** - Location (Identify present location).

10.1.8. **E** - Engine (as per FRC).

## 11. FUEL

11.1. The calculated amount of fuel, plus adequate reserves (i.e. fuel required to fly to an alternate airfield from the planned destination, plus 45 minutes of reserve) is to be carried for all flights.

## 12. HAZARDS

12.1. Pilots are to exercise caution during navigation flights, all obstructions and hazards that cross the route must be annotated on the Navigation charts. Some of the common hazards are:

12.1.1. High Tension Cables

12.1.2. Tall dead trees

12.1.3. High terrain obscured by clouds

12.1.4. Birds and wildlife

12.1.5. Tall radio masts on hilltops

12.1.6. Other aircraft doing low-level flying in the vicinity

## 13. POSITION REPORT

13.1. For VFR flights, position reports are to be made at every Check Point according to the following format:

13.1.1. Call-sign of Controlling Agency.

13.1.2. Aircraft Identification/Call-sign and the word “Position”

13.1.3. Present Position.

13.1.4. Time.

13.1.5. Altitude.

13.1.6. Next Position.

13.1.7. Estimated Time.

e.g. "Johor Approach, 9V-YFC,
Position,
Batu Pahat, 30,
2000 feet,
Estimate Benut, 39.

## 14. EMERGENCIES

14.1. In the event of radio failure, decide whether to return to Seletar or proceed to destination. If no chase available, “Transmit Blind” for the rest of the journey, and join circuit using No Radio Joining Procedures. Inform ATC after Landing.

14.2. When uncertain of your position:

14.2.1. Remain VMC. Orbit over your present position or a prominent ground feature (Roads, Railway Tracks or Coastline).

14.2.2. If unable to remain VMC - climb to Safety Altitude.

14.2.3. Inform ATC and request for radar vectors.

14.2.4. Maintain a good lookout for other aircraft.

14.3 If the weather is not suitable to continue the flight, return to Departure Airfield. Consider requesting radar vectors to avoid the weather. If weather does not permit returning to the Departure Airfield, proceed to a suitable diversion airfield or hold in VMC until the weather clears.

14.4. All other Emergencies are to be handled according to SYFC FRC Emergency Procedures.

## 15. DIVERSION

15.1. **Within Singapore.** If Seletar is not available for Landing due to adverse weather or airfield closure, the airfields available in order of priority are, PAYA LEBAR, SEMBAWANG and CHANGI.

16.1.1. When a decision to divert has been made, the PIC is to inform Ops, through the Controlling Agency if necessary, of the intended Diversion Airfield.

16.1.2. On Landing, call the Ops Room for further instructions.

15.2. **Outside Singapore.** If a need arises, PIC can decide to divert to an airfield outside Singapore. On landing the PIC is to call SYFC as soon as possible to inform them of the diversion, reasons and further intentions.

15.3. **Due To Airborne Emergency.** If the PIC diverts due to an airborne emergency, the aircraft may not be serviceable after landing. As the aircraft is civil registered, only Maintenance Contract personnel are authorised to rectify the defect. SYFC will then send Maintenance Contract personnel to the scene.

## 16. LANDING/ PARKING FEES

16.1. All necessary fees must be paid by the PIC before departing Foreign Airfields. Refer to the respective country's AIP or enquire at the respective Airfields for all relevant fees.

## 17. MULTI-SHIP NAVIGATION

17.1. All overseas navigation flights are to be conducted with a minimum of 2 aircraft, unless otherwise cleared by GM/OM.

17.2. Aircraft are to be flown as individual units and separated as per ATC requirements.

17.3 Flying in formation for navigation flights is permitted only with authorisation from GM/OM. Without authorisation to fly in formation, aircraft flying together for navigation may fly as one speaking unit if they maintain at least 500 feet or more apart in loose formation or in trail.

## 18. DUTY PERIOD

18.1. A Staff is considered to be working throughout the period of the Overseas task and one day-off in lieu will be accorded for the following occurrences:

18.1.1 the period is over a consecutive Saturday and Sunday

18.1.2 the period includes a Monday or a Public Holiday

# SECTION 11
# SELETAR AIRPORT AIR TRAFFIC CONTROL PROCEDURES (WITH REFERENCE TO SINGAPORE AIP)

## 1. GENERAL

1.1. Information on Seletar Airport is found in the Singapore Air Information Publication (AIP). For up to date and detailed information on the airport, pilots are to refer to the AIP, relevant supplements and Seletar Airport Circulars.

1.3. Due to airspace constraints and the Seletar mixed air traffic environment, operators at Seletar must adhere closely with ATC procedures and instructions.

## 2. GENERAL AIRFIELD INFORMATION

2.1. The diagrams of the physical layout of Seletar Airport, significant aerodrome building and information of the airport can be found in the AIP. These include:

2.1.1. ICAO Code of the Airport

2.1.2. Aerodrome Reference Point

2.1.3. Runway dimensions, elevation and other details

2.1.4. Airfield lighting Information

2.1.5. Navigation aids

2.1.6. Communication facilities and frequencies

2.1.7. Obstacle information

## 3. LIGHT AIRCRAFT TRAINING AREAS (LATA)

3.1. **Training Area.** The training areas in use are Area Alpha (A), Area Bravo (B) and Area Charlie (C) See Annex A.

3.2. The altitude and restrictions for the training areas are as follows:

3.2.1. **Area Alpha**

| | | |
|---|---|---|
| Ground to 2000 ft (Alpha low) (SYFC min 1500 ft) | - | Maximum of 4 speaking units, fixed wing or helicopters. |
| 2500 ft to 4000 ft (Alpha high) | - | Maximum of 4 speaking units, fixed wing or helicopters. |

3.2.2. **Area Bravo**

| | | |
|---|---|---|
| 5000 ft to 7000 ft (Bravo low) | - | Maximum of 5 speaking units, |

fixed wing or helicopters.

7500 ft to 10000 ft (Bravo high) - Maximum of 5 speaking units, fixed wing or helicopters.

3.2.3. **Area Charlie**

5000 ft to 7000 ft (Charlie low) - Maximum of 5 speaking units, fixed wing or helicopters.

7500 ft to 10000 ft (Charlie high) Maximum of 5 speaking units, fixed wing or helicopters.

3.2.4. Combined maximum speaking units for Area Bravo and Charlie is 7

3.3. Training areas, Alpha, Bravo and Charlie are monitored by Paya Lebar Approach on 127.70 MHz or 119.90 MHz.

3.4. These areas are for daytime operations and during VMC only.

## 4. DEPARTURE PROCEDURE TO TRAINING AREAS (Refer To Annex B)

4.1. **Runway 03.**

4.1.1. After take-off, climb on Runway heading. At 500 ft. call "Callsign Departing", turn left and continue climb for downwind and level off at 1500 ft.

4.1.2. Continue on downwind leg maintaining 1500 ft and approaching the satellite station call "Callsign to Paya Lebar Approach 127.7". Maintain downwind track for Lower Peirce Reservoir.

4.1.3. Before Lower Peirce Reservoir, turn right and on a Westerly heading commence climb for the training area

4.2. **Runway 21.**

4.2.1. Take-off and climb on Runway heading. At 500 ft. call "Callsign, Departing" and turn right for the satellite station.

4.2.2. Approaching the satellite station call "Callsign to Paya Lebar Approach 127.7". Overhead the satellite station turn left for Lower Peirce Reservoir and Level off at 1500 ft.

4.2.3. Before Lower Peirce Reservoir, turn right and on a Westerly heading commence climb for the training area.

4.3. **For departure to Area Bravo.** Pilots can either use:

4.3.1. Transit through Area Alpha for Area Bravo, OR;

4.3.2. Climb overhead Seletar Airport for Area Bravo with clearance from Seletar Tower. Aircraft are to keep within Seletar control zone. Seletar Tower will specify the height at which the aircraft will switch frequency to Paya Lebar Approach.

