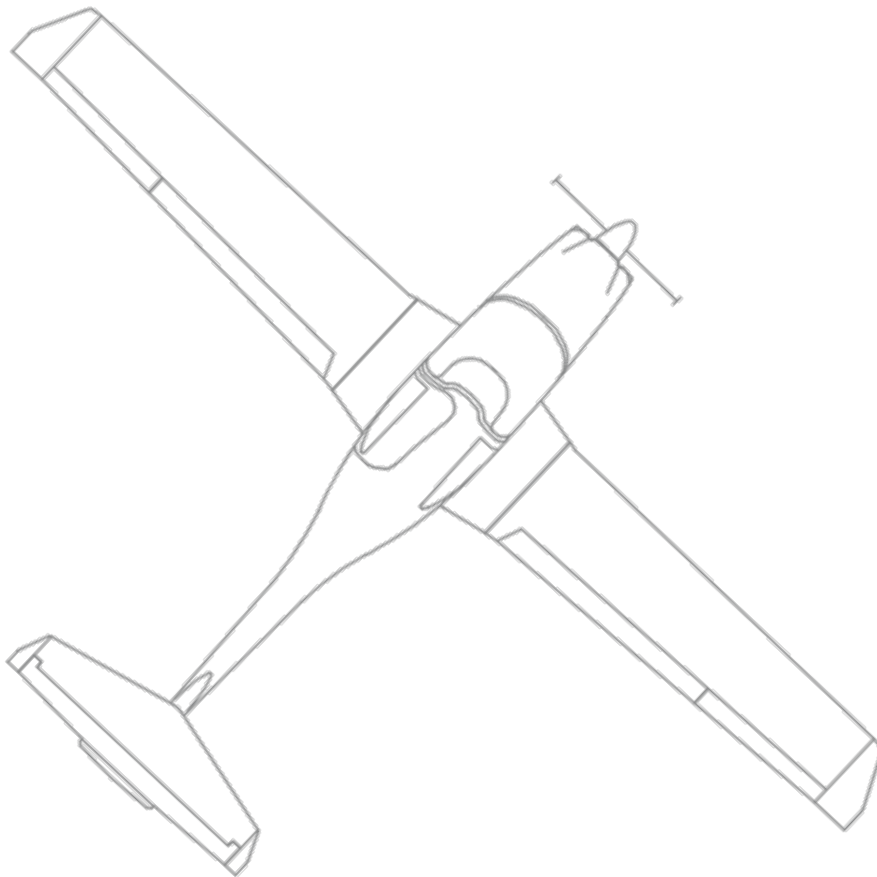


Singapore Youth Flying Club

SYFC/2-201

Flight Operations Manual



Edition 1 [21 Nov 2023]
Next review: Nov 2025

FOREWORD

1. The Singapore Youth Flying Club (SYFC) Flight Operations Manual is established for the safe and efficient flying operations of SYFC.
2. The objectives of the manual are 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 Private Pilot Licence (PPL) course approved by the Civil Aviation Authority of Singapore (CAAS) as well as non-CAAS courses and other flying tasks. 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 the Singapore Air Navigation Order, the Singapore Air Safety Publications (SASPs), CAAS Regulations, Seletar Aerodrome Procedures, SYFC Flying 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:

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SINGAPORE 797695**

General Manager, SYFC

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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.
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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.

E.g.: Edition 1, Update 1 [1 Dec 2023]

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.
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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				
2				
3				
4				
5				
6				
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8				
9				
10				

SECTION 1

MISSION AND ORGANISATION

1. MISSION AND TASK

1.1. The mission of the Singapore Youth Flying Club (SYFC) is to promote aviation and inculcate a strong passion for flying among our youth. To fulfil the mission, SYFC conducts flying training for school students leading to a Private Pilot Licence (PPL) issued by the Civil Aviation Authority of Singapore (CAAS).

2. GOVERNANCE OF FLIGHT OPERATIONS

2.1. SYFC operates aircraft that are civil registered in Singapore. The governance of the maintenance and operations of civil registered aircraft falls under the purview of the CAAS. All aspects of aircraft maintenance and flight operations, including aircraft modification, logistics, licensing of engineers and pilots, and flying training, tests and qualifications are subject to CAAS regulations.

3. SYFC FLYING COURSE

3.1. The SYFC flying course can be conducted on a part-time or full-time basis. Students must be Singapore citizens studying in a school or institution recognised by the Ministry of Education (MOE), such as schools offering the Integrated Programme or International Baccalaureate (IP/IB), Junior Colleges and Polytechnics. The annual student intake for the flying course is between 170 to 200 students.

3.2. The flying course is divided into three phases. Phases 1 and 2 constitute the Basic Flying Course (BFC), which can be completed with or without the achievement of the First Solo Flight. Phase 3 is the PPL Course, which leads to the attainment of the CAAS-issued restricted PPL. Table 1-1 provides a brief description of the course content in each phase.

Table 1-1: Phases in the SYFC Flying Course

Flying Course Phases	Phase 1	Phase 2	Phase 3
	BFC 1	BFC 2	PPL Course
Brief Course Content	Foundational flying manoeuvres	Stalling and circuit training leading to the First Solo Flight	Advanced circuit training and manoeuvres leading to the CAAS PPL requirements

4. OTHER FLYING TASKS

4.1. Apart from the flying course, SYFC conducts other flying tasks in support of the RSAF, for the continual development of staff and members, and for publicity. These include:

4.1.1. Flying Experience Programme (FEP). The FEP provides participants with experiential flights for the purpose of publicity and to interest them to take

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up flying. The FEP is conducted for RSAF personnel¹, SYFC applicants, and Secondary School students including members of the Uniformed Groups such as the National Cadet Corp (NCC), Scouts, and Girl Guides. Details of the FEP are covered in Section 12.

4.1.2. Flying Appreciation Programme (FLAP). The FLAP is a programme designed to provide engineers from the Defence Science & Technology Agency (DSTA) with basic flying experience to allow them to appreciate flight from a pilot's perspective. Details of the FLAP are covered in Section 12.

4.1.3. Flying in Support of RSAF. These include tasking flights flown in coordination with RSAF assets and specially designed programmes such as the Flying Refresher Programme (FRP) for RSAF pilot trainees during their study stints and the preparatory course for helicopter pilots embarking on the RSAF Flying Instructor Course (FIC).

4.1.4. Flights for Alumni Members and RSAF Pilot Trainees. PPL Alumni members who have contributed to SYFC are eligible for flights towards the annual renewal of their PPL aircraft rating. Those who have joined the RSAF as pilots are given five flights during their Basic Aviation Ground School (BAGS) phase, to better prepare them for the Basic Wings Course (BWC). These are training flights aimed at honing the flying and decision-making skills of the PPL holders.

4.1.5. Flying Instructor (FI) Training and Conversions. These include courses leading to a professional qualification such as the CAAS aircraft type rating conversion, the Civil Aviation Flying Instructor Course (CAFIC), and Staff Continuous Training (SCT) flights.

5. RESOURCES AND FACILITIES

5.1. The aircraft trainer fleet consists of 13 Diamond DA40, augmented by a Flight Training Device (FTD). The annual flying hours are between 4,500 to 5,000 hours.

5.2. The operations are conducted out of a purpose-built facility that includes an operations room, aircraft hangar, aircraft parking sheds, lecture and briefing rooms.

5.3. The flying staff establishment consists of an Operations Manager (OM), a Chief Flying Instructor (CFI) and 13 FIs. These may be supplemented by up to six Auxiliary FIs from the RSAF and up to six Volunteer FIs (VFIs). Training carried out in the FTD is primarily conducted by the two FTD Instructors (FTDI) and supplemented by the FIs. The flying operations are supported by two Air Ops Supervisors (AOS) and two Operations Support (Motor Transport) Officers.

5.4. The ground school curriculum for the SYFC flying course comprises lessons delivered via lectures, briefings, and self-paced learning modules. These are administered and conducted by the Ground School Instructor (GSI) and FIs. Basic aviation knowledge is

¹ RSAF personnel include potential pilot applicants serving full-time National Service (NSF), scholars, Unmanned Aerial Vehicle (UAV) operators and Weapon Systems Officers (WSO).

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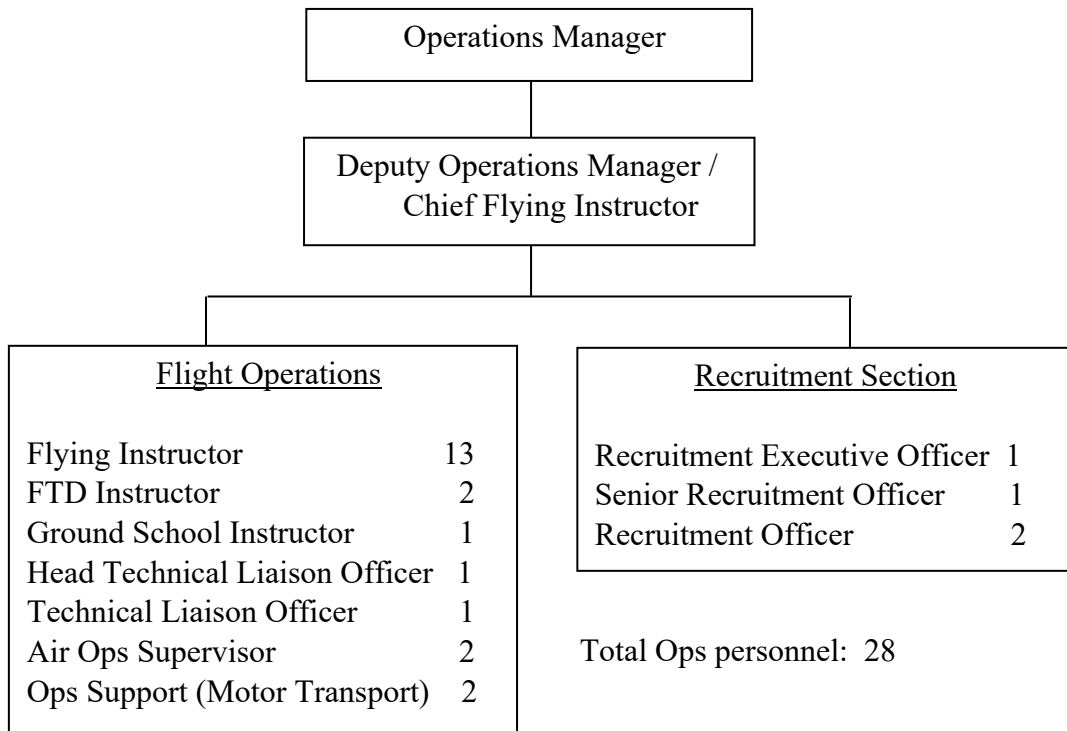
provided for the BFC while PPL students are prepared for the CAAS PPL ground examinations.

5.5. The servicing and maintenance of the aircraft, and aircraft salvage operations are outsourced to an aircraft maintenance contractor. Two Technical Liaison Officers (TLOs) work with the aircraft maintenance contractor to oversee the maintenance of the aircraft fleet.

5.6. The recruitment of students for the flying course is undertaken by the SYFC Recruitment Section, headed by the Recruitment Executive and supported by three Recruitment Officers.

5.7. The organisation structure of the Operations Department is shown in Figure 1-1. The job descriptions of personnel are detailed in the SYFC Human Resources Manual.

Fig 1-1: Organisation Structure of Operations Department



SECTION 2

MANAGEMENT OF FLIGHT OPERATIONS

1. FLIGHT SCHEDULING

1.1. Flying operations are scheduled from Tuesday to Sunday, with Monday as a rest day. The daily flying operation timings and number of waves are shown in Table 2-1.

Table 2-1: Daily Flying Operation Timings and Waves

Day of the Week	Operations Time	Number of Waves
Tuesday to Saturday	0800 – 1830 hours	4
Sunday	0800 – 1630 hours	3

1.2. Night flying is scheduled once a quarter to allow Flying Instructors (FIs) to maintain currency. When night flying is planned, operation time is extended up to 2130 hours.

1.3. Circuit Training Slot Times. Four one-hour time slots have been allocated for circuit training flights in Seletar Aerodrome. Aircraft proceeding to the Light Aircraft Training Area (LATA) will be allowed to depart 30 minutes prior to the start of the slot timings, subject to air traffic. Training aircraft are to plan to land by the end of the slot timings. The four training slot timings are shown in Table 2-2.

Table 2-2: Seletar Aerodrome Circuit Training Slot Timings

Slot 1	Slot 2	Slot 3	Slot 4
0930 – 1030 hours	1200 – 1300 hours	1500 – 1600 hours	1700 – 1800 hours

1.4. Daily Flying Schedule (DFS). The DFS is a programme of flying activities, Flight Training Device (FTD) sessions, ground lessons, and key events. It is distributed to staff and relevant external agencies one working day prior. The DFS is planned by the scheduling team and is approved by the General Manager (GM) / Operations Manager (OM) / Chief Flying Instructor (CFI) or their delegate before promulgation.

1.5. The approved DFS is distributed to Seletar Tower and is used as a valid flight plan for local flights. A separate flight plan needs to be filed for overseas navigational flight.

1.6. Students are notified of flying and FTD sessions via a text message and the DFS is also posted on the SYFC website.

1.7. Flights are planned based on take-off times, which are reflected as the Estimated Time of Departure (ETD) in the DFS. Aircrew are to report for flight one hour prior to the ETD.

2. OPERATIONS & TRAINING INFORMATION MANAGEMENT USER SYSTEM

2.1. The Operations & Training Information Management User System (OPTIMUS) is an electronic platform that facilitates the management of flight operations. The scheduling of flights and FTD sessions are carried out in the Scheduling module and upon approval, are put into the Flight Ops module as the DFS. The DFS interface is used to carry

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out risk assessment, authorisation for flights, and the recording of flight details. The key functions of OPTIMUS include:

- 2.1.1. Flight booking and scheduling
- 2.1.2. Risk assessment for flights.
- 2.1.3. Flight authorisation and recording.
- 2.1.4. Administering of weekly quizzes.
- 2.1.5. Dissemination of flight critical messages, e.g., monthly safety themes and watch areas.
- 2.1.6. Pilot currency monitoring.
- 2.1.7. Collation of flying achievement and pilot flying hours.
- 2.1.8. Flight training assessment and recording

2.2. In the event OPTIMUS is unavailable, flight operations will continue with the necessary functions carried out manually. Details of the flights carried out without the use of OPTIMUS will be keyed into OPTIMUS when it becomes available.

3. **FLIGHT AUTHORISATION**

3.1. Flights conducted in SYFC must be duly authorised. A list of Authorising Officers (AOs) is maintained in the Ops Room.

3.2. Each pilot is approved to authorise different types of flying tasks based on the complexity of the task and the qualifications, experience and seniority of the pilot. The OM or CFI is responsible for assessing and recommending the flying tasks that each pilot can authorise, to the GM for approval.

3.3. The AO shall ensure the following before authorising a flight:

3.3.1. The Pilot-In-Command (PIC) is current on type, qualified for the exercises he will be carrying out, and has a valid flying licence with the appropriate ratings for the flight.

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

3.3.3. For experiential flights carrying non-staff or member passengers, the SYFC consent form is completed (see Section 12).

3.3.4. For navigation flights, the flight plans have been submitted and permits obtained by the PIC and a copy of each is retained in the Ops Room.

4. FLYING EXECUTIVE OFFICER

4.1. Flying operation in SYFC is supervised by a Flying Executive Officer (FXO). The FXO is a suitably qualified pilot appointed to exercise command and control over flying activities. See Annex A for the terms of reference for the FXO.

4.2. The following may be assigned for FXO duty:

4.2.1. OM

4.2.2. Dy OM / CFI

4.2.3. Senior Flying Instructor as appointed by GM or OM.

4.3. The FXO duty is required whenever there is aircraft operation (from start-up to shutdown). One FXO is assigned for each wave of flying and is to 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. A proper handing and taking over of duty must be carried out if there is a change of FXO whilst flying operation is in progress. The handing-over brief is to include:

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

4.3.2. The number of aircraft airborne and their status.

4.3.3. Any flying restrictions and relevant Notices to Airmen (NOTAMS).

4.3.4. Changes in the flying programme.

4.4. The FXO station in the Ops Room is equipped with VHF radio sets for communications with the pilots during flight operations. The SYFC Ops frequency is 129.0 MHz. The FXO will maintain continuous radio watch on the Ops frequency during flight operations.