## 5. RE-JOIN PROCEDURES

### 5.1. From Area Alpha for Runway 03 Left Hand (Refer To Annex C).

5.1.1. An aircraft rejoining from Area Alpha must track to Seletar Airport via lower Peirce Reservoir at 2000 ft or other height as directed by Paya Lebar Approach. Change frequency to Seletar Tower when passing overhead Lower Peirce Reservoir.

5.1.2. Fly overhead the Threshold 03 and report "C/S overhead".

5.1.3. All turns are to the left.

5.1.4. When clearance for "C/S Descend for Downwind" is given by Seletar Tower, the aircraft is to descend on dead side to 1500 ft only. Further descent can only commence after crossing the runway centre-line. This is to prevent infringement into Seletar helicopter zone and departing aircraft.

5.1.5. The pilot of the rejoining aircraft must maintain good lookout as he descends to position his aircraft safely behind circuit traffic.

5.2. **From Area Alpha for Runway 21 Right Hand.** Joining procedures from Area Alpha is the same as for Runway 03 except that the rejoining aircraft is to join parallel to the runway and when abeam Threshold 21, turns right to fly to the deadside.

### 5.3. From Area Bravo for Runway 03 Left Hand.

5.3.1. Manoeuvre to position the aircraft south of the airfield to fly for the dead-side.

5.3.2. When passing 5000 ft change frequency to Seletar Tower.

5.3.3. Continue descent to the height cleared by Seletar Tower, and follow the same procedures for Para 10.1.2. to 10.1.5.

5.4. **From Area Bravo for Runway 21 Right Hand.** Similar to Para 10.3, except that aircraft will position to join dead-side from the north.

5.5. **No clearance for rejoin.** If no clearance is given for an aircraft to rejoin, the aircraft is to remain in Area Alpha or Bravo.

## 6. STANDARD RADIO-TELEPHONY

6.1. Refer to Annex C for the Basic R/T Procedures.

## 7. LIGHT SIGNALS

7.1. The relevant light signals from Tower are as follows:

7.1.1. Intermittent green - On Downwind aircraft cleared for Final.

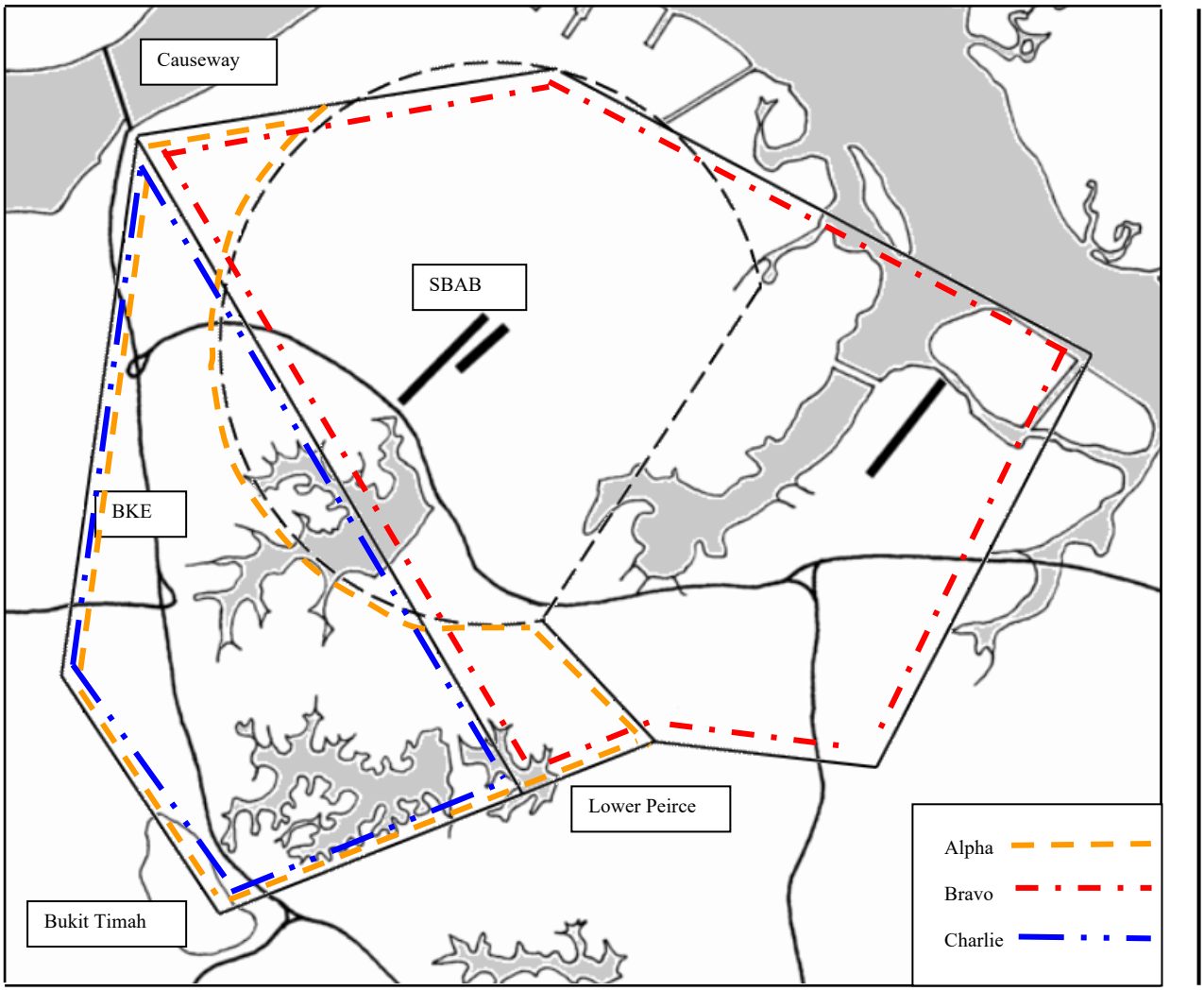
7.1.2. Steady green - On Final, aircraft cleared to Land.

7.1.3. Steady red - Go-around and carry out another Circuit.

7.1.4. Flashing red - Airfield unsuitable for Landing, Divert to PLA at 2000 ft.

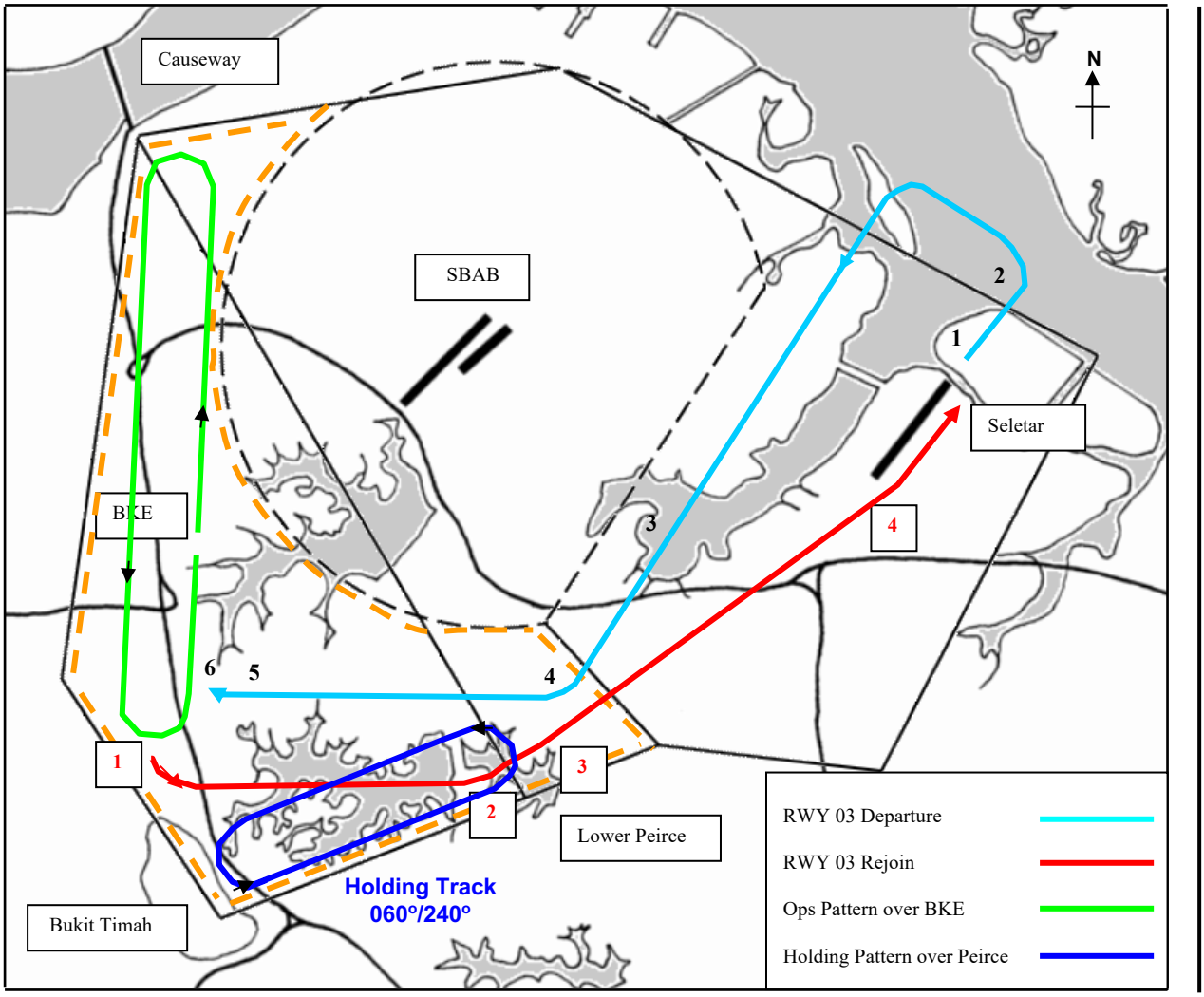
**ANNEX A**

## TRAINING AREAS ALPHA, BRAVO AND CHARLIE



**ANNEX B**

## DEPARTURE TO AND REJOIN FROM AREA 'A' (RUNWAY 03)



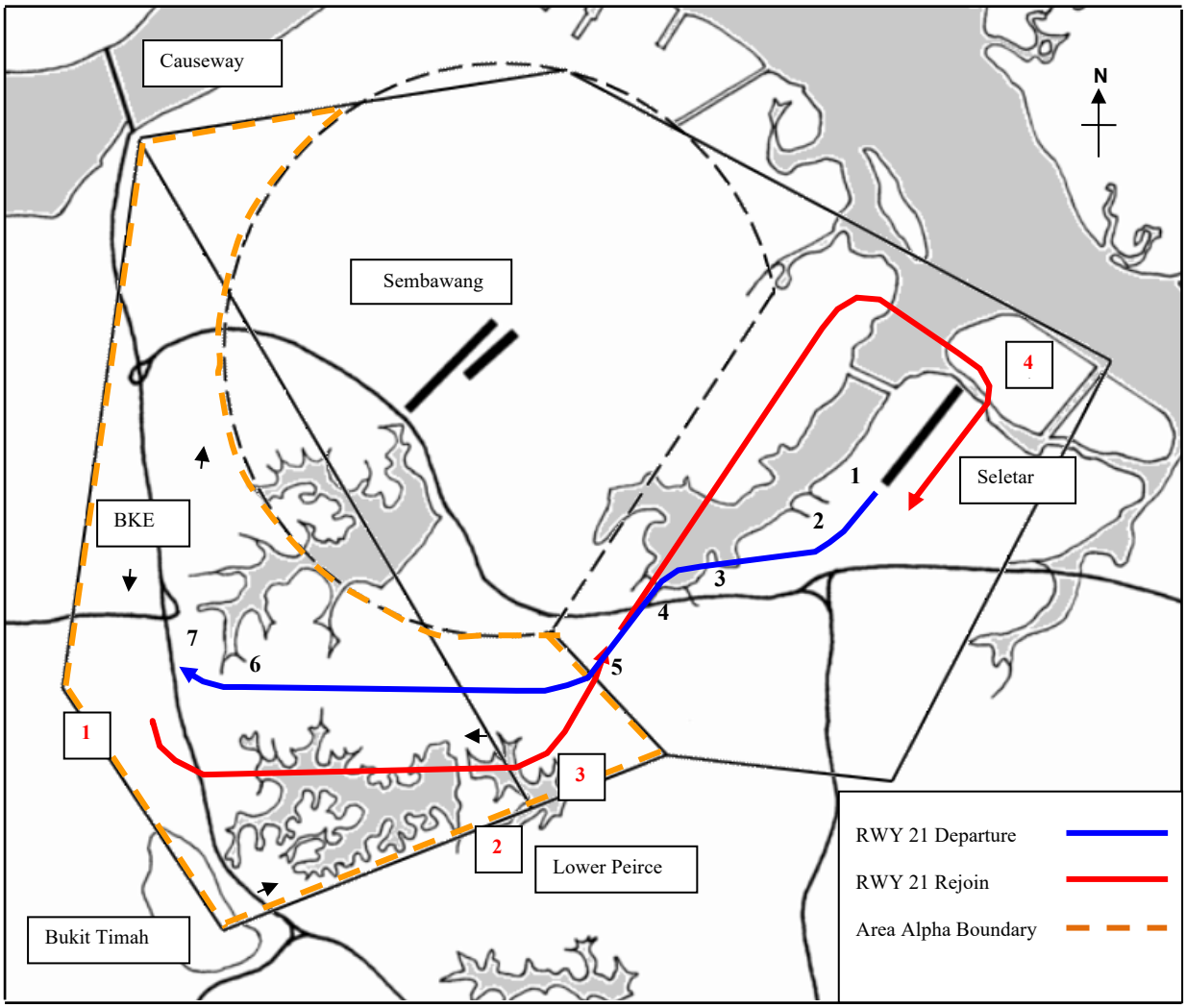

### DEPARTURE FOR AREA ALPHA

1. At 200 ft – do after t/o checks, continue climb.
2. At 500 ft – A/C: "C/S, departing", turn for d/w and head towards satellite dishes, level off at 1500 ft.
3. Nearing satellite, comm 1, stby on 127.7
   A/C: "C/S to PLA App, 127.7". Acknowledged by Seletar Tower, switch freq.
   A/C: "PLA App, C/S, joining Area A". Reply from PLA App, read back QNH, will report estab.
4. Before Lower Peirce, over the flatted factories, turn right to 270 deg, then start climb for Area.
5. Before BKE, turn Northly, keep right of BKE
6. Passing 2500 ft. A/C: "C/S, established Area Alpha, operating from __ to __ ft".

### REJOIN FROM AREA ALPHA #

1. Nearing Bukit Timah,
   A/C: "PLA App, C/S, request rejoin Seletar"
   ATC: "C/S, cleared rejoin at ___ft, RWY __, call switching". Read-back ht & RWY, will advise switching
   or "C/S, standby for rejoin", or other R/T variations. Read-back ATC instructions.
2. If cleared, at Lower Peirce, A/C: "C/S, switching to Seletar Tower". Acknowledged by ATC.
3. A/C: "Seletar Tower, C/S, rejoin at ____ ft, RWY __"
   ATC: "C/S, cleared join at __ft, RWY __, QNH __". (plus traffic info).
   ** Read-back the **Rejoin ht, RWY and QNH ( then listen to R/T to estab locations of circuit traffic)**
4. Nearing the overhead, A/C: "C/S, overhead ____ ft".
   ATC: "C/S, cleared descend for downwind"
   A/C: "C/S, leaving ___ft for d/w". Start descent (**descend below 1500 ft only after crossing RWY centre-line, otherwise level off 1500 ft.**). **Turn for d/w at upwind threshold, traffic permitting.**

# DEPARTURE TO AND REJOIN FROM AREA 'A' (RUNWAY 21)




**DEPARTURE FOR AREA ALPHA (RWY 21)** ***(R/T Calls in Italics)***

1. At 200 ft – do after t/o checks, continue climb.
2. At 500 ft – *A/C: "C/S, departing"*, turn towards satellite dishes, continue climb.
3. Nearing satellite dishes, Comms 1 standby on 127.7
   *A/C: "C/S to PLA App 127.7".* Acknowledged by Seletar Tower, switch frequency
   *A/C: "PLA App, C/S, joining Area A".* Reply from PLA App, A/C read back: *"QNH, will report establish"*
4. Overhead satellites, turn towards Lower Peirce, level off at 1500 ft.
5. Before Lower Peirce, over the flatted factories, turn right to 270 deg, then start climb for Area Alpha
6. Before BKE, turn Northerly, keep right of BKE
7. Passing 2500 ft, A/C: "C/S, established Area Alpha, operating from ___ to ___ ft".