5. RECORD KEEPING OF FLYING AND FTD SORTIES

5.1. Flight Operations will maintain a record of the DFS, the flying hours achieved, the flying and FTD sorties carried out, and the sorties cancelled on each flying day.

5.2. The Air Ops Supervisor (AOS) will tally the flying hours at the end of each flying day and verify with the Technical Liaison Officer (TLO) that the hours flown are as recorded in the aircraft technical logs.

5.3. The FTD sorties carried out and cancelled will be compiled at the end of each month by the FTD Instructor and submitted to the AOS for record-keeping. Any changes or cancellations to the FTD programme are to be reconciled weekly, between the FTD office and the AOS.

5.4. Record of Pilot Flying Hours. A summary of the flying hours for pilots can be extracted from the OPTIMUS for the purpose of licence renewals. Pilots may maintain a

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personal flying logbook for their own records and use. Private Pilot Licence (PPL) students are to maintain a flying logbook as proof of their flying experience for the purpose of taking the Civil Aviation Authority of Singapore (CAAS) Final Handling Test (FHT).

6. FLIGHT AND SAFETY EQUIPMENT

6.1. Attire for Flying. For local flights, SYFC pilots, students on the PPL course, Alumni members and flying members are to wear flight suits for local flights. Students in the Basic Flying Course (BFC) are to wear the SYFC student polo t-shirt with pants and covered shoes. For flights to overseas destinations, civilian clothing is normally worn, unless on invitation to attend an event representing SYFC.

6.2. Life Vest. Life vests must be available for every person flying onboard an SYFC aircraft. Personnel flying in the capacity of an aircrew are to don a wearable life vest while passengers may be issued with a seal-packed life vest for use when the need arises.

6.3. Dinghy and Survival Pack. A dinghy sufficient to accommodate every person onboard must be carried for flights tracking over water that is 30 nautical miles or more from a land mass. SYFC uses the HARD-4 dinghy and survival pack, which is equipped with a 4-men dinghy and survival equipment for the sea and jungle.

7. RESTRICTIONS

7.1. Illness. A pilot is not to fly when ill and is to seek medical attention from a registered medical doctor and not self-medicate. Students on the flying course are to produce a valid medical certificate if he/she is absent for a flight, FTD or ground lesson due to illness.

7.2. Alcohol Consumption. 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 12 hours prior to commencing flying duties in SYFC.

7.3. Media Recording Device. Unless authorised by GM or OM, no student, Alumni member or passenger is to bring any mobile phone or media recording device over to the Seletar Airside or into the aircraft for local flights. Disciplinary action, including termination from course and civil action, may be taken against offenders. FIs may carry a mobile phone for flight, to be used in case of a diversion or in emergency situations.

TERMS OF REFERENCE FOR FLYING EXECUTIVE OFFICER

1. To check and monitor the following:
 - 1.1. Daily flying programme and changes.
 - 1.2. Weather (forecasted and actual).
 - 1.3. NOTAMS.
2. To approve the flights in the wave under his supervision after checking that proper authorisation, risk assessment and the weekly quiz have been carried out, and read-and-sign notices have been read and signed off.
3. To alert pilots on potential hazards or offer safety pointers pertinent to their flights prior to the pilots stepping out for flights.
4. 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.
5. To assist pilots experiencing emergencies with checklist actions, information and any necessary arrangements with external agencies.
6. To inform GM, OM and CFI immediately of events adversely affecting SYFC operations.
7. In the event of an air mishap involving SYFC aircraft, carry out actions in accordance with the response plan stipulated in the SYFC Consequence Management Manual (CMM). The immediate actions are as follows:
 - 7.1. Verify information of accident.
 - 7.2. Sound the 'Crash Action' alert siren.
 - 7.3. Brief management and staff of the accident.
 - 7.4. Decide the course of action for airborne aircraft in consultation with management and coordinate for the diversion of airborne aircraft, if required.

SECTION 3

MANAGEMENT OF PILOTS AND FLYING STUDENTS

1. CATEGORISATION OF PILOTS AND FLYING STUDENTS

1.1. 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 shown in Table 3-1.

Table 3-1: Categorisation of Pilots and Flying Students in SYFC

CAT A	1. CAAS Commercial Pilot Licence (CPL) Holder with a valid Flying Instructor (FI) Rating on type operated by SYFC
CAT B	1. CAAS CPL Holder with a valid Assistant FI (AFI) Rating on type operated by SYFC 2. CAAS CPL Holder with a valid Aircraft Rating on the type operated by SYFC 3. CAAS CPL Holder with a valid AFI/FI Rating on type other than that operated by SYFC
CAT C	1. CAAS Student Pilot Licence (SPL) or Private Pilot Licence (PPL) Holder with valid foreign CPL or Airline Transport Pilot Licence (ATPL) 2. Pilot operating on a CAAS-validated foreign CPL or ATPL 3. CAAS PPL Holder with a valid Aircraft Rating on Group A aircraft 4. CAAS SPL or PPL Holder who is an ex-RSAF pilot 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 2. CAAS SPL Holder with valid foreign Private Pilot or lower qualification 3. CAAS PPL Holder without a valid Aircraft Rating on Group A aircraft 4. Pilot operating on a CAAS-validated foreign Private Pilot qualification

2. DUTY AND FLIGHT TIME LIMITATIONS

2.1. Pilots must observe the limits as laid down in the Air Navigation Order (ANO). In addition, SYFC imposes in-house duty and flight time limitations to further safeguard pilots from fatigue.

2.2. Duty and Rest Period Limits. Pilots are to comply with the following duty and rest period limits.

2.2.1. Pilots are not to work for more than six consecutive days.

2.2.2. The minimum rest period between working days for pilots is eight hours.

2.2.3. Pilots must have a minimum of three hours rest after a session in the Flight Training Device (FTD) session before embarking on a flight as an aircrew.

2.2.4. The minimum rest period for CAT D pilots between flights (from landing to take-off) is one hour. This does not apply to dual-solo flights.

2.3. Flight Time and Sortie Scheduling Limitations. The scheduling of flights for pilots is to be in compliance with the limitations stipulated in Table 3-2.

Table 3-2: Flight Time and Sortie Scheduling Limitations

	Maximum Flight Hours to be Planned per Flight			Maximum Number of Flights and Flight Hours to be Planned per Day	
	All Flights except Task and Navigation		Task and Navigation Flights	All Flights except Task and Navigation	Task and Navigation Flights
	Day Flight	Night Flight	Day and Night Combined	Day and Night Combined	
CAT A			4.0 hrs	5 flights and 5.0 hrs	5 flights and 6.0 hrs
CAT B	2.0 hrs	1.5 hrs	N/A		
CAT C			N/A	3 flights and 3.0 hrs	N/A
CAT D	1.3 hrs	1.0 hrs	N/A		

2.3.1. If a pilot has flown four or more sorties in a day for two consecutive days, the pilot shall be planned for a maximum of three sorties on the next day.

2.4. Monthly and yearly flying hour limits:

2.4.1. The monthly flying hour limit for pilots is 50 hours. With approval from the General Manager (GM)/ Operations Manager (OM), the monthly hours may be increased to 55 hours.

2.4.2. The annual flying hour limit for pilots is 550 hours.

3. CURRENCY AND CHECK FLIGHTS

3.1. Flight Currency Period for Pilots. The flight currency validity for the various categories of pilots is shown in Table 3-3.

Table 3-3: Validity of Flight Currency for Pilots

PILOT CAT	TOTAL FIXED-WING FLYING HOURS	PILOT-IN-COMMAND HOURS ON TYPE					
		First Solo Flight	< 5	5 to < 10	10 to < 20	20 to < 50	≥50
CAT A	N/A	30 Days					
CAT B	N/A	21 Days			30 Days		
CAT C	< 75	Same Day	1 Day	7 Days			
	75 to < 200	Same Day	7 Days	14 Days			
	200 to < 500	1 Day	7 Days	14 Days		21 Days	
	≥ 500	7 Days		14 Days	21 Days	30 Days	
CAT D	N/A	Same Wave	Same Day	1 Day			

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3.2. Regaining Flight Currency. In the event that flight currency has lapsed, one or more check flights are to be carried out by the OM, the Chief Flying Instructor (CFI) or an FI assigned by the OM or CFI. See Table 3-4 for the requirements to regain flight currency.

Table 3-4: Requirements to Regain Flight Currency

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

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

3.3. Flex Sortie. If a CAT D pilot on the flying course has not flown for 14 days or more, a flex sortie may be given before resuming the course syllabus.

3.4. FTD Instructor (FTDI). FTDIs with a valid CAAS flying licence are allowed to maintain their aircraft rating requirements in accordance with the Singapore Air Safety Publications.

3.5. Renewal of Licence and Ratings. Pilots are responsible for ensuring that their flying licence and associated ratings are valid. The onus is also on the pilots to ensure that they meet renewal requirements and that renewals are completed timely to ensure the continuity of their qualifications.

3.6. Management Check Flight. All non-management FIs and pilots are subjected to a check flight annually by GM, OM, or CFI. During the management check flight, pilots are required to demonstrate competence in aircraft handling. Additionally, FIs are required to demonstrate proficiency in instructional skills and standardised instructional techniques.

4. SUPERVISION OF STUDENT SOLO FLIGHTS

4.1. Duty Instructor (DI). An FI shall be stationed at the Control Tower as a DI whenever there is solo student flying. This may be a dedicated FI rostered for the duty or the FI sending a student solo after a dual check. He may cover more than one solo student. He is to be vigilant when stationed in the tower to monitor all SYFC students' solo flights and ground operations. The DI is responsible for the following:

4.1.1. 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 Flying Executive Officer (FXO).

4.1.2. Provide close liaison and advice to Air Traffic Control (ATC) controllers on flying matters whenever necessary.

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- 4.1.3. Provide advice to solo students whenever the need arises, especially in emergencies. If the situation requires, the DI shall instruct solo students via Skylark Ops frequency (129.0 MHz) to land and terminate their sortie.
- 4.1.4. Carry out a radio check on 129.0 MHz with the FXO and the solo student before the student takes off.
- 4.1.5. 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.
- 4.1.6. Only for a first solo flight, the DI is to broadcast on 129.0 MHz that the first solo is getting airborne and when the first solo has landed.
- 4.1.7. Monitor and supervise the solo flight until the solo student has taxied behind the aircraft parking shed and the solo flight has been handed over to the FXO.
- 4.1.8. Sign in and sign off his duty time in the DI logbook and record any flight or aircraft observations and occurrences.
- 4.2. The equipment and documents required for the DI to discharge his duties are kept in the Seletar control tower at SYFC's risk. Any loss or damage of items is to be recorded in the logbook and reported to the OM or CFI.
- 4.3. The DI's equipment includes a fully charged standby battery for the handheld transceiver. This will be the backup should the transceiver battery run 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.
- 4.4. Instructor Covering Solo. An FI will be assigned as an airborne cover whenever there is a solo student flying. More than one FI may be assigned cover-solo duties if there are more than two solo students flying at the same time. An FI can only be assigned to cover solo if he is qualified for close formation flying. The responsibilities of an FI covering solo are as follows:
- 4.4.1. To be airborne before the solo flight takes off and land after the solo flight has landed.
- 4.4.2. Monitor the flying conditions in the area of operations and advise the DI and FXO of the suitability of the area for solo student flying.
- 4.4.3. To be in the Light Aircraft Training Area (LATA) when covering a solo flight operating in the LATA.
- 4.4.4. Report any hazards to the DI and FXO.
- 4.4.5. Assist and advise the solo students when necessary, especially in the event of an emergency.

4.4.6. Escort solo students in the event of a diversion.

5. **STUDENT FIRST SOLO FLIGHT**

5.1. Students must complete all the Pre-Solo requirements and must have passed the Pre-Solo Quiz by Sortie 15. The student will not be sent on his/her first solo flight prior to Sortie 15.

5.2. An FI is required to possess an FI rating to send a student on a first solo flight. An AFI is not licenced to send students on first solo flights.

5.3. The sortie profile consists of a normal takeoff, circuit and landing, except for go-around situations due to an unsafe approach or landing.

5.4. The FI must ensure that the comms procedure is fully briefed to the student. The student is responsible for ensuring two-way communication with the DI on 129.0 MHz prior to takeoff.

5.5. The FI is to ensure that flying conditions such as wind, visibility and air traffic are conducive for the first solo flight. There should not be any major changes between the dual check and the first solo flight, such as a change of runway.

5.6. The crosswind component for a first solo flight is not to exceed five knots. The FI is however permitted to clear the student for the first solo flight with a crosswind component of up to 10 knots if the student is on the third attempt at the First Solo Check Flight, and all of the following conditions are met:

5.6.1. The student has demonstrated in all three First Solo Check Flights, to be competent in handling crosswind conditions of more than 5 knots.

5.6.2. The third First Solo Check Flight is within the next two days of the second First Solo Check Flight.

5.6.3. The crosswind component is within 10 knots.

6. **SUBSEQUENT STUDENT SOLO FLIGHTS**

6.1. Students must be thoroughly briefed on the solo sortie profile by the instructor sending the student on the solo flight.

6.2. 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.

6.3. 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 in an emergency situation, where the student may land off an approach that he/she has been cleared solo for.

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6.4. Solo students may taxi out of the SYFC aircraft parking shed for their solo flight. Returning solo flights are not to taxi into the parking shed. They will be marshalled to stop just prior to turning into the parking shed for engine shutdown.

7. **STUDENT SOLO RESTRICTIONS**

7.1. Solo students are not allowed to carry out the following:

7.1.1. Any exercise or manoeuvre not briefed by the FI or authorising officer for that particular sortie.

7.1.2. Rolling take-off (line-up checks must be carried out with the aircraft stationary).

7.1.3. Practise Engine Failure After Take-Off (EFATO).

7.1.4. Practise radio or electrical failure procedures.

7.2. Restrictions that apply to solo students based on their solo flying experience is shown in Table 3-4.

Table 3-4: Solo Student Restrictions Based on Solo Experience

Solo Experience	First solo flight	< 5 solo hours	5 hours or more
Restrictions			
Time-lapse allowed between Dual-Check and Solo Flight	Within Same Wave	Within Same Day	Up to end of Next Day
Solo flight in the Light Aircraft Training Area	Not Allowed		Allowed after clearing Dual Check

SECTION 4

GROUND OPERATIONS

1. SYFC TRAINING AIRCRAFT

1.1. Aircraft Type and Group. SYFC operates the Diamond DA40-CS aircraft, manufactured by Diamond Aircraft Industries. It is a light training aircraft and is categorised as a Group A aeroplane. It is certified for operations under Instrument Flight Rules (IFR) and for single crew operations. It can carry a maximum of four persons onboard.

1.2. Mandatory Equipment and Documents to be Carried in the Aircraft. The Civil Aviation Authority of Singapore (CAAS) has mandated that the following equipment and documents are necessary for the airworthiness of the aircraft and must be onboard the aircraft for flight.

1.2.1. A crash axe.

1.2.2. A fire extinguisher.

1.2.3. First aid equipment.

1.2.4. A life vest for each person-on-board (POB) for flights over water.

1.2.5. Airplane Flight Manual (AFM).

1.2.6. Garmin G1000 Cockpit Reference Guide.

1.2.7. Technical Log of the aircraft for flights landing outside of Singapore.

1.3. Other Items to be Carried in Aircraft. The following are to be carried in SYFC aircraft for flights.

1.3.1. A dinghy sufficient to accommodate all persons onboard, if any part of the flight tracks over water that is more than 30 nm from land.

1.3.2. An aircraft steering arm.

1.3.3. A water precautionary test kit.

1.3.4. Flight Reference Cards (FRC).

2. PRE-FLIGHT REQUIREMENTS

2.1. Working at Aircraft Parking Sheds in Lightning Risk Cat 1 Condition. Personnel may proceed to the SYFC aircraft parking sheds during Lightning Risk Cat 1 condition to perform work-related activities, subject to the approval of the Flying Executive Officer (FXO) when the flying operation is in progress, or the Technical Liaison Officer (TLO) when there is no flying operation. Personnel are to stay under shelter at all times and keep clear of the beams and pillars at the parking sheds.

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2.2. Refuelling. Maintenance personnel and fuel bowser personnel will refuel the aircraft in accordance with procedures established in the SYFC Aircraft Maintenance Management Manual (AMMM). In the absence of maintenance personnel, aircrew may supervise the refuelling personnel and ensure the following:

2.2.1. The aircraft is earthed and vacated during refuelling.

2.2.2. The correct fuel grade and quantity are provided. The recommended fuel grade for SYFC's DA40-CS aircraft is AVGAS 100LL, which is blue in colour.