**REJOIN FROM AREA ALPHA (RWY 21)** # ***(R/T Calls in Italics)***

1. Nearing Bukit Timah,
   A/C: "PLA App, C/S, request rejoin Seletar"
   ATC: "C/S, cleared rejoin at __ft, RWY __, call switching". Read-back ht & RWY, will adv switching
   or "C/S, standby for rejoin", or other R/T variations. Read-back ATC instructions.
2. If cleared, at Lower Peirce, A/C: "C/S, switching to Seletar Tower". Acknowledged by ATC.
3. A/C: "Seletar Tower, C/S, rejoin at ____ ft, RWY __"
   ATC: "C/S, cleared join at __ft, RWY __, QNH __". (plus traffic info).
   ** Read-back the **Rejoin ht, RWY and QNH (then listen to R/T to estab locations of circuit traffic)**
4. Nearing the overhead, A/C: "C/S, overhead ____ ft".
   ATC: "C/S, cleared descend for downwind"
   A/C: "C/S, leaving ___ft for d/w". Start descent (**descend below 1500 ft only after crossing RWY centre-line, otherwise level off 1500 ft.**). **Turn for d/w at upwind threshold, traffic permitting.**

**ANNEX C**

# BASIC R/T PROCEDURES

## 1. TAXY & TAKE-OFF PROCEDURES

| AIRCRAFT | ATC | REMARKS | FREQ (MHz) |
|---|---|---|---|
| Seletar Ground, Skylark 9* . | Skylark 9*, Seletar Ground. | ***Establishing Contact with Seletar Ground.*** | 121.60 |
| Skylark 9*, (Whiskey Sierra), Request Taxy, ** POB for ***** (Area 'A' ***or*** Area 'B' ***or*** Area B & C or Circuits) | Skylark 9* , Taxy for **** (W1, W2 or W3) Holding Point, RWY ** (03/21), QNH 10**. | Request for Taxy Clearance (At WS after *ENGINE RUN_UP CHECKS*) | 121.60 |
| Skylark 9* , **** Holding Point, RWY ** (03/21), QNH 10** . | - | | 121.60 |
| Skylark 9* , to Seletar Tower, 118.45 | Skylark 9* . | After completing *VITAL ACTIONS BEFORE TAKE-OFF CHECKS* | 121.60 |
| Seletar Tower, Skylark 9* , READY | Skylark 9* , Hold<br>***or***<br>Skylark 9* , Line-Up<br>***or***<br>Skylark 9* , Backtrack<br>***or***<br>Skylark 9* , Take-Off), RWY ** (03/21) (Cleared for Overhead Climb toArea 'B' Report Passing ****ft) | ***Contacting Seletar Tower.***<br>Reply from Tower could be any **ONE** of 4 possibilities: -<br><br>**STANDBY/HOLD** - Hold at the Holding Point<br><br>**LINE-UP** - Position on the Runway for TAKE-OFF<br><br>**BACKTRACK** - Taxy towards Threshold of *RWY IN USE* to LINE-UP with more T/O Run available. For SYFC aircraft, the distance required is stated in the Operations Manual<br><br>**TAKE-OFF** - To LINE-UP and TAKE-OFF when ready | 118.45 |
| Skylark 9* , ***** ( Standby/Hold) ***or*** Line-Up ***or*** Backtrack ***or*** Take-Off), RWY ** (03/21), (Will Report Passing **** ft) | - | | |

## 2. DEPARTURE PROCEDURES to Training Areas

### 2.1. From RWY 03 to Area 'A' (or to Area 'B'& 'C' via 'A').

| AIRCRAFT | ATC | REMARKS | FREQ (MHz) |
|---|---|---|---|
| Skylark 9*, Departing | Skylark 9* . | Between 300 to 500ft, on Upwind leg. | 118.45 |
| Skylark 9* , to Paya Lebar Approach, 127.7 | Skylark 9* , | Overhead satellite dishes. | 118.45 |
| Paya Lebar Approach, Skylark 9* , Joining **** (Area 'A' ***or*** Area 'B' via 'A')<br><br>Skylark 9* , QNH 10** . Will report established. | Skylark 9* , ** in Area *** ('A' ***or*** 'B') , Report Established QNH 10** .<br><br>- | ***Establishing Contact With Paya Lebar Approach*** | 127.70 (or as instr.) |
| Skylark 9* , Established **** . (Area 'A' High ***or*** 'B' Low) | Skylark 9* , | ***Report Established*** once within Boundaries of the desired Training Area (*i.e. by Location and Altitude*) | 127.70 (or as instr.) |

### 2.2. From RWY 21 to Area 'A' (or to Area 'B'& 'C' via 'A').

| AIRCRAFT | ATC | REMARKS | FREQ (MHz) |
|---|---|---|---|
| Skylark 9*, Departing | Skylark 9* . | Between 300 to 500ft, on Upwind leg. | 118.45 |
| Skylark 9* , to Paya Lebar Approach, 127.7 | Skylark 9* , | Overhead satellite dishes. | 118.45 |
| Paya Lebar Approach, Skylark 9* , Joining **** (Area 'A' ***or*** Area 'B' via 'A')<br><br>Skylark 9* , QNH 10** . Will report established. | Skylark 9* , ** in Area *** ('A' ***or*** 'B') , Report Established QNH 10** . | ***Establishing Contact With Paya Lebar Approach*** | 127.70 (or as instr.) |
| Skylark 9* , Established **** . (Area 'A' High ***or*** 'B' Low) | Skylark 9* . | ***Report Established*** once within Boundaries of the desired Training Area (*i.e. by Location and Altitude*). | 127.70 (or as instr.) |

### 2.3. **Overhead Climb for Area 'B' & 'C' (either RWY In Use).**

| AIRCRAFT | ATC | REMARKS | FREQ (MHz) |
|---|---|---|---|
| Skylark 9*, Departing<br><br>Skylark 9*, Will Report Passing **** ft | Skylark 9*, Report Passing **** ft | Between 300 to 500ft, on Upwind leg, ***AND*** Cleared for the Overhead Climb to Area 'B' | 118.45 |
| Skylark 9*, Passing **** ft,<br>Changing to Paya Lebar Approach, 127.7 | Skylark 9*, | Leaving Seletar Control Zone | 118.45 |
| Paya Lebar Approach, Skylark 9*, Climbing for Area 'B' | Skylark 9*, ** in Area 'B', Report Established, QNH 10** | ***Establishing Contact With Paya Lebar Approach*** | 127.70 (or as instr.) |
| Skylark 9*, QNH 10** . Will report established.<br><br>Skylark 9*, Established Area 'B' Low | Skylark 9*. | ***Report Established*** once within Boundaries of Area 'B' Low | 127.70 (or as instr.) |

## 3. **IN-FLIGHT PROCEDURES**

### 3.1. **Reporting "OPERATIONS NORMAL".**

| AIRCRAFT | ATC | REMARKS | FREQ (MHz |
|---|---|---|---|
| Paya Lebar Approach, Skylark 9*, OPS. NORMAL,<br>Area ***, (**** ft) | Skylark 9*. | ***AFTER*** every *FILER CHECKS* (i.e. every 15 mins )<br>**EXCLUDE** the Altitude if you are not maintaining a constant altitude. (e.g. Climbing & Descending Ex.) | 127.70 (or as instr.) |

## 4. RE-JOIN PROCEDURES from Training Areas

### 4.1. From Area 'A'.

| AIRCRAFT | ATC | REMARKS | FREQ (MHz) |
|---|---|---|---|
| Paya Lebar Approach, Skylark 9*, Request Recovery for Seletar | Skylark 9*, Stand-By for Clearance | ***Request for Recovery*** only when around the Southern portion of Area 'A'. (i.e. DOES NOT take too long to get to Lower Pierce when your clearance is obtained) | 127.70 (or as instr.) |
| Skylark 9*, Standby | Skylark 9*, Join Seletar at **** ft, RWY In Use **, Report Changing to Seletar Tower | | |
| Skylark 9*, **** ft, RWY**, Will Advise Changing | | | 127.70 (or as instr.) |
| Skylark 9*, Level **** ft, Changing to Seletar Tower. | Skylark 9*. | When over Lower Pierce, **AT THE HEIGHT THAT YOU ARE CLEARED** (i.e. leaving Area 'A' for Seletar Control Zone) | 118.45 |
| Seletar Tower, Skylark 9*, Re-Join **** ft | Skylark 9*, Seletar Tower, Join Overhead at **** ft, RWY is **, the QNH is 10**, ** aircraft in the circuit | ***Establishing contact with Seletar Tower.*** | |
| Skylark 9*, **** ft, RWY **, QNH 10**. | Skylark 9*. | | 118.45 |
| Skylark 9*, Overhead **** ft | Skylark 9*, Descend for Downwind, RWY **, ** aircraft in the Circuit | When **OVERHEAD THE THRESHOLD** of the RWY In Use | |
| Skylark 9*, Leaving **** ft for Downwind RWY **. | | | |

4.2. **From Area 'B' (Overhead Descent).**

| AIRCRAFT | ATC | REMARKS | FREQ (MHz) |
|---|---|---|---|
| Paya Lebar Approach, Skylark 9*, Request Recovery for Seletar<br><br>Skylark 9*, Descending to 5000ft, Stand-By For Clearance | Skylark 9*, Descend 5000ft Initially, Stand-By for Clearance | From Area 'B' Low | 127.70 (or as instr.) |
| Skylark 9*, **** ft, RWY **, Will Advise Passing 5000ft | Skylark 9*, Join Seletar Overhead at **** ft, RWY In Use **, Report Passing 5000ft | | 127.70 (or as instr.) |
| Skylark 9*, Passing 4000ft, Changing to Seletar Tower. | Skylark 9*. | When passing 5000ft in the descend (i.e. leaving Area 'B' Low) | 127.70 (or as instr.) |
| Seletar Tower, Skylark 9*, Overhead Join, Passing **** ft for **** ft<br><br>Skylark 9*, **** ft, RWY **, QNH 10**. | Skylark 9*, Seletar Tower, Join Overhead at **** ft, RWY is **, the QNH 10**, ** aircraft in the circuit | ***Establishing contact with Seletar Tower.***<br><br>To **LEVEL-OFF** at the Altitude Cleared and Report **OVERHEAD as @@ above in Para 4.a.** | 118.45 |

## 5. CIRCUIT PROCEDURES

| AIRCRAFT | ATC | REMARKS | FREQ (MHz) |
|---|---|---|---|
| Skylark 9* , ******<br>(Extending Upwind / To Land) | | ***ON UPWIND***<br>At 500ft, ***IF*** unable to turn for Cross-Wind, ***OR***<br>Intention is TO LAND from that Circuit | 118.45 |
| Skylark 9* , Downwind<br>(Full Stop)<br><br>Skylark 9* , Number ** . | Skylark 9* , Number ** . | ***ON DOWNWIND***<br>To add "FULL STOP"<br>***ONLY IF*** intention is TO LAND. Otherwise a TOUCH AND GO is expected.<br>Read-Back the Sequence Number giver by the Tower | 118.45 |
| Skylark 9* , Final<br><br>Skylark 9* , *****<br>(Continue / Touch and Go / Land / Go-Around ) | Skylark 9* , *****<br>(Continue / Cleared for Touch and Go / Cleared to Land / Go-Around ) | ***ON FINAL***<br>***DO NOT*** descend below 200ft if cleared only to continue | 118.45 |

## 6. AFTER-LANDING PROCEDURES

| AIRCRAFT | ATC | REMARKS | FREQ (MHz) |
|---|---|---|---|
| Skylark 9*, Request ***** ( Whisky 1, 2 or 3 )<br><br>Skylark 9* , *****<br>(Whisky 1, 2 or 3)<br><br>***or***<br>Skylark 9* , Request a 180 for ***** (Whisky 2) | Skylark 9* , ***** (Clear Whisky 1, 2 or 3<br><br>Skylark 9* , Cleared 180 for ***** (Whisky 2 ) | ***ON THE RUNWAY***<br>Slow Down to Taxy speed.<br>To Request only ***IF*** instructions from Tower is **NOT** forthcoming.<br><br>***IF*** unable to slow down to **TAXY SPEED** for the Turn-Off, and you need to do a U-Turn on the RWY (RWY 21 only) | 118.45 |

## 7. **TAXYING TO PARKING DISPERSAL PROCEDURES**

| AIRCRAFT | ATC | REMARKS | FREQ (MHz) |
|---|---|---|---|
| Seletar Ground, Skylark 9*, Request Taxy Whisky Sierra<br><br>Skylark 9*. | Skylark 9*, Cleared Taxy to<br>*** (Whisky Sierra) | ***AFTER*** completing the *AFTER LANDING CHECKS*.<br>To include "Whisky Sierra" if returning to Whisky Sierra<br>***Note***<br>**DO NOT** have to inform Seletar Tower when Changing Frequency to Seletar Ground | 121.60 |

# SECTION 12
# MANAGEMENT OF INCENTIVE & FEP FLIGHTS

## 1. INCENTIVE FLIGHTS

1.1. Incentive flights are flights where SYFC pilots carry their own guests as passengers for the flights. Staff incentive flights are not to be conducted more than once per calendar quarter, and not during their duty period. For non-staff pilots, it should not be more than once every 6 months.

1.2. GM/OM approval must be sought for the incentive flights. Only GM, OM or CFI are allowed to authorise incentive flights.

1.3. Obtaining of security clearance for the guests is the PIC's responsibility.

## 2. FLYING EXPERIENCE PROGRAMME (FEP)

2.1. SYFC conducts experiential flights for the purposes of publicity and student engagement to interest them in taking up flying. When the flights are organised for a group of students, they are also referred to as FEP.

## 3. RULES FOR INCENTIVE AND FEP FLIGHTS

3.1. Non-staff passengers are required to complete and sign the SYFC Consent Form given at the end of this Section prior to embarking on the incentive or FEP flight.

3.2. The PIC for Incentive and FEP flight is to observe the following:

3.1.1 The flight shall be a day flight, flown in VMC and confined to Seletar Airspace and the Light Aircraft Training Areas.

3.1.2 Except for ATC delays, flight duration shall not exceed 0.7 hours.

3.1.3 Age limit: 12 to 65 years old, not handicapped (exceptions to be approved by GM/OM).

3.1.4 Ensure that passengers are fit for flight and properly attired.

3.1.5 Ensure all non-staff passengers sign the SYFC Consent Form.

3.1.6 Brief passengers on the safety and personal aspects of the flight.

3.1.7 Ensure that the aircraft is within the C.G and weight limits.

3.1.8 Ensure that the front seat passenger is not to handle the aircraft during flight unless properly licenced.

3.1.9 Ensure compliance to CAAS regulations and SYFC SOPs.

SINGAPORE YOUTH FLYING CLUB
Takes You To Greater Heights

Registration No. 6600410852

# SYFC CONSENT FORM

Consent form for participation in organised courses/activities conducted by Singapore Youth Flying Club and/or traveling in SYFC craft.