2.2.3. The fuel is checked for water and other contaminants before the next flight after it has been refuelled.

2.3. Before Flight (BF) Checks. The BF Checks are carried out by maintenance personnel before each flight in accordance with the schedule laid down for the aircraft type and will sign the aircraft technical log to certify its serviceability. When operating out of SYFC premises or where maintenance personnel are not available, the aircrew will carry out the Pre-Flight Checks in lieu of the BF checks.

2.4. Responsibilities of the Pilot-In-Command (PIC). The PIC of the aircraft shall be overall in charge of the crew, passengers and safety of the aircraft. The PIC must ensure that the following are satisfactorily completed before flight:

2.4.1. The meteorological report and forecast, as well as the Notices to Airmen (NOTAMs) are checked.

2.4.2. The aircraft is within its Centre of Gravity (CG) limits. For a flight with four POB, the CG computation is to be carried out to ensure that the aircraft is within its weight and balance limits, as the aircraft may be close to its Maximum Take-Off Weight (MTOW). The DA40 Aircraft Weight and Balance Worksheet is shown in Annex A to Section 4.

2.4.3. Sign out for the flight in the Operational & Training Information Management User Information System (OPTIMUS). This includes filling in the Risk Assessment Matrix System (RAMS), reading the Orders (Hot Poops or Red Flag) and any read-and-sign document, the completion of the bold-face quiz and ensuring that all relevant flying currencies, licences and ratings are valid.

2.4.4. Check the aircraft Technical Log for validity and serviceability of the aircraft, remaining aircraft hours, fuel and oil states, and any restrictions or special instructions. The PIC is to sign the Technical Log to accept the aircraft only when he is fully satisfied that the aircraft is acceptable for flight.

2.4.5. The PIC shall occupy the left-hand seat of the aircraft. A flying instructor may occupy the right-hand seat as PIC in an instructional role.

2.5. Management of Aircraft Keys for Flights. Aircraft keys are held by the Log Cell Controller when the maintenance personnel are preparing the aircraft for flight. When the aircraft are ready for flight, the keys of the aircraft planned for flight will be handed to the FXO through the TLO. The FXO will issue the aircraft key to the pilot of the aircraft, after

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verifying that the flight has been properly authorised. Upon completion of the flight, the pilot will return the aircraft to the Log Cell Controller. For the last flight of the day, the pilot will hand the key to the maintenance crew at the flight line.

3. **GROUND PROCEDURES**

3.1. Pre-Flight Checks

3.1.1. All aircraft checks are to be performed by memory and in the correct sequence in accordance with the FRC. The PIC is responsible for all aircraft checks. On instructional flights, the instructor is to monitor the checks done by the student.

3.1.2. Water Precautionary Test (WPT). When operating from SYFC, the WPT is carried out by the aircraft maintenance personnel at the start of the day and when the aircraft has been exposed to rain. The fuel service provider in Seletar Airport also carries out a WPT of the fuel in the refuelling bowser daily. When operating from a location other than SYFC, the PIC is required to carry out a WPT using the WPT kit stored in the aircraft, whenever any of the following conditions are met:

3.1.2.1. First flight of the day.

3.1.2.2. Aircraft exposed to rain.

3.1.2.3. After refuelling.

3.1.3. Garmin G1000 Database. The currency of the databases installed in the Garmin G1000 system is to be checked upon powering up and if any of the databases are not current, they must not be used for the flight.

3.2. Engine Start-Up

3.2.1. When a marshaller is available, the aircraft is not to be started up unless clearance is obtained from the marshaller.

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

3.2.3. Pilots are to observe the fuel flow when priming the engine for start. A fuel flow of more than 9.0 GPH during priming is indicative of an anomaly in the Fuel Injector Servo (FIS). If the fuel flow exceeds 9.0 GPH during priming, the engine start is not to be attempted and the observation is reported to the maintenance crew.

3.2.4. If the first engine start attempt is not successful, and if the mixture lever had been advanced, 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 the next start attempt. Wait at least 20 seconds before attempting to start again. On the second attempt to start, use the 'Flooded Engine' start procedure

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to clear the engine (fuel pump off, mixture lever lean, throttle forward at mid position; then crank). If the engine kicks in during the second attempt, continue as per normal start (mixture lever forward). If not, for the third attempt, treat it as a normal start but with less priming.

3.2.5. Pilots are to continue monitoring the fuel flow after the engine start. When the throttle is set to idle on the ground or when airborne, the fuel flow should be less than 2.0 GPH. A fuel flow higher than 2.0 GPH when the throttle is set to idle is indicative of an anomaly in the FCU and the sortie is to be aborted.

3.3. Radio Check with Ops. A comms check with Skylar Ops (129.0 MHz) is to be carried out prior to taxiing out. Skylark Ops will report on the radio transmission strength and also give the taxi sequence. The aircraft that has taxied past parking shed 1 (northern most weather shed) and onto Taxiway WS1 will no longer be counted in the sequence.

3.4. Taxying

3.4.1. Application of Parking Brakes. The procedure to apply the parking brake is as follows:

3.4.1.1. Apply pressure on foot brake pedals evenly.

3.4.1.2. While holding foot brake pressure, apply parking brake.

3.4.1.3. Pump the foot brake pedals firmly.

3.4.2. Releasing the Parking Brakes. The procedure to release the parking brake is as follows:

3.4.2.1. Apply pressure on foot brake pedals evenly.

3.4.2.2. While holding foot brake pressure, release parking brake.

3.4.2.3. Release foot brake pressure to taxi.

3.4.3. Brakes Check. When the aircraft has taxied out of the parking shed, apply light pressure evenly on the foot brake pedals to check the effectiveness of the brakes. Do not bring the aircraft to a complete stop during brakes check.

3.4.4. Both sets of foot brakes are to be checked in a dual flight. The pilot in control when taxiing out will hand controls to the other pilot for brakes check after first completing it.

3.4.5. 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 other aircraft until it comes to a stop. Inform Air Traffic Control (ATC) and Ops of the emergency.

3.4.6. Brakes should not be used against power except to assist in steering.

3.4.7. Instrument Checks. The Instrument Checks are to be done during the first turn after taxiing out from the parking shed.

3.4.8. A good lookout must be maintained throughout taxiing, with sufficient clearance maintained from other aircraft and obstacles. Observe the rules and regulations for taxiing and stop the aircraft if in doubt.

3.4.9. Taxiing 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 knots for pilots and not more than 10 knots for solo students. (refer to GPS groundspeed read-out).

3.4.10. Separation Between Aircraft. The PIC must ensure safe separation from the aircraft in front when taxiing or when parked. The following applies:

3.4.10.1. While Taxiing. 4 aircraft lengths (approx. 100 feet)

3.4.10.2. When Stationary. 2 aircraft lengths

3.4.10.3. Parking 45° from Taxi-line for Engine Run-Up. Ensure sufficient wing clearance from the aircraft in front such that if the brakes fail to hold the aircraft, there is no possibility of a collision.

3.5. Engine Run-Up

3.5.1. Engine Run-Up is to be carried out at Taxiway WS1 with the aircraft positioned 45° to the taxi-line.

3.5.2. For multiple aircraft engine run-ups at Taxiway WS1, the first aircraft should be positioned close to the taxiway stop line. This will allow up to three aircraft to position for run-up at WS1.

3.5.3. Engine Run-Up. When the engine is set to 2000 Revolutions Per Minute (RPM) for the engine run-up, a marked difference in any of the four EGT readings of more than 150° F is a possible indication that the spark plugs in the cylinder with the markedly different Exhaust Gas Temperature (EGT) have fouled. Engine clearing is to be carried out by leaving the engine at 2000 RPM for one minute.

3.5.4. Magneto Check. During the magneto check, if the engine rough runs or the engine RPM drop limit is exceeded, an overly rich mixture is usually the cause. Carry out the following:

3.5.4.1. Ignition Switch - "Both" position, 2000 RPM.

3.5.4.2. Mixture - Slowly lean till the RPM peaks
(about 1450° F on the EGT).

3.5.4.3. Throttle - 2000 RPM and repeat magneto check.

3.5.4.4. If unsatisfactory, maintain at 2000 RPM for one minute.

3.5.4.5. Repeat the check.

3.5.4.6. If the results are unsatisfactory, abort the sortie.

3.6. Taxy Clearance. After completing the Engine Run-Up checks, the pilot is to switch to Ground frequency for taxy clearance, after receiving the Automatic Terminal Information Service (ATIS) information. Thereafter, taxy as instructed by ATC to the holding point and stop the aircraft a distance of one aircraft length from the stop line.

3.7. After Landing Checks

3.7.1. Students are to perform the After Landing Checks with the aircraft stationary. The return to the parking shed is via Taxiway WS2.

3.7.2. 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 FRC and set to full RICH again during the Vital Actions Before Take Off (VABTO) Checks prior to subsequent take-off.

3.8. Taxying into Parking Shed. Solo students are not to taxy into the parking shed. They are to stop on the taxi line just before the turn into the designated parking shed and shutdown. The ground marshallars will push the aircraft into the shed. For dual flights, the FI will taxy into parking shed 6 and 9 due to tight wing-tip clearance from the adjacent fence line.

3.9. Clearing the Engine Prior to Shutdown. Engine clearing is to be carried out at the parking shed by setting the throttle to 2000 RPM for 20 seconds. During the clearing of the engine, if there is any marked difference in any of the four EGT readings (more than 150° F difference), the spark plugs in the cylinder with the marked difference in EGT reading may have fouled. If the engine clearing does not resolve the issue, report the observation to the maintenance crew.

3.10. Checking Mixture Setting on Shutdown. After clearing the engine at 2000 RPM, set throttle to idle, set mixture to full RICH and note the idling RPM. Retard the mixture lever slowly and note the maximum rise in the RPM. The acceptable rise is within +50 RPM. If the rise is beyond this range, the Mixture setting is likely to be too rich. If the RPM does not rise, the Mixture setting is likely to be too lean. In either case, report the findings to the maintenance crew.

3.11. Keeping Electrical Power on after Engine Wind Down. To ensure the G1000 system records data up to the point where the engine has completely wound down, the Master Switch is to be left on for 30 seconds after the propeller comes to a complete stop.

3.12. Change of Passengers or Crew

3.12.1. 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 rear door must be closed and latched. Whenever the engine is running, it is prohibited to enter or exit the aircraft. For a change of passengers or crew, the engine is to be shut down.

3.12.2. When sending a student solo from a dual/solo flight, the aircraft is to be shut down for the FI to exit the aircraft. The FI is to monitor the student's start-

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up of the engine. As the engine is hot, a shorter period of fuel priming of one to two seconds is recommended.

3.12.3. When proceeding for the solo flight from the SYFC parking shed, the solo student is allowed a maximum of six attempts to start the engine. When proceeding for the solo flight from a parking bay outside of the SYFC parking apron, the solo student is allowed a maximum of four attempts at starting the engine. If the student fails to start the engine after the fourth attempt, the solo flight is to be cancelled and the FI is to board the aircraft, start the aircraft and taxi back to park.

4. **POST-FLIGHT REQUIREMENTS**

4.1. Definition of a Flight. To constitute a flight, an aircraft must take off, land and shut down. If an aircraft lands and subsequently takes off without shutting down, it is still operating within the same flight. The exception to this is if a callsign change is made, in which case a separate flight is logged even if the aircraft is not shut down.

4.2. Recording of Flight Time. The flight time duration will be logged based on the aircraft's Hobbs Meter reading.

4.3. Logging of Flight Details. After the flight, the PIC is to carry out the following:

4.3.1. Record all the flight information and any aircraft defect in the aircraft Technical Log. As the Technical Log is a legal flight document, any entry made in error is to be amended and signed.

4.3.2. Record all required flight information and indicate any aircraft defect in the Operations & Training Information Management User System (OPTIMUS).

4.4. Defect Reporting

4.4.1. If a defect is found on the ground that warrants declaring the aircraft unserviceable, the aircraft must not be flown. If a defect occurs during flight, the aircraft must be recovered in accordance with established Standard Operating Procedures (SOPs). The defect is to be reported to the Log Cell and entered into the Technical Log.

4.4.2. A solo student is to consult his FI before recording a defect in the Technical Log.

5. **GROUND ACTIVITIES AT SYFC AIRSIDE AND HANGAR**

5.1. For the conduct of activities within the Seletar Airport airside, such as photography, filming, renovation or repair works, the necessary permits and approvals must be sought with the Changi Airport Group (CAG), Seletar, prior to the commencement of the activities.

5.2. For the conduct of activities within the SYFC hangar, such as CCA flying activities, demonstration of aircraft checks or renovation works by contractors, the person-

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in-charge shall coordinate with the TLO so that aircraft maintenance activities can be deconflicted.

5.3. The person-in-charge of such activities shall arrange with the Scheduling Team for the proposed date and time of the activity to be indicated in the Daily Flying Schedule (DFS).

5.4. On the day of the activity, the person-in-charge of the activity within the SYFC airside or hangar, shall report to the FXO, or the TLO when no flying operation is in progress, with a completed authorisation form (Annex B) prior to the commencement of the activity. Upon completion of the activity, the person-in-charge must inform the FXO/TLO.

5.5. A process flowchart summarising the necessary approval steps for ground activities at the SYFC airside and hangar is given in Annex C to this Section.

5.6. For photography and filming activities confined within the SYFC airside and hangar, a photography/filming permit from CAG is not required. However, approval must be sought from SYFC General Manager (GM) or Operations Manager (OM) prior to the activity. Personnel are to ensure that only the SYFC facility is captured in the recording media and that at no time, shall any area or feature of the Seletar airport facility, e.g. runway, taxiways, control tower, etc., be photographed or filmed.

DA40 AIRCRAFT WEIGHT & BALANCE WORKSHEET

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

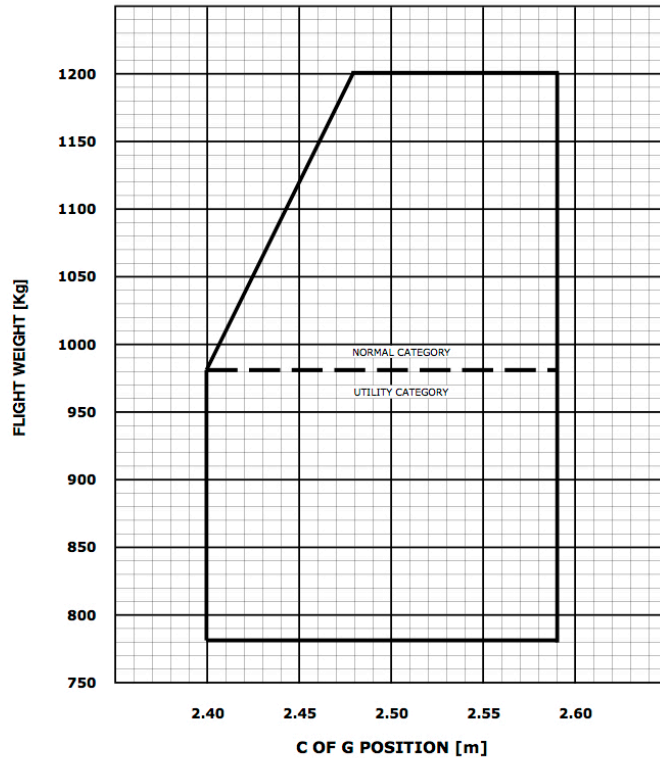
WEIGHTS

- 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 = $\frac{\text{Total Loaded Moment}}{\text{Total Loaded Weight}}$ = _____ Metres **AFT of Datum** (Plot with X)

PIC Sign: _____ Licence Type / No: _____

AUTHORISATION FOR SYFC AIRSIDE/HANGAR ACTIVITY

Part I – General Details

Person-in-Charge*				
Activity <i>(Please tick one)</i>	Renovation/Repair Works <input type="checkbox"/>		Filming/Photography <input type="checkbox"/>	
	Others <input type="checkbox"/> <i>(Please specify):</i>			
Date of Activity		Time (Start)		Time (End)
Location of Activity <i>(Please tick one)</i>	SYFC Airside <input type="checkbox"/> <i>(Complete Part II A)</i>		No. of Accompanying Personnel <i>(excluding Person-in-charge):</i>	
	Hangar <input type="checkbox"/> <i>(Refer to Part II B)</i>			
Brief Description of Equipment	<i>(Indicate Nil if no equipment)</i>			