Dear Sir / Madam,

**Part A** – Courses/Activities Brief (you may want to visit www.syfc.sg for more details).

Singapore Youth Flying Club (hereinafter referred to as SYFC) conducts flying training (including experiential flights) for selected full-time students in recognised schools. We aim to create awareness and interest in aviation by providing flying training courses for Youth. We also conduct experiential flights for selected groups of people from time to time to let them experience flying.

Our courses and activities include familiarisation flights, ground visits and lectures. Participants will fly in an aircraft during the course/activities. SYFC will take the necessary steps to ensure the safety of participants throughout the event. However, if *you/your child/your ward have/has any medical condition that may be adversely affected by these activities, *you/your child/your ward should not take part in them.

---

**Part B** – seeking your consent.

I, _____, *parent/guardian of _____,
(Full Name of *Self/Parent/Guardian) (Full Name of *Child/Ward)

having fully understood the description of activities contained in Part A, voluntarily consent to allow *myself/my child/ my ward to travel in SYFC craft (vehicles and aircraft) and/or participate in SYFC Flying Courses/Activities (including experiential flights) knowing the risks arising out of or in connection with the said course/activities.

I accept that I shall be solely responsible for any decision as to *my/my child's/my ward's fitness to travel in the craft and/or participate in the courses/activities. ***I/my child/my ward understand/s that compliance with all instructions given by the crew during the conduct of the activities is mandatory**, and any failure to comply with such instructions may result in *my/my child's/my ward's removal from the activities.

I authorise SYFC to collect, use and disclose my/my child's/my ward's personal data for the purpose of participating in the organised courses/activities conducted by SYFC and/or traveling in SYFC craft.

| _____ | _____ | _____ |
|---|---|---|
| Name and Signature of Self/Parent/Guardian* | Contact Number | Date |

- * Delete where not applicable.
- Note: A separate copy is required for each individual traveling in SYFC aircraft.
- Those who are above 21 years old can sign this form without parental consent.

In case for emergency, please call _____at tel no. _____

# SECTION 13
# CLOSE FORMATION FLYING

## 1. INTRODUCTION

1.1. Close formation flying is a necessary skill for FIs in SYFC in order to qualify them to Cover Solo. It is also used when SYFC is called upon to support events with fly-past and when flying as a team during navigation flights. Graduated students are also introduced to Close formation flying during their currency flights with the club.

1.2. In SYFC, any 2 or more aircraft flying together and maintaining a distance of 500 feet or less is considered to be in Close Formation.

1.3. Flights intentionally planned to involve Close Formation flying can only be authorised by GM, OM or CFI.

## 2. FLYING PROCEDURES

2.1. **Briefing.** In addition to the normal Pre-Flight Briefings, a formation briefing is to be given by the formation Leader with **all crew** present. The following points are to be covered, where applicable:

2.1.2. Time – Hack.

2.1.3. Formation Callsign.

2.1.4. Aircraft Pilots and passengers, if any, including nomination of Deputy Lead.

2.1.5. Aircraft registration, parking spot and fuel state.

2.1.6. Joker/Bingo Fuel State. Joker is a fuel state nominated by the Leader to assist him to manage the sortie. Bingo is the fuel state at which immediate recovery to the base is necessary in the prevailing flight conditions.

2.1.7. Weather/Colour-State at Base and at possible Diversion Airfields in the Operating Area, and the forecast conditions.

2.1.8. Starting Procedures/Order (On R/T or by Time).

2.1.9. R/T Procedures, Check-In Frequency & Time, Operating Frequencies and 'Collect' Frequency (Com 1 & 2 set-up).

2.1.10. Taxy, Line-Up and Take-Off Procedures.

2.1.11. Type of Departure.

2.1.12. Formation exercise & alternative sortie.

2.1.13. Formation changes.
2.1.14. Change of Lead, if any.

2.1.15. FILER checks.

2.1.16. Loss Contact Procedures.

2.1.17. Limitations to be observed.

2.1.18. Recovery Procedures in VMC/IMC.

2.1.19. Visual Break from the formation and sequence to be observed.

2.1.20. Emergencies.

2.1.21. Any other points (e.g. R/V plan).

2.2. **Formation Callsign.** This is prefixed by **"SKYLARK"** followed by a formation identifier like a colour of the SYFC logo e.g. **"Skylark Blue"** or simply the Prefix and the formation aircraft number sequence, e.g. **"Skylark 1"**

2.3. **Formation Aerobatics.** Close formation aerobatics are forbidden. Manoeuvres **MUST NOT** exceed 45° AOB, 120 Kts IAS.

## 3. GROUND PROCEDURES

3.1. **Start-Up.** Pilots are to brief their marshallers if necessary on the Lead aircraft's position and their line-up number. Should aircraft positioning prohibit visual signals, the Leader may brief for a Start-Up at a pre-determined time or call the Start-Up on R/T. Engine Run-Up & Pre-Take-Off Vital Actions are to be carried out individually.

3.2. **Taxying.** All formation aircraft are to taxy on the centerline in the Dispersal and taxiway at 100 feet interval (approx. 4 aircraft length) and closing up nearing the Holding Point. When holding, the propeller slipstream of the front aircraft is to be avoided.

## 4. TAKE-OFF PROCEDURES

4.1. Members of a formation may execute a stream take-off. At Seletar, being a Civilian Airfield, prior approval from ATC is needed. For stream take-off, aircraft within the formation may be lined-up together but take-off clearance may be given individually or to the formation. All aircraft should line-up on the runway centerline and perform their individual line-up checks. A minimum of 5 seconds is to be used for stream take-off. Minimum TODA for stream take-off is 3000 ft.

## 5. IN-FLIGHT PROCEDURES (See Annex B)

### 5.1. Formation Positions - Close Left or Right.

5.1.1. **Vertical.** Equal amount of upper and lower surfaces of the wing visible.

5.1.2. **Lateral.** Propeller spinner in line with counter weight on the flaps.
5.1.3. **Longitudinal.** Opposite wing tip in line with the letter "Y" on the aircraft registration

5.2. **Line Astern.**

5.2.1. **Vertical.** The black catwalk at the left wing root being just visible.

5.2.2. **Lateral.** In line with Lead aircraft.

5.2.3. **Longitudinal.** The width of the instrument panel coaming matches lead aircraft's wings span.

5.2.4. For line astern formation, the wingman must call e.g. **"XX In"** once he is in position.

5.3. **Arrow Head.**

4.3.1. **Vertical.** Equal amount of upper and lower surfaces of the wing visible.

4.3.2. **Lateral.** Spinner in line with counter weight on aileron.

4.3.3. **Longitudinal.** 4 aircraft length (100 ft) behind. Distance between No 1 and No. 3 is 8 aircraft length (200 ft).

5.4. **Climbs.** All climbs in formation will be at standard climbing speeds with the Leader setting 24/2400 if possible. If the wingman has insufficient power to regain position, he is to call, e.g. **"XX Buster**"; the Leader will then reduce power further. Once the wingman has regained his position, the Leader may increase the power as appropriate. Climb Checks are to be carried out independently.

5.5. **Station Changing**. (Only to be carried out above 2000'AGL)

5.5.1. **Two Aircraft Formation.** The Leader will initiate station changes by R/T or hand signals. The No. 2 aircraft may initiate formation change. When initiating the station change himself, the No. 2 must advise the Leader on R/T (e.g. **"XX request Close Left**"), and must receive a 'thumbs-up' or R/T acknowledgment from the Leader before moving.

5.5.2. **Three Aircraft Formation.**

5.5.2.1. **VIC to L. A.** No. 3 is to move back and call **"Clear"** when out of the way. Only then may No. 2 move into the line astern position, followed by No. 3. No. 2 will call "**XX In**" followed by No. 3.

5.5.2.2. **L. A. to VIC.** No. 3 is to move back and call **"Clear"** when out of the way. No. 2 is to move right and forward into position. When No. 2 is clear, No. 3 may move left and forward into position.

5.5.3. **Formations with More Than Three Aircraft.** When briefing large formations, the Leader will specify the type of formation to be flown and the station changing procedures to be used for that Sortie.

5.6. **Practice Break And Rejoin.** This could be for a straight ahead rejoin or turning rejoin as initiated by the leader or requested by the wingman. The practice is to be carried out from a Close position when established in the training area. Before initiating the Break and Rejoin, the Leader will do a lookout towards the area where the exercise is to be carried out. Following which the Leader will turn through 180° or as needed (consider area, weather, etc) away from the wingman. Wingman would wait three seconds before turning to stay in trail of the leader and call visual.

5.6.1 **Straight Ahead Rejoin.** Leader would call out his **Heading, Speed and Altitude** to facilitate the join-up. Wingman would apply full power to achieve at least 20~30 Kts overtake and put the leader at his one o'clock position. Once the leader's aircraft registration becomes readable, wingman would match the leader's power setting and move into a loose position for joining up. Wingman will initially maintain slightly step-down and one wing span laterally away from the Leader until he can achieve his station keeping in this order: Vertical-Longitudinal-Lateral. ***If closure is excessive and an overshoot is inevitable, maintain lateral separation and stay below the leader. Do not belly up to the leader by pitching up or overbank to break away.***

5.6.2. **Turning Rejoin.** Leader would enter a medium level turn and call out his **direction of turn, height and speed**. Wingman would step 2~300' below the lead and fly to the inside of the leaders turn circle putting the leader at the 1:30 or 10:30 position. He would fly to echelon line by adjusting AOB & position (lead's aircraft nose in line with the wing tip) while maintaining vertical separation (2-300'). Maximum closure of 30 kts should be observe while he adjust his AOB to maintain the echelon line for closing in. Once the leader's aircraft registration becomes readable, wingman would match the leader's power setting and move into a loose position for joining up. Thereafter the join up would be as per straight ahead rejoin. ***If closure is excessive and an overshoot is inevitable, roll wings level to fly under the leader. Do not belly up to the leader or overbank to break away.***

5.7. **Lead Change**. Unless pre-briefed, all Lead changes are to be called out on R/T. The Leader is to position the formation in echelon before calling the Lead change, (e.g. **"XX 5 Miles North-East Of Bukit Timah, XX You Have The Lead"**). The R/T call should also include any restrictions in the training area. The aircraft taking over, as Leader, will acknowledge (e.g. **"XX"**) and then move out to a safe lateral separation, before moving forward. When he gone forward of the wings of the Lead aircraft, he is to assume the Lead and announce through R/T **"XX I Have The Lead."** The actual Lead of the formation changes when the designated Leader moves forward and passes **abeam** the Leader. All formation members are to maintain their original callsigns or numbers.

5.8. **Tailchase**. Tailchase is **NOT** permitted.

5.9. **Descent.** Independent **FIE** Checks are to be carried out before commencing a descent. The Leader is **NOT** to use less than 15/2400 during the descent. Wingman may step-out laterally during FIE Checks.

## 6. AIRFIELD REJOIN AND BREAK

6.1. Formation rejoin for run-in and break must be approved by ATC. The Leader is to advise Seletar Tower when rejoining in a formation, e.g. "**Seletar Tower, XX, (No.) Aircraft, Rejoin**". The Leader should plan to break level, over the threshold of the runway in use with wingmen following at a minimum interval of 5 seconds between aircraft. Formations should normally Run-In at 1,000 ft or at the height cleared.

## 7. LANDINGS

7.1. Individual aircraft are to call **"Downwind"** and **"Final"** and are to land on the centerline with a minimum spacing of 2,000 ft between aircraft. After landing, aircraft are to move to the **'Slow Lane' (i.e. the exit side)** when the speed is below 40 kts. Formation aircraft are authorised to land before preceding aircraft have cleared the active runway.

## 8. FORMATION APPROACH

8.1. After completing the Pre-Landing Checks, wingman should call **"Checks Complete"** or give the 'thumbs-up' signal. The wingman should step up slightly till the split between the aileron and flaps of the leader's outboard wing is visible over its fuselage. The Leader should maintain a minimum speed of 5 Kts above the normal approach speed in the descent.

## 9. FORMATION OVERSHOOT

9.1. The overshoot is initiated by the Leader, using R/T, and increasing power to 25" MAP, max RPM whilst maintaining IAS above 70 Kts. If flaps were selected down, they will be raised in stages on R/T or by the use of hand signals, after increasing power.

## 10. FORMATION EMERGENCIES

10.1. The PIC of an emergency aircraft is responsible for the immediate handling of his emergency. It should be reported as soon as possible to the formation Leader to enable him to decide on the course of action to be taken for the formation as a whole.

10.2. As a general rule, in an emergency, the serviceable aircraft will stay in loose formation with the unserviceable aircraft and render any assistance required, e.g. R/T calls, visual inspection, etc. The sequence for aircraft recovery and landing will depend on the nature of the emergency.

## 11. ABORTING TAKE-OFF

11.1. The pilot will call out immediately, e.g. **"XX Aborting"**. If safe to do so, the other aircraft will continue the Take-Off, and either continue with the alternative sortie, or carry out a Normal circuit to land. A wingman may also abort together with the Lead with both aircraft staying on their own side of the runway.

## 12. RADIO UNSERVICEABILITIES

12.1. **Loss of Radio contact.** If no contact is made after a frequency change, return to the previous frequency and wait. If unsuccessful, attempt to contact the Leader on 'Tactical' frequency e.g. **" XX 1, XX 2 On TAC"**.

12.2. **Radio Failure.** If Total Radio Failure is confirmed, the unserviceable aircraft is to indicate to the other member by using the appropriate hand signals. If necessary, the wingman can also attract the Leader's attention by moving into line abreast, before using hand signals. If any emergency occurs when R/T communication is lost, use the **HEFOP** Code (See Annex A).

## 13. LOSS OF LEADER IN CLOUD

13.1. If adverse weather is anticipated, the Leader is to brief the formation on IMC Procedures. The Leader is not to enter clouds until all formation aircraft are in position. If a wingman losses contact in clouds, he is to immediately adopt one of the following procedures:

13.1.1. **Wings Level Flight.** Turn away (using 30° AOB) for a 30° heading change, and fly for 10 secs before resuming the original heading. Any climb or descent should be maintained. Inform the Leader as soon as possible.

13.1.2. **Level Turns (wingman on the outside of turn).** Roll wings level and inform the Leader. Fly 30° away from the rollout heading called out by the Leader for 10 secs and then turn to Leader's heading.

13.1.3. **Level Turns (wingman on the inside of turn).** The wingman is to increase the AOB to 45° and inform the Leader who will roll wings level and advise his rollout heading. The wingman will roll out 30° away from the heading called by the Leader and maintain for 10 secs before turning to the Leader's heading.

13.1.4. **Prolonged Climb/Descent.** Obtain lateral separation as Paras 13.1.1, 13.1.2 or 13.1.3 above. The wingman should automatically stack 500 ft above Leader during descent or 500 ft below Leader during climb.

13.1.5. **Lost Contact Call.** In all of the above cases, the wingman must inform the Leader immediately on R/T, e.g. **"XX Lost Contact"**.

## 14. LOSS OF LEADER IN VMC

14.1. If the wingman losses contact with the Leader in VMC, a hard turn towards the last known safe area **MUST** be made. He must inform the Leader, e.g. **"XX, Lost Contact, Breaking Left/Right"**.

## 15. FIRE

15.1. Any crew member observing a Fire either in his or another aircraft is to immediately notify the formation by R/T. If R/T is lost, use hand signals to inform the aircraft on fire and repeat until acknowledgment has been received. The serviceable aircraft is to stay in loose formation and provide assistance by managing R/T call, etc (See Annex A).

## 16. ENGINE FAILURE / FORCED LANDING

16.1. The serviceable aircraft is to stay in loose formation with the other aircraft and provide assistance until the emergency aircraft lands. If a PFL is carried out, the serviceable aircraft will remain in the area to assist in SAR until directed otherwise or when the minimum fuel state to return to base is reached.