**Only for activity at the SYFC Airside, Person-in-Charge MUST be a seasonal airport pass holder*

Part II – Safety Questionnaire & Declaration

A. Safety Questionnaire (Airside Only)	
Please complete all questions below & circle either ‘True’ or ‘False’ in the spaces provided	
1. <i>Airside security passes must be displayed prominently at all times</i>	<i>True / False</i>
2. <i>High visibility safety vests shall be worn at all times</i>	<i>True / False</i>
3. <i>Personnel shall only bring items necessary for the performance of tasks/activities and ensure that all equipment/tools are accounted for before and after the task/activity</i>	<i>True / False</i>
4. <i>Having meal breaks at the Airside is allowed</i>	<i>True / False</i>
5. <i>Aircraft and vehicles shall give way to personnel</i>	<i>True / False</i>
6. <i>Personnel shall not cut across taxiways and always walk behind stationary aircraft at the parking shed</i>	<i>True / False</i>
7. <i>Personnel are to stay clear of the aircraft parking bay at all times when aircraft are starting up (indicated by flashing strobe lights)</i>	<i>True / False</i>
8. <i>Running at the Airside is allowed if a task/activity needs to be completed urgently</i>	<i>True / False</i>
9. <i>When CAT 1 (Lightning Risk) warning is activated, all personnel are to stop work and proceed indoors</i>	<i>True / False</i>

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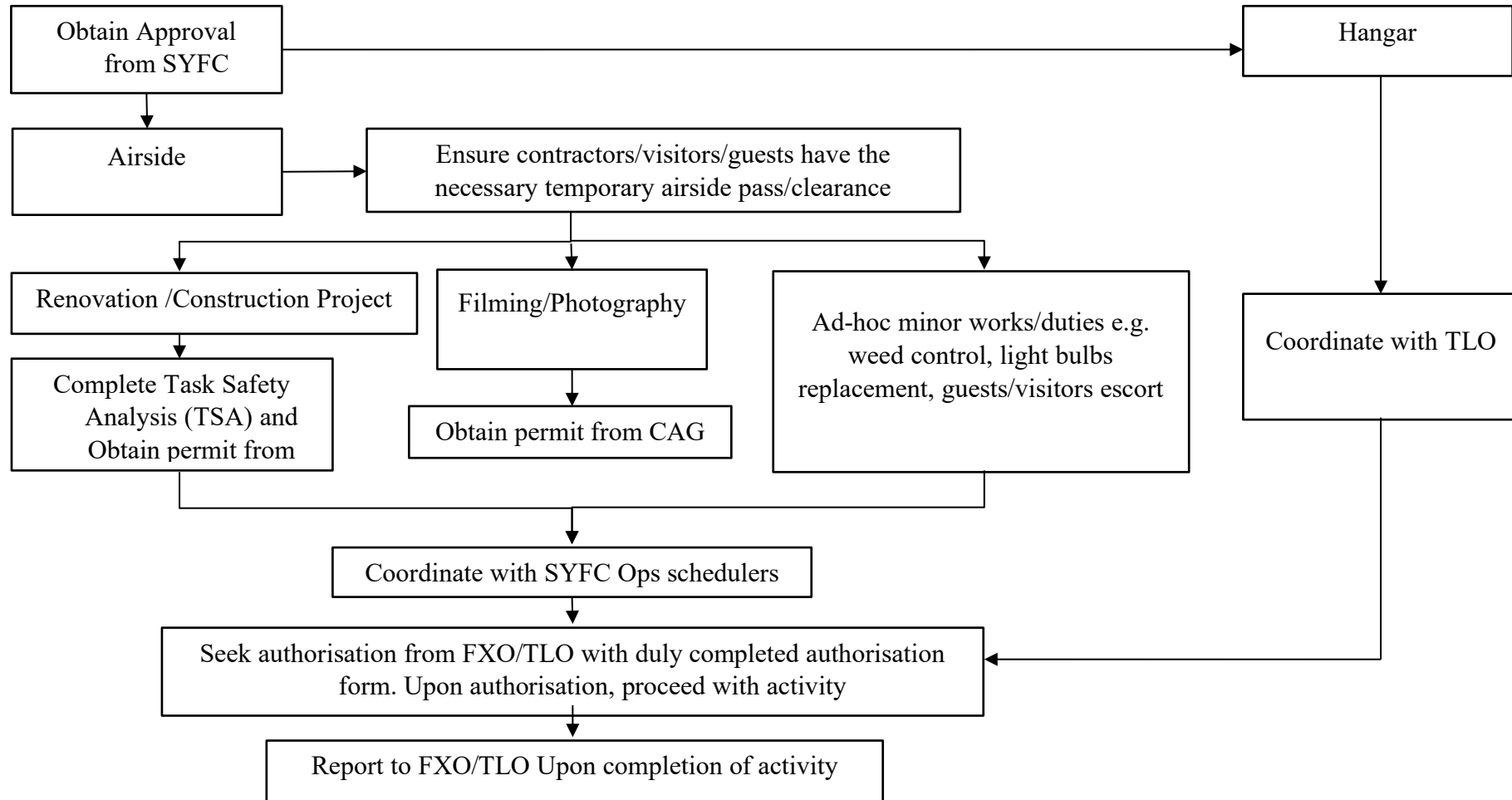
<p>B. <u>Safety Rules (Hangar Only)</u></p> <p>1. <i>If demonstrating external checks on aircraft, ensure the following:</i></p> <ul style="list-style-type: none"> - <i>All electrical switches are turned OFF</i> - <i>Do NOT touch any switches or remove any attached grounding wires</i> - <i>Do NOT remove any chocks and/or move the aircraft</i> - <i>Do NOT touch or move the propeller and keep clear of the path of the propeller</i> <p>2. <i>If performing works-at-height, ensure the necessary safety equipment is used e.g. safety rope & harnesses, Personal Protection Equipment (PPE)</i></p> <p>3. <i>Only bring necessary items/equipment into the hangar and ensure that they are accounted for at the end of the activity/task</i></p> <p>4. <i>No photography/filming is allowed without prior approval from the SYFC management.</i></p> <p>C. <u>Safety Declaration</u></p> <p>As the Person-in-Charge of the activity stated in Part I of this form, I agree that it is my responsibility to ensure that all accompanying personnel including myself, comply with the safety rules governing the conduct of task/activity at SYFC Airside/Hangar <i>*(delete where appropriate)</i></p>	
Name of Person-In-Charge:	Signature:

PART III – FXO/TLO Authorisation

<p>A. <u>Authorisation Checklist</u> (FXO/TLO - Please tick accordingly)</p> <p>1. Personnel possesses Airside security pass <input type="checkbox"/></p> <p>2. CAG Filming/Photography Permit (if applicable) <input type="checkbox"/></p> <p>3. Safety Questionnaire & Declaration completed <input type="checkbox"/></p> <p>4. Task/Activity indicated in DFS (For Airside Operations only) <input type="checkbox"/></p> <p>5. Safety watch areas/reminders briefed (where appropriate) <input type="checkbox"/></p> <p>6. Obtain contact number for Person-in-Charge (Contact No: _____) <input type="checkbox"/></p>	
<p>B. <u>Authorisation</u></p> <p>The Task/Activity is Authorised/Not Authorised <i>*(circle where appropriate)</i></p>	
Name of FXO/TLO:	Signature:

Note : FXO/TLO to retain the completed form till the activity is completed.

PROCESS FOR SYFC AIRSIDE/HANGAR ACTIVITY



SECTION 5
FLIGHT OPERATIONS

1. GENERAL HANDLING PARAMETERS AND PROCEDURES**1.1. Take-Off**

1.1.1. Pilots are to ensure that positive clearance is obtained before entering the runway. A positive clearance includes a clearance via radio transmission from the Tower controller and the switching off of the red stop-bar lights at the holding point, if available. If either the Tower's transmission is not clear, or if the stop-bar lights are still illuminated, do not taxi; hold position and clarify with the Tower controller. Prior to crossing the holding point line, pilots are to check that the final approach and the runway are clear.

1.1.2. Pilots are cautioned to distinguish between a take-off clearance and a clearance to enter the runway for other purposes such as back track or line up. In case of doubt, hold position and confirm with Air Traffic Control (ATC).

1.1.3. A maximum of three dual aircraft may back track on the runway for line up, if permitted by ATC.

1.1.4. Flying Instructors (FIs) and students in dual flights may conduct an intersection take-off and a rolling take-off.

1.1.5. Solo students operating in Seletar Aerodrome must take-off from at least the 4th marker of the runway in use and must stop the aircraft to carry out the line-up checks for the take-off.

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

1.1.7. For take-off, the RPM at full power must be within 2680 ± 20 RPM. The rotation speed for a normal take-off is 59 KIAS.

1.2. **Landing Light Operations.** The landing light is to be switched on throughout the flight. For night flying, the landing light may be switched off for a negative light approach.

1.3. **Minimum Height to Turn onto Crosswind.** The minimum height to initiate a turn from upwind onto the crosswind leg is 500 ft Above Ground Level (AGL).

1.4. **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.

1.5. **Climbing.** The climb is carried out at full power and the climb speed is 75 KIAS when operating below 5000 ft. Above 5000 ft Above mean Sea Level (AMSL), the climb speed is 70 KIAS.

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

1.5.2. 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).

1.6. Descent. The descent power settings and speeds are as follows:

1.6.1. Glide Descent – Idle Power, 75 KIAS.

1.6.2. Cruise Descent – Power 12/2400, 100 KIAS.

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

1.6.4. The engine is to be cleared (i.e., increase power > 2000 RPM for three seconds, then throttle to idle), and the engine Cylinder Head Temperature (CHT) checked, every time the altimeter reading passes the 1000 ft mark.

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

1.7.1. Flaps (T/O) - 65 KIAS, power $\underline{\Omega}$ 18/2400

1.7.2. No flaps - 70 KIAS, power $\underline{\Omega}$ 17/2400

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

1.8. Turns. The following turn parameters are used:

1.8.1. Medium Level Turns - 30 degrees AOB, power 21/2400, 100 KIAS

1.8.2. Climbing Turns - 15 degrees AOB, Full Power

1.8.3. Descending Turns - maximum 30 degrees AOB, power as required

1.8.4. Steep Turns - 45 degrees AOB, power 23/2400, $\underline{\Omega}$ 100 KIAS

1.9. Stalling. The minimum recovery heights for stalling exercises are:

1.9.1. Dual sorties - 2500 ft AGL/AMSL (in LATA Alpha)

1.9.2. Solo students - 5000 ft AGL/AMSL (in LATA Bravo/Charlie)

1.10. Endurance Flying. Endurance flying is done by flying for the maximum duration with minimum fuel (mixture leaned for best economy) and maintaining a level

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flight at the lowest possible altitude. As a guide, 70 KIAS without flaps or 65 KIAS with T/O flaps are used as holding speeds. The Mixture is leaned as required.

1.11. Landing. For normal landing the approach speed is 70 KIAS, however, when landing in strong or turbulent wind conditions, a higher approach speed (plus 5 knots) should be selected. If the gust factor is known, the approach speed is to be increased by half the gust factor or 5 knots, whichever is higher. The gust factor is defined as the difference between wind strength and gust. E.g., if winds are reported to be 15 knots, gusting to 25 kts, the gust factor is 10 knots (25 minus 15).

1.12. Vacating the Runway After Landing. 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 or the bursting of the tyres. Braking is to be carried out as soon as practicable. Pilots are to ensure that the aircraft is decelerated sufficiently before turning off the runway. Focus on controlling the aircraft and decelerating it to a slow speed before requesting for turn-off. 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 for a turn-off at the next available taxiway or a 180° turn may be requested.

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 US 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 and to minimise 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. After joining the circuit pattern, switch tank during every downwind check if the fuel is balanced, otherwise select the fuller tank to balance the fuel.

2.2.2. Circuit after take-off. Switch tank during every downwind check. When departing for the 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 kept ON throughout circuit training. On departure, the fuel pump is to be kept on for the climb to the operating height. At the operating height, the fuel pump may be switched OFF if operating below 5000 ft AMSL. At 5000 ft AMSL and above, the fuel pump is to be switched ON. For the arrival, during the FIE Check, the fuel pump should be ON until after landing. At any time during flight operations, the fuel pump is to be selected ON if the fuel pressure drops below 14 PSI.

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2.4. Mixture Control. Management of the mixture is as per the Flight Reference Cards (FRC). It is to be set for an economy cruise (-100°F of peak EGT) during navigation when established at cruise altitude.

3. WEATHER LIMITATIONS

3.1. Visual Flight Rules (VFR). Unless the PIC has a valid Instrument Rating to fly in Instrument Meteorological Conditions (IMC), flights are to be flown in accordance with VFR. Details of VFR for the various classes of airspaces can be found in the Enroute section of the Aeronautical Information Publication (AIP) and the Eleventh Schedule of the Air Navigation Order (ANO).

3.2. 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 (ATC) unit. Refer to the AIP for details.

3.3. Seletar Airfield State and Weather Diversion. As Seletar is a VFR airfield and FIs may not be 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 suitability for flying.

3.4. Weather Monitoring and Pilot Report (PIREP). Besides the monitoring of the weather by the FXO via the weather radar picture, FIs are to constantly monitor the weather and as appropriate, provide a PIREP to the FXO on weather in the circuit, transit route, and training areas. This is especially so if there is a student going for a solo flight in the training area. The Duty Instructor (DI) or the FXO will recall aircraft to the circuit whenever the weather is observed to be deteriorating.

3.5. Thunderstorm Warning. When a thunderstorm Meteorological (Met) Warning is issued, the FXO will make an assessment of the lightning risk in the area of operations, using information from available meteorological services, such as the Lightning Information Service from the Meteorological Service of Singapore. If the thunderstorm is within or forecasted to be trending towards the area of operations, lightning activity is to be considered highly probable (lightning risk CAT 1). When a thunderstorm warning is issued and lightning risk is assessed to be CAT 1, the following are applicable:

3.5.1. No further take-off is permitted.

3.5.2. If airborne, aircraft in the circuit will land and return for shutdown.

3.5.3. Aircraft in the training areas may hold off in the area at the pilot's discretion, with consideration to the aircraft endurance and weather conditions in the training area vis-à-vis the weather at the airfield.

3.5.4. Flying may continue or resume in the following conditions:

3.5.4.1. Upon expiry of the thunderstorm Met warning.

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- 3.5.4.2. The thunderstorm Met warning is downgraded to a warning of showers.
- 3.5.4.3. With the thunderstorm Met warning still valid, when both these conditions are met:
- 3.5.4.3.1. The thunderstorm is not within the area of operations.
 - 3.5.4.3.2. No reported lightning strikes in the area of operations within the last 30 minutes.
- 3.6. Reduced Visibility Operations (RVO). Flying operations in the Light Aircraft Training Area (LATA) is only permitted in Visual Meteorological Conditions (VMC), which require a visibility of 5 km or more. If visibility reduces to 8 km but not below 5 km, the Flying Executive Officer (FXO) may declare RVO. The following applies in RVO:
- 3.6.1. No student solo is permitted in LATA.
 - 3.6.2. All external lights on the aircraft are to be turned on (position lights, landing lights and taxi lights).
 - 3.6.3. Pilots are to call out their operating height for de-confliction and observe a minimum of 1000 ft separation.
 - 3.6.4. No practice Unusual Attitude (U/A) recoveries.
 - 3.6.5. Exercises that require vertical manoeuvring airspace (e.g., climbing and descending, approach configuration stall) can only be conducted if de-confliction with other aircraft can be achieved by lateral separation or by operating within an unused height block.
- 3.7. Operational Limitations in Haze. Hazy conditions created by pollution is a flight hazard due to reduced visibility and a health hazard to pilots and ground crew. Restrictions to SYFC operations are put in place in hazy conditions to protect personnel and are aligned to the guidelines set out by the Ministry of Health (MOH). Refer to Annex B, SYFC Haze Matrix for Operations, for details.

4. SELETAR AERODROME

- 4.1. SYFC operates out of Seletar Airport, a Class C airspace, and detailed information on the airport and its facilities can be found in the AIP, relevant supplements and circulars. The information details available include:
- 4.1.1. Diagram of the layout of the airport
 - 4.1.2. International Civil Aviation Organisation (ICAO) Code of the airport
 - 4.1.3. Aerodrome Reference Point

- 4.1.4. Runway dimensions, elevation, and other details
- 4.1.5. Airfield lighting information
- 4.1.6. Navigation aids
- 4.1.7. Communication facilities and frequencies
- 4.1.8. Obstacle information
- 4.1.9. Special procedures such as procedures for noise abatement

5. LIGHT AIRCRAFT TRAINING AREAS

5.1. The LATA is a Class G airspace comprising three distinct areas designated for local flying and training purposes. The details of the LATA can be found in the En-Route section of the AIP.