## 17. FUEL SHORTAGE

17.1. Only the first aircraft in the formation to reach **Joker**/**Bingo** need inform the Leader. If R/T is lost, use hand signals (See Annex A).

## 18. COLLISION

18.1. In the event of a collision, aircraft control should be regained as soon as possible. If a third aircraft is present a visual inspection for damages should be carried out. If it appears safe to do so, carry out a Slow Speed Handling check without flaps, down to a minimum speed of 75 Kts. Individual recovery to base should be carried out with the more severely damaged aircraft landing last. A diversion to a suitable airfield should be considered if deemed necessary.

## 19. BRAKE FAILURE

19.1. If a Brake Malfunction occurs on landing, the emergency aircraft is to immediately call out the malfunction and move to the fast lane, e.g. **"XX, Brake Failure, Fast Lane**". Aircraft ahead of XX which are in the fast lane or on centreline will move over to the slow lane. Refer to Para 7.1.

## 20. LOSS OF ELECTRICS

20.1. The aircraft with Electrical Failure is to attract attention using the **HEFOP** Code, and is to be shepherded back to base as soon as possible.

## 21. FORMATION FLYING TRAINING COURSE

21.1. Only selected Pilots/Instructors may be allowed to undergo this course for the sole purpose of fulfilling SYFC's tasks.

21.2. Pilots/Instructors qualified for formation flying on the DA40 may, however, only carry out formation flying when specifically authorised by designated Supervisors. The minimum requirement for formation flying training is as shown in BFC_PPL Training Manual.

**ANNEX A**

# FORMATION HAND SIGNALS

1. The Hand Signals described below are to be used between aircraft in formation in the following situations:

   1.1. In the event of a Radio Failure.

   1.2. When R/T chatter is excessive.

   1.3. When Pre-Briefed.

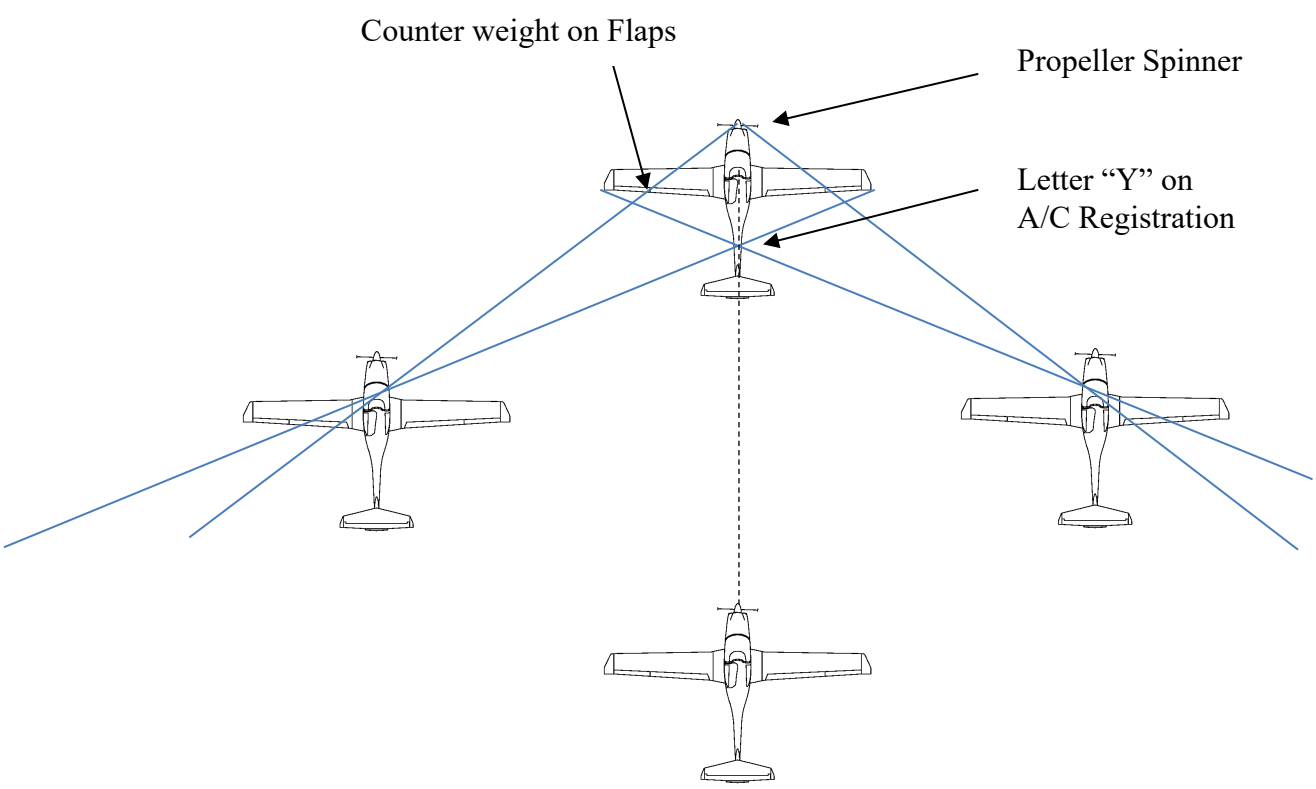
2. The signals must be clear and the other aircraft must be in a position to see them. The point of execution for flap operation is the **nod** of the Leader's head. For all other signals, action is taken on cessation of the signal/s.

| | Action / Description | Signal |
|---|---|---|
| 2.1. | Run-Up Engine | Hand raised, forefinger extended describing a circular motion. |
| 2.2 | Ready for Take-Off | Thumbs-up. |
| 2.3 | "Now" | Head nod (at the end of the down stroke) |
| 2.4. | Flap | Open palm, fingers together, facing down, make waving movement three times. |
| 2.5. | I have the Lead | Point to yourself, and then point forward. |
| 2.6. | You take the Lead | Point to new Leader, and then point forward. |
| 2.7. | Assumption of lead | When passing abeam the lead with a head 'nod'. |
| 2.8. | Go Close Right/Left | Point to aircraft, then to new position with forefinger in arcing motion over the canopy. |
| 2.9. | Rejoin Close Right/Left<br>(2 aircraft) or VIC (3 aircraft) | Waggling of wings. |
| 2.10. | Remain in Formation | Fist clenched and held above the shoulder. |
| 2.11. | Request fuel state | Thumb to mouth in drinking motion. |

| | | |
|---|---|---|
| 2.12. | I have XX fuel remaining | After 'fuel state request', hold up hand with fingers indicating total fuel remaining. Example: two fingers follow by 4 fingers indicates 24 gals. |
| | **Action / Description** | **Signal** |
| 2.13. | Radio Failure | Point to unserviceable microphone and/or earphone followed by a 'thumb-down' signal. |
| 2.14. | Change frequency manually | Point to earphone and indicate frequency by using finger signals. |
| 2.15. | Change frequency on Pre-Set Channel number | Point to earphone and indicate Pre-Set Channel number using finger signals. |
| 2.16. | Wish to land as soon as possible | Point down towards cockpit floor then hold palm 45o (facing down) and show landing motion. |
| 2.17. | Affirmative | Thumb-up. |
| 2.18. | Negative | Thumb-down |
| 2.19. | **HEFOP** Code | To signal the use of **HEFOP** Code, tap forehead three times with a clenched first, then indicate the problem with the appropriate number :<br><br>1 finger - **H**uman<br>2 fingers - **E**lectrics<br>3 fingers - **F**uel<br>4 fingers - **O**il<br>5 fingers - **P**ower |
| 2.20. | Number indication: | |
| | 1 - 5 | Indicate the appropriate number by raising fingers with fingers in the vertical position. |
| | 6 - 9 | Indicate one finger for '6', two fingers for '7', etc. with the fingers in the horizontal position. |
| | 0 | Indicate by a clenched fist. |

**ANNEX B**

FORMATION POSITIONS FOR CLOSE LEFT/RIGHT, LINE ASTERN




Instrument Coaming width <=> Leaders wingspan

## FORMATION POSITION ARROW HEAD