5.2. Flying operation in LATA is monitored by Paya Lebar Approach on VHF frequency 127.70 MHz or 119.00 MHz. The training areas can be further segmented by altitude into ‘high’ and ‘low’ areas for operations. The operating altitudes for the various training areas in LATA are given in Table 5-2.

Table 5-2: Operating Altitudes and Restrictions in LATA

Training Area		Operating Altitude	Remarks
Area Alpha	Alpha Low	Surface to 2000 ft (SYFC: 1500 ft to 2000 ft)	Maximum of 4 speaking units. Generally used by military helicopters.
	Alpha High	2500 ft to 4000 ft	Maximum of 4 speaking units.
Area Bravo	Bravo Low	5000 ft to 7000 ft	Maximum of 5 speaking units.
	Bravo High	7500 ft to 10000 ft	Maximum of 5 speaking units.
Area Charlie	Charlie Low	5000 ft to 7000 ft	Maximum of 5 speaking units.
	Charlie High	7500 ft to 10000 ft	Maximum of 5 speaking units.
Note: Combined maximum for Area Bravo and Charlie is 7 speaking units.			

5.3. If weather conditions warrant reducing the number of aircraft in the training areas, pilots may advise Paya Lebar Approach and Skylark Ops accordingly.

5.4. Deconfliction and Separation

5.4.1. Transiting between Seletar Aerodrome and LATA A. A traffic congestion point when transiting between Seletar Aerodrome and LATA A is the Peirce Reservoir area. For de-confliction, the vertical and lateral separations as shown in Annex B to this section, are to be observed.

5.4.2. 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.

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5.4.3. Vertical Separation. When operating in LATA, pilots are to maintain a minimum of 500 ft vertical separation from other aircraft whenever possible.

5.4.4. Lateral Separation. When operating in LATA A, in order to maintain 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 left side of the aircraft at all times.

5.5. Procedures to transit between Seletar Aerodrome and LATA. A pictorial depiction of the LATA, the patterns to fly for deconfliction of traffic and the procedures to transit between Seletar Aerodrome and LATA are given in Annex C. The standard radiotelephony communications used when operating in Seletar Aerodrome and the LATA are given in Annex D.

6. DIVERSION AIRFIELDS FOR LOCAL OPERATIONS

6.1. Paya Lebar Airbase (PLAB) is used as a weather diversion airfield and Sembawang Airbase (SBAB) as an emergency diversion airfield for SYFC operations.

6.2. Diversion Procedures for PLAB

6.2.1. When diverting from Seletar Control Zone, clearance for the diversion will be sought through Seletar ATC. The aircraft will be directed to join PLAB via Punggol Point at a given altitude. The procedures for a diversion at night is the same as for daytime.

6.2.2. When diverting from LATA, clearance for the diversion will be sought through Paya Lebar Approach. The aircraft will usually be directed to fly to LATA A, then via MacRitchie Reservoir to PLAB at a given altitude. Alternatively, with real-time clearance, an aircraft in LATA B/C may be cleared to fly directly from Area Bravo to PLAB at height, then descend into PLAB when within the control zone.

6.2.3. Once on PLAB Tower frequency, further instructions will be given by ATC for the join. Pilots can expect to be instructed to join overhead or directly for base of runway 02. If runway 20 is used, expect to join for downwind of runway 20.

6.2.4. Pilots are to be familiar with PLAB layout and ATC procedures before carrying out a diversion. The following procedures apply in PLAB:

6.2.4.1. Normal circuits are flown at 1000 ft AMSL.

6.2.4.2. Low-level circuits are not permitted.

6.2.4.3. Go-around is executed to the dead side (eastern side of the runway). Do not climb above 700 ft AMSL on the dead side unless instructed by ATC to do so. Climb to circuit height only after crossing over to the live side.

6.3. Diversion Procedures for SBAB

6.3.1. When diverting from Seletar Control Zone, clearance for the diversion will be sought through Seletar ATC. The aircraft may be directed to join LATA A for onward clearance into SBAB. Alternatively, the aircraft may be cleared to track directly from Seletar Control Zone into Sembawang Control Zone at a given altitude.

6.3.2. When diverting from LATA, clearance for the diversion will be sought through Paya Lebar Approach. Oscar runway is to be used for diversions to SBAB. The joining and departure procedures are via specific Initial Points (IPs) as follows:

6.3.2.1. Runway 04 Join. Join via IP South at 1000 ft AMSL for dead side (eastern side of the runway), keeping east of the tower until past the tower, then join left crosswind for runway 04. If joining from overhead from LATA B, descend to 1500 ft AMSL on the dead side then join crosswind.

6.3.2.2. Runway 04 Departure. At end of downwind for runway 04, track for IP West at 1000 ft AMSL to join LATA A.

6.3.2.3. Runway 22 Join. Join via IP West at 1000 ft AMSL for direct downwind of runway 22. If joining from overhead from LATA B, descend to 1500 ft AMSL on the dead side then join crosswind.

6.3.2.4. Runway 22 Departure. Track for IP South at 1000 ft AMSL at end of runway after takeoff.

6.3.3. Pilots are to be familiar with SBAB layout and ATC procedures before carrying out a diversion. The following procedures apply in SBAB:

6.3.3.1. Normal circuits are flown at 1000 ft AMSL.

6.3.3.2. Low-level circuits are flown at 500 ft AMSL.

6.3.3.3. Due to the confines of the Sembawang Control Zone, pilots are to note the tighter circuit pattern bounded by the following roads:

6.3.3.3.1. Gambas Avenue to the north.

6.3.3.3.2. Woodlands Avenue 12 to the west.

6.3.3.3.3. Seletar Expressway (SLE) to the south.

6.3.3.4. Adopt the following procedures to fly the tighter circuit:

6.3.3.4.1. Maintain 75 KIAS on downwind.

6.3.3.4.2. Set throttle to idle abeam the 3rd marker.

6.3.3.4.3. Turn for base abeam threshold.

6.3.3.4.4. Lower T/O flaps on turn to base.

6.3.3.4.5. Line up by 300 ft and aim for 3rd marker.

6.3.3.4.6. Lower LDG flaps on final.

6.3.3.5. Do not fly beyond Gambas Avenue on base of runway 22.

6.3.3.6. Do not cross the SLE below 200 ft AGL on final for runway 04.

6.3.3.7. Pilots are to avoid overflying the Singapore Zoological Garden and Seletaris Condominium while operating in SBAB.

6.4. Circuit Procedures in Military Airfields. The following procedures are adopted in military airfields in Singapore.

6.4.1. Downwind Leg. The Downwind call is made with intention (“Downwind to roll”). The ATC does not respond to or provide a sequence number when the pilot makes a Downwind call.

6.4.2. Base Leg. A Base call is made instead of a Final call. When making the Base call, the pilot is to call out intention and gears down (“Base, gears down, roll, negative beeper”). On obtaining clearance, the pilot is to read back the clearance and runway in use, and call gears down.

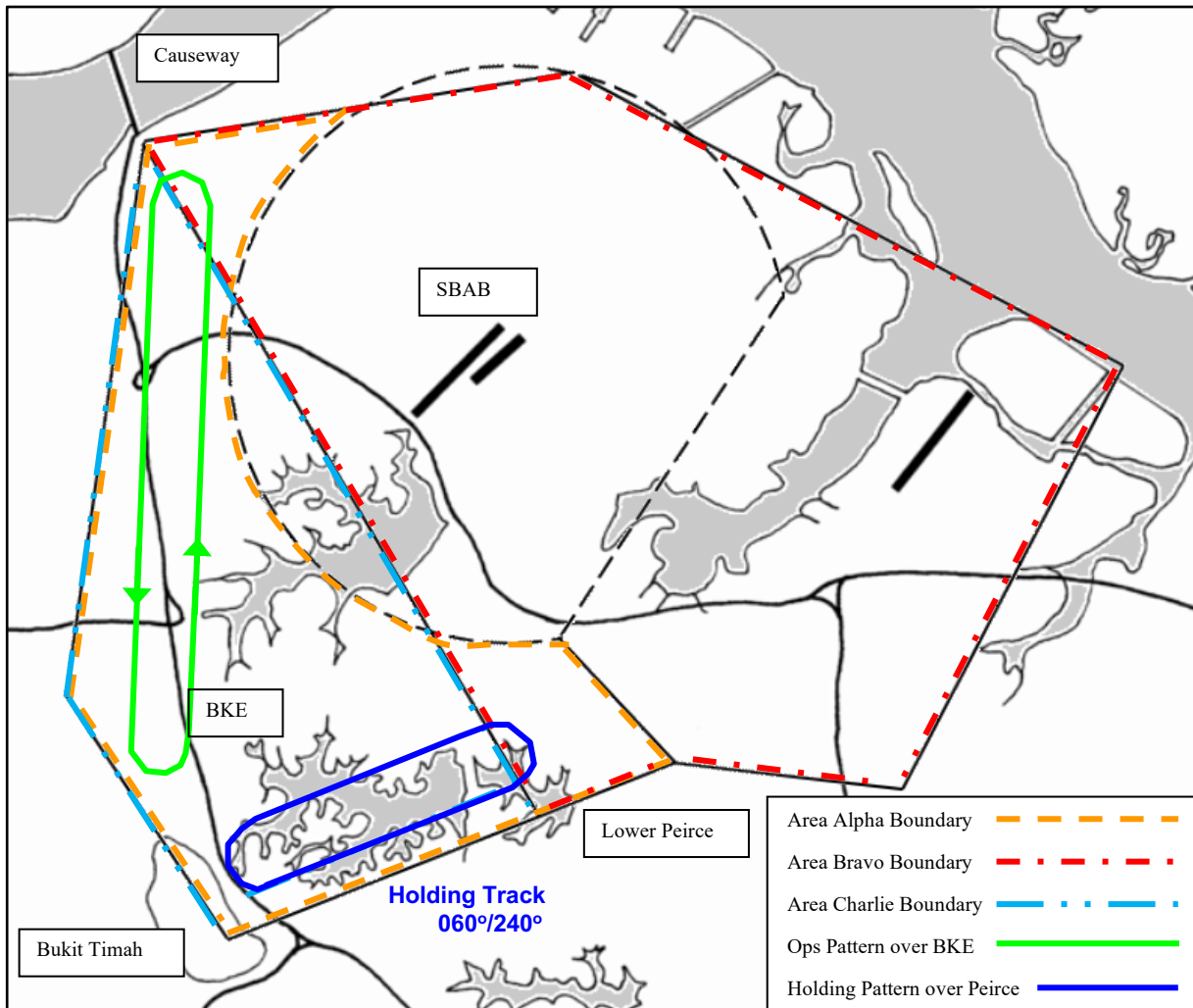
WEATHER CRITERIA FOR FLYING MATRIX

WEATHER CONDITION		SORTIE TYPE					
		ALL Dual Training Flights in Training Area (VFR)	ALL Dual Circuit Training at Departure A/F (VFR)	Student Solo Area & Circuits (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 (CAT I Lightning Risk)	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)	35°C (with Aircon)	No Restrictions	No Restrictions	No Restrictions	No Restrictions	N.A.	No Restrictions
	35°C (NO Aircon)	No Restrictions	HOLD T/O LAND ASAP	Area Only	No Restrictions	N.A.	No Restrictions
	≥ 36°C (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

SYFC HAZE MATRIX FOR OPERATIONS

24-Hour PSI	Healthy Persons	Elderly, pregnant women & children	Persons with chronic lung disease, heart disease
<100 (Good / Moderate)	Normal activities	Normal activities	Normal activities
	No Restrictions*	No Restrictions*	No Restrictions*
101 to 200 (Unhealthy)	Reduce prolonged or strenuous outdoor physical exertion	Minimise prolonged or strenuous outdoor physical exertion	Avoid prolonged or strenuous outdoor physical exertion
	FLYING OPS MAXIMUM 3 sorties a DAY* In aircraft with serviceable aircon GROUND OPS Minimise outdoor activities. CCA flying activities to be conducted indoors	FLYING OPS Not applicable GROUND OPS Minimise outdoor activities.	FLYING OPS Not applicable GROUND OPS To be accommodated in ENCLOSED AIRCON rooms
	*1-hr PM2.5 ≥ 100 (in the Elevated Band II), all CCA outdoor activities to STOP. Only essential outdoor work allowed with personnel equipped with N95 mask		
201 to 300 (Very unhealthy)	Avoid prolonged or strenuous outdoor physical exertion	Minimise outdoor activity	Avoid outdoor activity
	FLYING OPS MAXIMUM 5 sorties a WEEK* In aircraft with serviceable aircon GROUND OPS No physical exercises or strenuous outdoor activity. CCA flying activities to STOP	FLYING OPS Not applicable GROUND OPS To be accommodated in ENCLOSED AIRCON rooms	
>300 (Hazardous)	Minimise outdoor activity	Avoid outdoor activity	Avoid outdoor activity
	FLYING OPS As necessary for currency* In aircraft with serviceable aircon GROUND OPS All lectures / lessons will be scaled down. All persons will be in ENCLOSED AIRCON rooms	FLYING OPS Not applicable GROUND OPS To be accommodated in ENCLOSED AIRCON rooms	

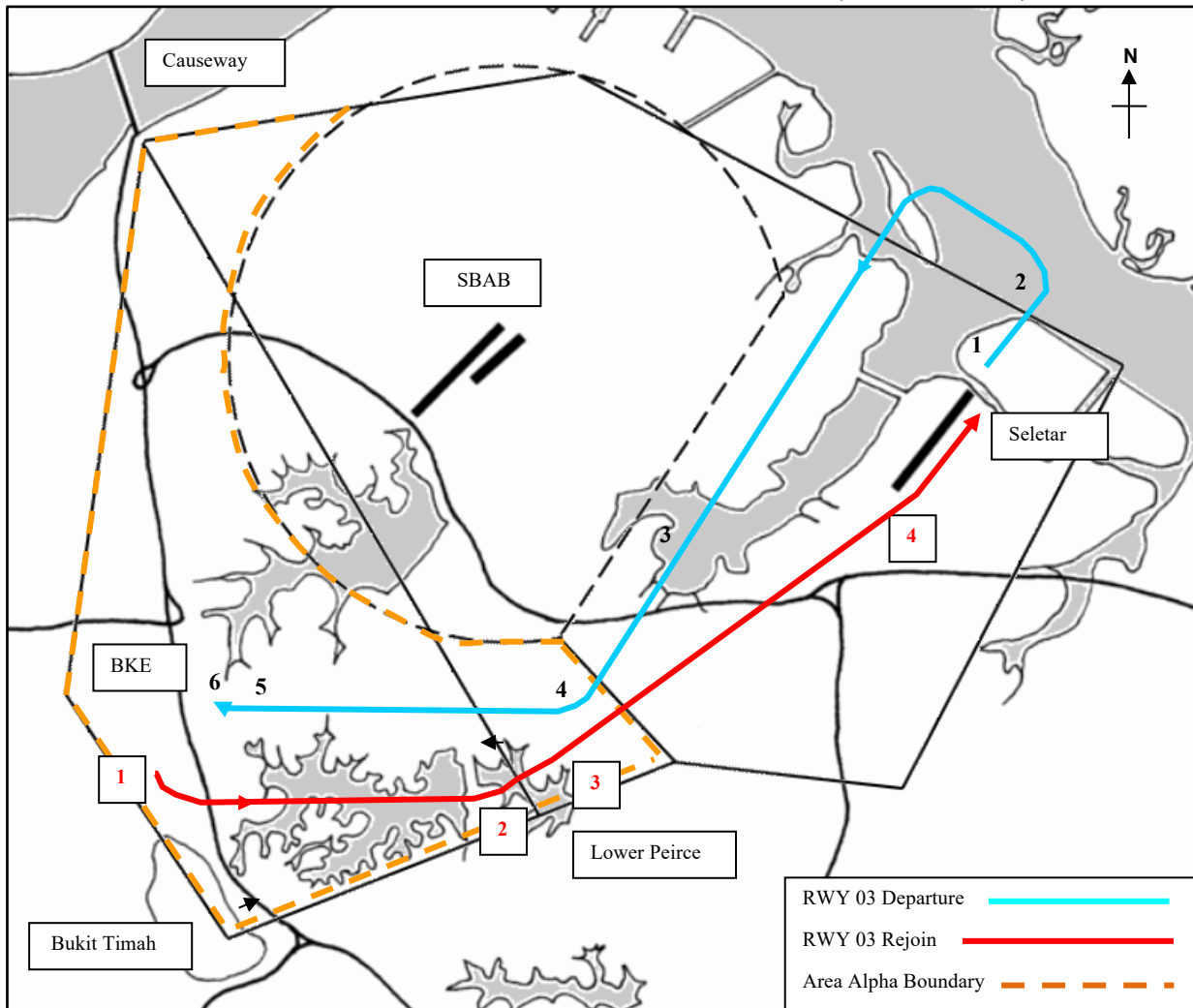
*Weather and Visibility criteria for flying

LIGHT AIRCRAFT TRAINING AREA PROCEDURES
DECONFLICTION AND OVERHEAD DEPARTURE & REJOIN**OVERHEAD DEPARTURE FOR AREA BRAVO**

1. Clearance for overhead departure is usually given during takeoff clearance (confirm with Seletar Tower if not)
ATC: "C/S surface winds __, cleared takeoff RWY __, report passing __ ft." (usually 4000 ft)
A/C: "C/S cleared takeoff RWY __, will report passing __ ft."
2. At 200 ft – do after takeoff checks and continue climb.
3. At 500 ft – A/C: "C/S, departing", climb overhead following the circuit pattern of the runway in use.
4. On passing the height to report, A/C: "C/S passing __ ft, switching to PLA App, 127.7".
Switch to PLA App, remain within Seletar Control Zone geographical boundaries until passing 4500 ft.
5. Passing 5000 ft. A/C: "C/S, established Area Bravo/Charlie, operating from __ to __ ft".

OVERHEAD REJOIN FROM AREA BRAVO

1. A/C: "PLA App, C/S, request overhead rejoin Seletar".
ATC: "C/S, cleared rejoin at __ ft, RWY __, call passing 5000 ft". Readback clearance.
2. Track to within Seletar Control Zone geographical boundaries before descending past 5000 ft.
A/C: "C/S, passing 5000 ft, switching to Seletar Tower". Acknowledged by ATC.
3. A/C: "Seletar Tower, C/S, rejoin from overhead, passing 5000 ft for __ ft, RWY __".
ATC: "C/S, cleared join at __ ft, RWY __, QNH __." (plus traffic info). Readback joining **height, RWY and QNH**.
4. Nearing the overhead, A/C: "C/S, overhead __ ft".
ATC: "C/S, cleared descend for downwind, report leaving __ ft".
A/C: "C/S, leaving __ ft for downwind". Start descent.
Turn for crosswind after passing upwind threshold, traffic permitting.
Maintain 1500 ft AMSL or above until past RWY centreline on crosswind.

DEPARTURE TO AND REJOIN FROM AREA 'A' (RUNWAY 03)**DEPARTURE FOR AREA ALPHA**

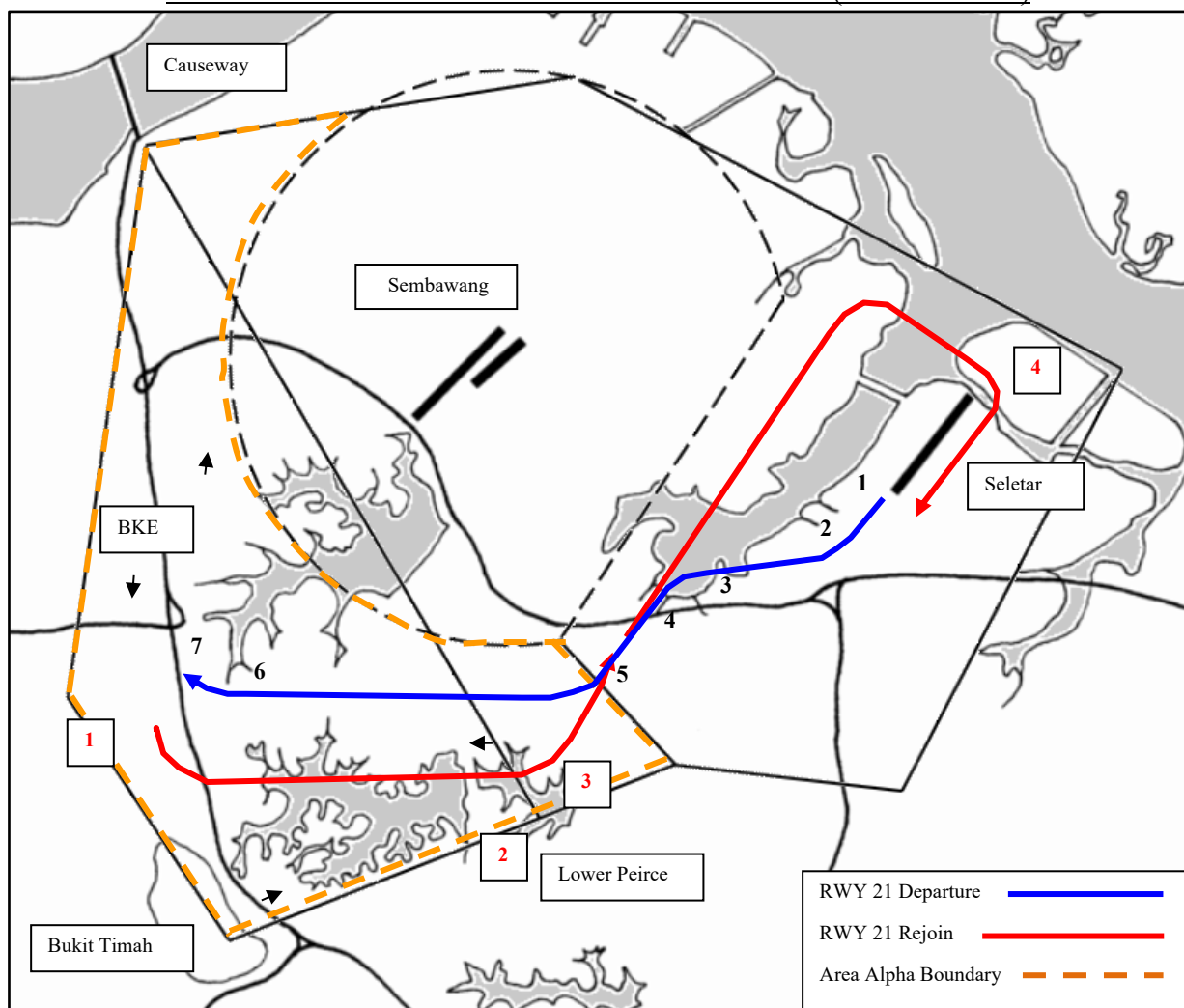
1. At 200 ft – do after T/O checks, continue climb.
2. At 500 ft – A/C: “C/S, departing”, turn for downwind and head towards satellite dishes, level off at 1500 ft.
3. Over satellite dishes, A/C: “C/S to PLA App, 127.7”. Acknowledged by Seletar Tower, switch frequency. A/C: “PLA App, C/S, joining Area A”. Reply from PLA App, read back QNH, will report established.
4. Before Lower Peirce, over the flatted factories, turn right to 270 deg, then start climb to operating height.
5. Before BKE, turn onto a Northerly heading, keeping 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.” Readback clearance.
2. When cleared, at joining height and Lower Peirce, A/C: “C/S, switching to Seletar Tower”. Switch frequency.
3. A/C: “Seletar Tower, C/S, rejoin at ___ ft, RWY __.”
ATC: “C/S, cleared join at ___ ft, RWY __, QNH __.” (plus traffic info). Readback joining **height, RWY and QNH**.
4. Nearing the overhead, A/C: “C/S, overhead ___ ft.”
ATC: “C/S, cleared descend for downwind”.
A/C: “C/S, leaving ___ ft for downwind”. Start descent.

Turn for crosswind after passing upwind threshold, traffic permitting.

Maintain 1500 ft AMSL or above until past RWY centreline on crosswind.

DEPARTURE TO AND REJOIN FROM AREA 'A' (RUNWAY 21)**DEPARTURE FOR AREA ALPHA (RWY 21)**

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, 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 satellite dishes, 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 to a Northerly heading, keeping right of BKE.
7. Passing 2500 ft, A/C: “C/S, established Area Alpha, operating from ___ to ___ ft”.

REJOIN FROM AREA ALPHA (RWY 21)

1. Nearing Bukit Timah, A/C: “PLA App, C/S, request rejoin Seletar”. ATC: “C/S, cleared rejoin at ___ ft, RWY __, call switching”. Readback clearance.
2. When cleared, at joining height and Lower Peirce, A/C: “C/S, switching to Seletar Tower”. Switch frequency.
3. A/C: “Seletar Tower, C/S, rejoin at ___ ft, RWY __”. ATC: “C/S, cleared join at ___ ft, RWY __, QNH __”. (plus traffic info). Readback joining **height, RWY and QNH**.
4. Nearing the overhead, A/C: “C/S, overhead ___ ft”. ATC: “C/S, cleared descend for downwind”. A/C: “C/S, leaving ___ ft for downwind”. Start descent.
Turn for crosswind after passing upwind threshold, traffic permitting.
Maintain 1500 ft AMSL or above until past RWY centreline on crosswind.

BASIC RADIOTELEPHONY PROCEDURES**1. TAXY & TAKE-OFF PROCEDURES**

AIRCRAFT	ATC	REMARKS	FREQ (MHz)
Seletar Ground, C/S. C/S, WS, __POB, Request taxi for ____ (Area 'A' <i>or</i> Area 'B' <i>or</i> Area B & C or Circuits), with Information __. Taxi __ for __ Holding Point, RWY __, QNH __ C/S. C/S, to Seletar Tower, 118.45.	C/S, Seletar Ground. C/S, taxi __ (WP or WC3, WA) for __ (W1, W2 or W3) Holding Point, RWY (03/21), QNH__.	<i>Establishing Contact with Seletar Ground.</i> Request for taxi clearance (At WS after <i>ENGINE RUN_UP CHECKS</i> and received ATIS information on 128.425 MHz).	121.60
Seletar Tower, C/S, READY. (Standby/Hold). <i>or</i> Line-Up. <i>or</i> Back track. <i>or</i> Cleared Takeoff, RWY __ (03/21), (Will Report Passing __ ft), C/S.	C/S. C/S, Hold. <i>or</i> C/S, Line-Up. <i>or</i> C/S, <i>Backtrack.</i> <i>or</i> C/S, Cleared Takeoff, RWY (03/21), (Cleared for Overhead Climb to Area 'B' Report Passing __ ft).	After completing <i>VITAL ACTIONS BEFORE TAKEOFF CHECKS.</i> <i>Contacting Seletar Tower.</i> Reply from Tower could be any ONE of 4 possibilities: <u>STANDBY/HOLD</u> - Hold at the Holding Point. <u>LINE-UP</u> - Position on the Runway for TAKE-OFF. <u>BACKTRACK</u> - Taxi towards Threshold of <i>RWY IN USE</i> to LINE-UP with more T/O Run available. <u>TAKE-OFF</u> - To LINE-UP and TAKE-OFF when ready.	118.45

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)
C/S, departing.	C/S.	Between 300-500 ft, on Upwind.	118.45
C/S, to Paya Lebar Approach, 127.7.	C/S.	Overhead satellite dishes.	

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<p>Paya Lebar Approach, C/S, joining ___ (Area A <i>or</i> Area B via A).</p> <p>QNH ____ . Will report established, C/S.</p> <p>C/S, established __ . (Area A High <i>or</i> B Low).</p>	<p>C/S, _ in Area ____ (A <i>or</i> B) , Report Established QNH ____.</p> <p>C/S.</p>	<p><i>Establishing Contact with Paya Lebar Approach.</i></p> <p><i>Report Established</i> once within boundaries of the desired training area (<i>i.e., by Location and Altitude</i>).</p>	<p>127.70</p>
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2.2. From RWY 21 to Area A (or to Area B/C via A)

AIRCRAFT	ATC	REMARKS	FREQ (MHz)
<p>C/S, departing.</p> <p>C/S, to Paya Lebar Approach, 127.7</p> <p>Paya Lebar Approach, C/S, joining ___ (Area A <i>or</i> Area B via A).</p> <p>QNH ____ . Will report established, C/S.</p> <p>C/S, established __ . (Area A High <i>or</i> B Low).</p>	<p>C/S.</p> <p>C/S.</p> <p>C/S, _ in Area ____ (A <i>or</i> B), Report Established QNH ____.</p> <p>C/S.</p>	<p>Between 300-500 ft, on Upwind.</p> <p>Overhead satellite dishes.</p> <p><i>Establishing Contact with Paya Lebar Approach.</i></p> <p><i>Report Established</i> once within boundaries of the desired training area (<i>i.e., by Location and Altitude</i>).</p>	<p>118.45</p> <p>127.70</p>

2.3. Overhead Climb for Area B/C (either RWY In Use)

AIRCRAFT	ATC	REMARKS	FREQ (MHz)
<p>C/S, departing.</p> <p>Report passing ___ ft, C/S.</p> <p>C/S, passing __ ft, switching to Paya Lebar Approach, 127.7.</p> <p>Paya Lebar Approach, C/S, on overhead climb for Area B.</p> <p>QNH __ , Wilco, C/S.</p> <p>C/S, established Area B Low.</p>	<p>C/S, Report Passing ___ ft.</p> <p>C/S.</p> <p>C/S, ____ in Area B, Report Established, QNH ____.</p> <p>C/S.</p>	<p>Between 300 to 500 ft, on Upwind, and cleared for the overhead climb to Area B.</p> <p>Leaving Seletar Control Zone.</p> <p><i>Establishing Contact with Paya Lebar Approach.</i></p> <p><i>Report Established</i> once within boundaries of Area B Low.</p>	<p>118.45</p> <p>127.70</p>

3. IN-FLIGHT PROCEDURES

3.1. Reporting "OPERATIONS NORMAL"

AIRCRAFT	ATC	REMARKS	FREQ (MHz)
C/S, OPS normal, Area ____, (____ ft).	C/S.	AFTER every <i>FILER CHECKS</i> (i.e., every 15 mins). EXCLUDE reporting the Altitude if you are not maintaining a constant altitude. (e.g., Climbing & Descending exercise).	127.70

4. RE-JOIN PROCEDURES FROM TRAINING AREAS from Training Areas

4.1. From Area A

AIRCRAFT	ATC	REMARKS	FREQ (MHz)
C/S, Request rejoin Seletar. C/S, standby. Join Seletar __ ft, RWY__, Will advise switching, C/S. C/S, Level __ ft, switching to Seletar Tower.	C/S, Standby for Clearance. C/S, Join Seletar at __ ft, RWY In Use __, report switching to Seletar Tower. C/S.	Request for Rejoin only when around the Southern portion of Area A. (i.e., DOES NOT take too long to get to <u>Lower Peirce</u> when your clearance is obtained). When over <u>Lower Peirce</u> , AT THE HEIGHT THAT YOU ARE CLEARED (i.e., leaving Area A for Seletar Control Zone). Establishing contact with Seletar Tower.	127.70
Seletar Tower, C/S, rejoin __ ft, RWY__.	C/S, Seletar Tower, join overhead __ ft, RWY__, QNH ____, __ in the Circuit.		118.45
Join __ ft, RWY__, QNH__, C/S. C/S, overhead __ ft.	C/S. C/S, Descend for Downwind, RWY__, report leaving __ ft.	When OVERHEAD THRESHOLD of RWY-in-use.	118.45
C/S, leaving __ ft for Downwind RWY __.			

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4.2. From Area B (Overhead Descent)

AIRCRAFT	ATC	REMARKS	FREQ (MHz)
C/S, request rejoin Seletar. C/S. Join ___ ft, RWY___, Will call passing 5000 ft, C/S. C/S, passing 5000 ft, switching to Seletar Tower.	C/S, standby for clearance. C/S, join Seletar overhead ___ ft, RWY___, report passing 5000 ft. C/S.	From Area B Low. When passing 5000 ft in the descend (i.e., leaving Area B Low).	127.70
Seletar Tower, C/S, joining from Area B, passing ___ ft for ___ ft. Join ___ ft, RWY ___, QNH ___, C/S.	C/S, Seletar Tower, join overhead at ___ ft, RWY___, QNH ___, ___ in the circuit.	<i>Establishing contact with Seletar Tower.</i> To LEVEL-OFF at the altitude cleared and report OVERHEAD .	118.45

5. CIRCUIT PROCEDURES

AIRCRAFT	ATC	REMARKS	FREQ (MHz)
C/S, _____ (extending Upwind / to Land). C/S, Downwind (Full Stop). Number ___, C/S. C/S, Final. _____ (Continue/ Touch and Go / Land / Go-Around), C/S.	C/S, Number _____. C/S, surface wind ___ / ___ kts, _____ (Continue/ Cleared for Touch and Go / Cleared to Land / Go-Around).	<u>ON UPWIND</u> At 500ft, <u>IF</u> unable to turn for Crosswind, <u>OR</u> Intention is TO LAND from that Circuit. <u>ON DOWNWIND</u> To add "FULL STOP" <u>ONLY IF</u> intention is TO LAND. Otherwise a TOUCH & GO is expected. Readback the Sequence Number given by the Tower. <u>ON FINAL</u> <u>DO NOT</u> descend below 200 ft if cleared only to continue.	118.45

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6. AFTER-LANDING PROCEDURES

AIRCRAFT	ATC	REMARKS	FREQ (MHz)
<p>C/S, vacate __ (W1, W2 or W3).</p> <p>Vacate ____ (W1, W2 or W3), contact ground 121.6, C/S.</p> <p><i>or</i></p> <p>C/S, request a 180 for __ (W2 or W3).</p>	<p>C/S, ____ (clear vacate W1, W2, or W3), contact ground on 121.6.</p> <p>C/S, cleared 180 for __ (W2 or W3).</p>	<p><u>ON THE RUNWAY</u></p> <p>Slow down to taxi speed. To request only <i>IF</i> instructions from Tower is NOT forthcoming.</p> <p><i>IF</i> 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).</p>	118.45

7. TAXYING TO PARKING DISPERSAL PROCEDURES

AIRCRAFT	ATC	REMARKS	FREQ (MHz)
<p>Seletar Ground, C/S, request taxi WS.</p> <p>Taxy ____, for WS, C/S.</p>	<p>C/S, cleared taxi ____ (WP or other route), WS.</p>	<p><u>AFTER</u> completing the <i>AFTER LANDING CHECKS</i>. To include “Whisky Sierra” if returning to WS.</p> <p><u>Note</u> DO NOT have to inform Seletar Tower when changing frequency to Seletar Ground.</p>	121.60

SECTION 6

CIRCUIT FLYING PROCEDURES

1. CIRCUIT HEIGHTS

1.1. Circuit Heights. The heights Above Mean Seal Level (AMSL) for the various circuit patterns flown in Seletar Aerodrome and the Radiotelephony (R/T) calls required are shown in Table 6-1.

Table 6-1: Circuit Heights and R/T Calls Required

Circuit Type	Height (AMSL)	R/T on Upwind
Normal	800 ft	Nil
Flapless	800 ft	Advisory call: “Flapless”
Glide	1500 ft	Clearance needed: “Request Glide”
Low-Level	500 ft	Clearance needed: “Request Low-Level”
Stop-and-Go	-	Advisory call: “Stop-and-Go”
Practice Force Landing	2500 ft	Clearance needed: “Request 2,500 ft for PFL”

2. FIXED WING CIRCUIT DIRECTION

2.1. Runway dimensions and visual circuit direction for Seletar Aerodrome (WSSL), Paya Lebar Airbase (WSAP) and Sembawang Airbase (WSAG) are as follows:

2.1.1. WSSL

2.1.1.1. Runway 03 (6,024 x 150 ft) - Left-hand pattern

2.1.1.2. Runway 21 (6,024 x 150 ft) - Right-hand pattern

2.1.2. WSAP

2.1.2.1. Runway 02 (12,400 x 200 ft) - Left-hand pattern

2.1.2.2. Runway 20 (12,400 x 200 ft) - Right-hand pattern

2.1.3. WSAG (Oscar Runway)

2.1.3.1. Runway 04 (7,874 x 150 ft) - Left-hand pattern

2.1.3.2. Runway 22 (7,874 x 150 ft) - Right-hand pattern

3. NUMBER OF AIRCRAFT IN CIRCUIT

3.1. The maximum number of aircraft allowed in the WSSL circuit pattern at any one time is five aircraft for day and three aircraft for night.

4. PRACTICE ENGINE FAILURE AFTER TAKE-OFF

4.1. Only Flying Instructors may initiate the practice of Engine Failure After Take-Off (EFATO) drill. Positive clearance must be obtained from the Air Traffic Control (ATC) prior to commencement. The following must be observed:

4.1.1. Height limits.

4.1.1.1. Minimum height to commence - 500 ft Above Ground Level (AGL)

4.1.1.2. Minimum height to recover by - 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, Ops Normal Climbing Away" on completion.

4.1.3. Forced Landing Areas. The choice of forced landing area depends on the position and energy of the aircraft, prevailing winds, 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.

4.1.4. Power Setting and Flaps Selection. Set the throttle to the IDLE position to simulate the engine failure. Flaps are to be in the UP position for the drill.

5. MANDATORY GO-AROUND

5.1. Pilots are to execute a 'Go-Around' in the following situations:

5.1.1. Not lined up on Final approach by 300 ft AGL.

5.1.2. No clearance for touch-and-go or landing 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 knots of approach speed on Final.

5.1.7. Not touched down by half the runway length (for WSSL operations).

5.1.8. Not satisfied with the approach or landing.

5.1.9. Exceeded 30 degrees AOB on turn to Final.

6. **GO-AROUND PROCEDURE**

6.1. The Go-Around procedure is as follows:

6.1.1. Apply Full Power and select Climb Attitude.

6.1.2. Flaps – from LDG to T/O position immediately.

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

6.1.4. Position aircraft 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 overfly the runway unless instructed by ATC to position on the 'Live-Side'.

6.1.5. Above 200 ft AGL, 65 KIAS, with positive rate-of-climb, carry out After Take-Off Checks.

6.1.6. Climb at 75 KIAS and continue on the circuit pattern.

7. **HELICOPTER LANDING AREA**

7.1. The Helicopter Landing Area (HLA) in WSSL is on the 'Dead side' (Eastern side) of the runway. The normal circuit altitude of the HLA is 600 ft AMSL. The minimum height to fly over the HLA for fixed wing aircraft is 1,500 ft. Pilots are to keep clear of the HLA, especially during the approach, go-around, and takeoff.

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. Solo students are to carry out an orbit (go around at circuit altitude) after three consecutive touch-and-go from the same circuit type. The exception is if the fourth circuit is for a landing, in which case the orbit is not needed.

10. **AIM-POINT**

10.1. The aim-point used for training flights for the approaches from normal, flapless and low-level circuits will be the runway numbers at the threshold of the runway in use.

11. CLEARANCE SELF-CHECK ON FINAL

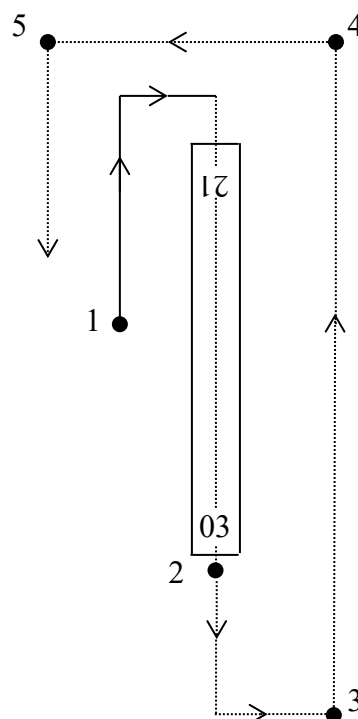
11.1. On final to land or for a touch and go, by 250 ft AGL, the pilot is to carry out a self-check for clearance and avoidance of inadvertently applying brakes during touch down by calling out “cleared/not cleared, to land/touch-and-go, feet low”. The “minimums” function on the Garmin1000 PFD may be set to 250 feet as an additional aid.

SELETAR AIRPORT RUNWAY CHANGE PROCEDURES

FROM RUNWAY 21 TO RUNWAY 03

Pilot Actions:

1. From Normal circuit height, climb to 1000 ft AMSL. Continue the Normal circuit pattern and overfly the Runway.
2. On passing the threshold of Runway 03, climb to 1500 ft AMSL. 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 Control Zone).
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.



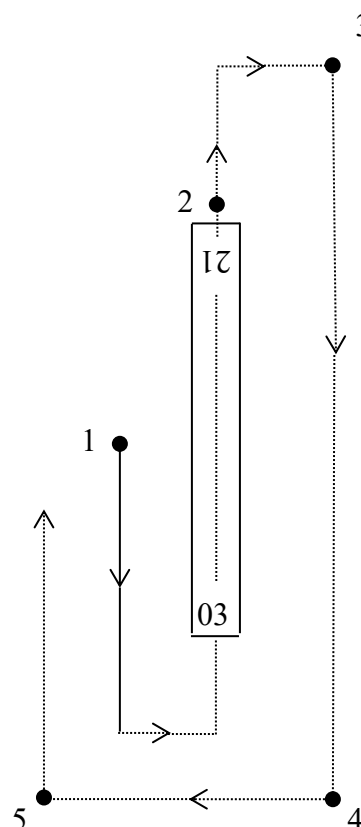
- Note:
- When there are only one or two aircraft in the circuit pattern, Seletar ATC may instruct pilots to carry out a 180° turn on downwind to effect the runway change.
 - Aircraft that are above the Normal circuit height at position 1 (e.g., on a glide circuit at 1500 ft AMSL), may request to maintain 1500 ft AMSL to overfly the runway for the runway change procedure.

SELETAR AIRPORT RUNWAY CHANGE PROCEDURES

FROM RUNWAY 03 TO RUNWAY 21

Pilot Actions:

1. From Normal circuit height, climb to 1000 ft AMSL. Continue Normal circuit pattern and overfly the Runway.
2. On passing the threshold of Runway 21, climb to 1500 ft AMSL. Turn right on passing the Seletar coastline.
3. Fly along the Eastern side of the Runway (DO NOT infringe Paya Lebar Control Zone).
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.



- Note:
- When there are only one or two aircraft in the circuit pattern, Seletar ATC may instruct pilots to carry out a 180° turn on downwind to effect the runway change.
 - Aircraft that are above the Normal circuit height at position 1 (e.g., on a glide circuit at 1500 ft AMSL), may request to maintain 1500 ft AMSL to overfly the runway for the runway change procedure.

SECTION 7

INSTRUMENT FLYING

1. INSTRUMENT FLYING REQUIREMENTS

1.1. Instrument Flying (IF) in the Private Pilot Licence (PPL) Course. The PPL syllabus requires two sessions of IF in the Flight Training Device (FTD) and four hours of simulated IF training for students to appreciate flying by sole reference to instruments.

1.2. IF Proficiency for Flying Instructors (FIs). FIs are to maintain proficiency in IF and the requirement is a minimum of 0.7 simulated or actual IF hours every three months. The proficiency flight can be carried out in the FTD or as a mutual Staff Continuous Training (SCT) flight between two FIs. The operational or training flights with at least 0.7 simulated or actual IF hours are also eligible for count towards meeting the IF proficiency requirement. These may include workup flights in preparation for the Instrument Rating Test (IRT), the IRT and flights flown under Instrument Flight Rules (IFR).

2. CONDUCT OF IF

2.1. All simulated IF practices must have a SYFC qualified Safety Pilot onboard, who will be responsible for the safe conduct of the flight when the other pilot is flying the simulated IF. For the IRT, the Authorised Flight Examiner (AFE) may be the Safety Pilot.

2.2. To simulate instrument flying conditions for the PPL course training, an IF goggle is used. The goggle is to be used only after takeoff and above 200 ft Above Ground Level (AGL). There is no requirement to use an IF goggle or hood for Staff Continuous Training (SCT) flights or when training for the IRT.

3. IF EXERCISES

3.1. IF exercises flown in SYFC include:

3.1.1. Straight and level.

3.1.2. Climbing and descending with and without turns.

3.1.3. Rate 1 turns and medium level turns for confidence building.

3.1.4. Unusual Attitude (UA) recovery.

3.1.5. Limited panel IF.

3.1.6. Radial and airway intercepts.

3.1.7. Holding patterns.

3.1.8. Instrument approaches.

3.2. For instrument approaches into Paya Lebar Airbase (PLAB), prior clearance and coordination are required with the RSAF and PLAB. For simulated approaches flown by pilots who do not hold an Instrument Rating (IR), the pilot is to request for a visual straight-in approach, unless flying with an instrument-rated safety pilot.

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

4. IRT PROFILE FOR REVALIDATION OF IR

4.1. The Civil Aviation Authority of Singapore (CAAS) has approved an IRT profile that can be flown entirely within Singapore airspace, with the instrument approaches carried out in PLAB.

4.2. The profile is approved for use for the revalidation or renewal of an IR and cannot be used for an initial qualification of the IR.

4.3. The profile is designed to fulfil the requirements of the IRT and includes the following:

4.3.1. Intercepting and joining an airway or simulated airway.

4.3.2. Entering and maintaining an instrument holding pattern.

4.3.3. A non-precision approach.

4.3.4. A precision approach.

4.3.5. Carrying out a missed approach procedure.

SECTION 8
NIGHT FLYING

1. QUALIFICATIONS AND REQUIREMENTS

1.1. Holders of a Civil Aviation Authority of Singapore (CAAS) flying licence are required to maintain night flying currency in accordance with the Singapore Air Safety Publications (SASP).

1.2. The Pilot-In-Command (PIC) must possess the appropriate licence or rating to fly at night.

1.3. The PIC must be current on type.

2. CONDUCT OF NIGHT FLYING

2.1. Briefing. Pilots involved must attend the Night Flying Brief, which will cover the following:

2.1.1. Weather and Notices to Airmen (NOTAMs).

2.1.2. Airfield states and other night flying activities.

2.1.3. Airfield lightings.

2.1.4. Air Traffic Control (ATC) and emergency procedures.

2.1.5. Practice diversion procedures, if applicable.

2.2. Equipment. A serviceable torchlight must be carried onboard the aircraft.

2.3. Aircraft Light Signals. The following light signals are to be followed:

2.3.1. Aircraft manned - Position lights ON.

2.3.2. Ready to start - Strobe lights ON.

2.3.3. Ready to taxi - Taxi light ON.

2.3.4. Radio Failure - Flash landing light.

2.4. If the strobe, position lights, taxi 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 practical.

2.5. Practice No Landing Light Approach and Landing. Pilots practising landing without landing light are to call “Negative Light” on final approach. The Landing light must be switched back ON during the roller.

2.6. Clear of Runway R/T Call. After Landing, when clear of the runway, the pilot is to call "C/S Clear".

3. **EMERGENCIES**

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

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

3.2.1. Check Master Switch ON.

3.2.2. Adopt No Radio procedures, close and open throttle abeam the Tower to attract attention.

3.2.3. Follow light signals from the Tower.

4. **RESTRICTIONS**

4.1. Practice emergencies are not allowed.

4.2. 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.

4.3. Diversion procedures at night are similar to the day. Refer to Section 5, Para 6.

SECTION 9

EMERGENCIES

1. INTRODUCTION

1.1 Pilots experiencing aircraft emergencies are to carry out the emergency procedures in accordance with the Flight Reference Cards (FRC), which draws reference from the Airplane Flight Manual (AFM). It is important for the pilots to remain calm and carry out the appropriate actions to recover the aircraft safely. Sound knowledge, practice, planning, and good judgment can improve the odds of managing an emergency to achieve the best outcome.

2. HANDLING AIRCRAFT EMERGENCIES

2.1. When encountering an emergency, the pilot should:

2.1.1. Maintain aircraft control. It is important to maintain control of the aircraft to avoid aggravating the situation. Do not get too engrossed in handling the emergency at the detriment of losing situational awareness.

2.1.2. Analyse the situation and take appropriate actions. Do not rush into checklist actions until the nature of the emergency can be ascertained. Carrying out the wrong actions can jeopardise the safe recovery of the aircraft.

2.1.3. Land as soon as practical/possible. This decision will depend on the nature of the emergency. Land as soon as practical apply to situations which are less urgent such that an immediate landing at the nearest airfield is not necessary (e.g., Airspeed Indicator failure) whereas to land as soon as possible means the landing should be accomplished at the nearest suitable airfield (e.g., fire inflight).

3. COMMUNICATIONS

3.1. A distress or urgency call, as appropriate, is to be transmitted to the Air Traffic Control (ATC) agency on the frequency in use or on the International Distress Frequency on 121.5 MHz. Alerting ATC timely will facilitate their response and allow them to assist the pilot in recovering the aircraft.

3.2. The pilot is also to inform the Flying Executive Officer (FXO) of the emergency on 129.0 MHz, who can then render assistance and coordinate any needed response, if required. Solo students may alternatively inform the Duty Instructor (DI) or the Flying Instructor (FI) covering the solo, of the emergency.

4. CHASE/ESCORT PROCEDURES

4.1. Most emergencies can be handled independently and do not require chase assistance. For some contingencies, chase assistance is invaluable. The need for chase assistance is usually raised by the pilot handling the emergency or in the case of a solo student, by the DI or Cover Solo who has been notified of the emergency by the student.

4.2. Assignment of Chase Aircraft. In the case of a solo student, the Cover Solo shall be the chase aircraft. For any other chase requirement, the FXO shall assign the chase aircraft. The FXO is to ensure that the pilot of the chase aircraft is qualified for close formation flying, and has not been assigned as a cover for solo student.

4.3. Coordination. Coordination between the chase and the aircraft with the emergency shall be made via communications on 129.0 MHz. The chase shall establish the nature of emergency, fuel state and position, and lead the coordination for the Rendezvous (R/V). Considerations for the R/V include prevailing weather conditions, proximity to landing airfield and any flight limitations due to the emergency. If the emergency aircraft is in the training area, a holding pattern over a prominent landmark can be established. E.g., “left-hand orbit over Upper Peirce reservoir, power 21/2400, 3000 ft”.

4.4. Join-Up and Chase. The chase shall stay in arrowhead formation for the escort. Close formation may be required if a visual inspection of the emergency aircraft is necessary or if communications can only be achieved using hand signals. The chase will maintain formation, direct the emergency aircraft and undertake communications with the ATC for the formation. When the emergency aircraft is positioned on final for landing and clearance to land has been obtained, the chase will instruct the emergency aircraft to land and the chase will execute a go-around.

4.5. Chase as Lead Aircraft. In the case where the pilot of the emergency aircraft is close formation qualified, there is the option for the emergency aircraft to fly in formation, with the chase as the lead. This is useful for situations where a critical instrument, such as the Airspeed Indicator (ASI) has failed or if the emergency aircraft has lost all radio communications.

5. RADIO FAILURE PROCEDURE

5.1. 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 has failed. As such, the pilot should transmit “in the blind” when executing the radio failure procedures. Blind transmissions are made in duplicate and preceded with the phrase “Transmitting Blind”. E.g., “C/S transmitting blind, Downwind. I say again. C/S transmitting blind, Downwind”.

5.2. The radio failure procedure is as follows:

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

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

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

5.2.4. On base, select T/O flaps and landing light “ON”. Position aircraft on final on the western side of the runway and level off at 600 ft AMSL, power select 20/2700 to fly at 90 kts.

- 5.2.5. Fly on the western side of the runway, and rock wings from beginning to end of runway. Thereafter carry out the Go-Around procedure.
- 5.2.6. Fly the normal circuit pattern.
- 5.2.7. When on downwind, expect to see an intermittent green light from Tower, indicating the clearance to continue to final.
- 5.2.8. On final, a steady green light indicates the clearance to land.
- 5.2.9. If no light signal is observed, repeat the procedure again. If still no light signal is observed, land off the next approach if runway is clear.
- 5.2.10. For a complete listing of aerodrome light signals, refer to the Enroute (ENR) Section of the Singapore Aeronautical Information Publication (AIP).

6. **RUNAWAY CONTROL AND PITCH TRIM MOVEMENT**

6.1. An un-commanded control movement or pitch trim movement can occur on the ground or in flight, on aircraft installed with the Garmin GFC700 Automatic Flight Control System (AFCS). The runaway control movement is characterised by the movement of the control stick on its own accord or by the trim wheel moving without the pilot activating the Manual Electric Trim (MET) switch. The following actions are to be taken by the pilot when an un-commanded operation of the control stick or trim wheel occurs:

6.1.1. Maintain Control of the Aircraft. Se the control stick to maintain control if the aircraft's flight is affected by the un-commanded control or trim movement. The pilot should be able to counter the force exerted on the control stick by the runaway control or trim movement.

6.1.2. Pull the AFCS Circuit Breaker. This will cut electrical power to the GFC700 AFCS and disable the MET switch and the servos. To aid the pilot in identifying the AFCS circuit breaker, the circuit breaker is installed with a prominent white collar. The pitch trim can still be controlled by manually turning the trim wheel and should be used to remove control stick forces.

6.1.3. Recover. Terminate the sortie and return for a landing if airborne, or taxi back to park if on the ground.

SECTION 10
NAVIGATION FLIGHT

1. INTRODUCTION

1.1 SYFC conducts regular navigation flights overseas to expose students to cross-country flying and for pilots to maintain competency in flight navigation.

1.2 Navigation flights may be flown under Visual Flight Rules (VFR), or Instrument Flight Rules (IFR) if the Pilot-In-Command (PIC) holds a valid Instrument Rating (IR).

1.3 Due to the constraints of the local airspace, navigation flights conducted in SYFC are overseas trips. Navigation trips can be carried out within the same day, flying to a nearby overseas destination and back (Short Nav), or involve one or more overnight stays to one or more overseas destinations (Long Nav).

2. PLANNING FOR NAVIGATION TRIPS

2.1 Planning Considerations. Due to crew rest considerations, Short Nav trips are planned only to nearby destinations like Malacca, Pulau Tioman or Kuala Lumpur. There is more flexibility in the selection of destinations for Long Nav trips as they are taken over several days. Initial planning considerations include:

2.1.1 Number of aircraft.

2.1.2 Selection of technical stopovers and destinations based on range of aircraft, crew rest limits, availability of fuel and immigration facilities.

2.2 Engagement of Ground Handling Agent. As mandated by the Civil Aviation Authority of Singapore (CAAS), SYFC engages an authorised Ground Handling Agent (GHA) to provide flight planning and ground handling services at the departure and arrival airports. These include:

2.2.1 Obtaining the necessary over-flight and landing permits for the routes and destinations taken on the navigation trip.

2.2.2 Preparation of Customs, Immigration and Quarantine (CIQ) documents such as the General Declaration and Passenger and Load Manifests.

2.2.3 Filing of flight plans and the provision of dispatch services for the various legs of the navigation trip.

2.2.4 Coordination and provision of ground handling services and facilitation of CIQ at the departure and arrival airports on the navigation trip.

2.2.5 Payment of applicable navigation, airport, passenger, and handling charges, except for refueling and fuel charges, which will be paid directly to the service provider by the personnel on the navigation trip.

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2.3 Coordination with GHA. To provide the services necessary for the navigation trip, the GHA will require information from SYFC. The information will include Personal Data (PD) and company sensitive information, which shall be handled and managed in accordance with the policies laid out in the SYFC Personal Data Protection Policy (PDPP) manual. Coordination with the GHA is to be done timely to ensure the pre-trip requirements can be completed in time. Some of the information the GHA will require are as follows:

2.3.1 Dates and timings of the flights, flight routing and the airports that will be used for the destination, as alternate airports and for technical stops.

2.3.2 Details of aircraft to be used, including aircraft that will be used as spares.

2.3.3 Personal details of the crew and passengers, including passport details, crew licence details and contact information.

2.4 Pre-Trip Preparation and Requirements. The administrative and operational requirements for the navigation trip are undertaken by the staff assigned for the trip. On top of coordinating with the GHA, the following are needed:

2.4.1 Obtain approval for the trip funds.

2.4.2 Ensure the availability of aircraft with sufficient hours remaining for the trip and the availability of survival equipment, if needed.

2.4.3 Plan the routing, checkpoints, fueling requirements, with considerations of hazards and contingencies along the route.

2.4.3.1 Fuel Planning. Sufficient fuel plus reserves is to be carried for all flights. This includes the fuel required for the route, plus the fuel required to fly to an alternate airfield from the planned destination, plus 45 minutes of reserve.

2.4.4 Prepare the navigation log, airfield charts, and relevant instrument approach and procedure charts if required for flying in IFR.

2.4.5 Update the Garmin 1000 system of the aircraft assigned for the trip, including the spare aircraft, with the current navigation data and key in the flight plans for the trip. Outdated databases must not be used for navigation and instrument approaches. 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.

2.4.6 Conduct a brief for the participants of the trip and a pre-flight brief for the aircrew.

3. CONDUCT OF NAVIGATION FLIGHTS

3.1 Minimum Number of Aircraft. Navigation flights in SYFC are to be conducted with a minimum of two aircraft, unless otherwise cleared by the General Manager (GM) or Operations Manager (OM). Aircraft are to be flown as individual units and separated as per Air Traffic Control (ATC) requirements.

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

3.3 Equipment and Documents to be Carried. The following documents and equipment are to be carried in the aircraft for navigation flights:

3.3.1 Aircraft Technical Logbook (leave a duplicate of the page signed for the day of departure with the maintenance crew).

3.3.2 Certificate of Airworthiness (C of A).

3.3.3 Certificate of Registration (C of R).

3.3.4 Passports with minimum six months validity from the return date.

3.3.5 Valid aircrew licence.

3.3.6 Documents for CIQ.

3.3.7 HARD-4 Survival Pack (HARD-4). The HARD-4 contains a dinghy, which by regulation, is to be carried for flights over water bodies where the flight path is 30 nm or more from land. For flights that do not meet this criteria, the Pilot-In-Command (PIC) may decide if the HARD-4 is to be carried, based on the needs of the mission.

3.4 Altitudes for Navigation Flights. The following are to be observed:

3.4.1 Minimum Altitude. The minimum enroute altitude is 500 ft Above Ground Level (AGL).

3.4.2 Altitude over Built-Up Areas. When overflying congested areas of a city, town or settlement, the aircraft shall not be less than 1000 ft above the highest fixed object within a radius of 2000 ft from the aircraft.

3.4.3 Safety Altitude. The computation of the safety altitude for each leg of the flight route shall be the highest point 10 nm either side of the track, plus 10%, plus 1500 ft, rounded UP to the nearest 100 ft.

3.4.3.1 Example: 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).

3.5 Weather and Notices to Airmen (NOTAMs). Pilots are to ensure they obtain the current weather information and NOTAMs relevant to their flight before departure. Updates on the weather enroute and at the destination airfields can be requested from ATC or obtained via the Automatic Terminal Information System (ATIS) if available.

3.6 Hazards. Pilots are to identify and manage the flight to mitigate the risks posed by hazards commonly encountered during cross-country flights. These include:

3.6.1 Inclement weather.

3.6.2 High tension cable lines.

3.6.3 High terrain and obstacles.

3.6.4 Birds and wildlife.

3.7 Position Reports. For navigation flights carried out in VFR, position reports are to be made at every check point in the following format:

3.7.1 Callsign of controlling agency.

3.7.2 Aircraft callsign followed by the word "Position".

3.7.3 Present position and time in Coordinated Universal Time (UTC).

3.7.4 Altitude.

3.7.5 Next position.

3.7.6 Estimated Time of Arrival (ETA) at next position.

3.7.7 Example of a position report:

“Johor Approach, 9V-YFC,
Position,
Batu Pahat 30,
2,000 ft,
Estimate Benut, 39.”

3.8 Turning Point Checks. At each check point when turning to a new heading, Turning Point Checks are to be carried out as follows:

3.8.1 **H** - Heading (set next heading and select reference point).

3.8.2 **A** - Altitude (check correct attitude).

- 3.8.3 **T** - Time (note time over the check point).
- 3.8.4 **P** - Position report (for VFR flights and mandatory reporting points in IFR flights).
- 3.8.5 **F** - Fuel (fuel tank on fuller tank, check content sufficient).
- 3.8.6 **I** - Instruments (as per FRC).
- 3.8.7 **L** - Location (identify present location).
- 3.8.8 **E** - Engine (as per FRC).

4. **CONTINGENCIES**

4.1 **Diversion to Alternate Airfield.** A diversion to an alternate airfield may be necessary during navigation flights due to weather or an aircraft emergency. As far as practical, all aircraft in the flight are to divert to the alternate airfield decided on. SYFC ops is to be notified of the diversion as soon as possible.

4.2 **Radio Failure.** In the event of a radio failure, the PIC is to notify another aircraft in the flight of the situation, if possible. If unable and no chase aircraft can be established, the PIC will decide whether to return to Seletar Aerodrome or proceed to destination, fly the flight plan route with blind transmissions and carry out the No Radio joining procedures on arrival.

5. **DUTY PERIOD**

5.1 For a navigation trip, 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:

- 5.1.1 The period is over a consecutive Saturday and Sunday.
- 5.1.2 The period includes a Monday or a Public Holiday.

SECTION 11

CLOSE FORMATION FLYING

1. INTRODUCTION

1.1. Close formation flying is a useful and necessary skill for Flying Instructors (FIs) in SYFC. It is a pre-requisite to qualifying FIs for the role of a Cover Solo and is needed when SYFC is called upon to support events with formation flypasts and when flying as a team during navigation flights. FIs are also required to introduce close formation flying to pilot trainees when they return for their currency flights.

1.2. Aircraft in flight are considered to be in close formation when the distance between aircraft is 500 ft or less.

1.3. Flights intentionally planned to involve close formation flying can only be authorised by the General Manager (GM), Operations Manager (OM) or Chief Flying Instructor (CFI).

2. FORMATION FLYING PROCEDURES

2.1. Briefing. A pre-flight formation briefing is to be given by the formation lead or a designated member of the formation, with all formation members present. The following points are to be covered, where applicable:

2.1.1. Time hack.

2.1.2. Formation Callsign.

2.1.3. Formation composition, supervisor, lead and deputy lead.

2.1.4. Aircraft registration, parking slots and fuel states.

2.1.5. Joker/Bingo Fuel States. Joker is a fuel state nominated by the lead to assist him to manage the sortie. Bingo is the fuel state at which immediate recovery to the base is mandated.

2.1.6. Weather and Colour-States at base and at possible diversion airfields and the forecasted conditions.

2.1.7. Starting procedures and order (by R/T or by time).

2.1.8. R/T procedures, check-in frequency and time and operating frequencies (Com 1 and 2 set-up).

2.1.9. Taxi, line-up and take-off procedures.

2.1.10. Type of departure.

2.1.11. Formation exercises.

- 2.1.12. Change of lead, if any.
- 2.1.13. FILER checks.
- 2.1.14. Loss contact procedures.
- 2.1.15. Limitations to be observed.
- 2.1.16. Recovery procedures.
- 2.1.17. Visual break from the formation and sequence to be observed.
- 2.1.18. Emergencies and contingencies.
- 2.1.19. Any other points (e.g., Rendezvous (R/V) plan).

2.2. Formation Callsign. To facilitate compliance to Air Traffic Control (ATC) procedures, individual aircraft callsigns may be used for transit and aerodrome procedures before adopting the formation callsign during join up. When operating on a formation callsign, the numbering shall not be changed, even if there is a switch of positions.

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

2.4. Taxying and Holding on Ground. Taxying and holding on ground as a formation may be carried out in trail or alternately staggered left and right, as briefed by the lead.

3. **INFLIGHT PROCEDURES**

3.1. Takeoff. The positioning of aircraft in the formation for lining up on the runway will be in accordance with the formation brief. Takeoff clearance may be given individually or to the formation. For stream take-offs, a minimum of 5 seconds is to be used. The minimum runway length available for a formation or stream takeoff is 3000 ft.

3.2. Manoeuvring Limits. When in formation, manoeuvres MUST NOT exceed 45° AOB, 120 KIAS.

3.3. Formation Positions - Close Left or Right.

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

3.3.2. Lateral. Propeller spinner in line with counter weight on the flaps.

3.3.3. Longitudinal. Opposite wing tip in line with the letter "Y" on the aircraft Registration.

3.4. Line Astern.

3.4.1. Vertical. The grey catwalk at the left wing root being just visible.

3.4.2. Lateral. In line with Lead aircraft.

3.4.3. Longitudinal. The width of the instrument panel coaming matches lead aircraft's wing span.

3.4.4. For line astern formation, the wingman must call e.g. "XX In" once in position.

3.5. Arrow Head.

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

3.5.2. Lateral. Spinner in line with counter weight on aileron.

3.5.3. Longitudinal. Four aircraft lengths (100 ft) behind. The distance between No. 1 and No. 3 is eight aircraft lengths (200 ft).

3.6. Climbs. All climbs in formation will be at standard climb speeds with the lead setting power at 24" MAP/2400 RPM, if possible. If the wingman has insufficient power to regain position, he is to call, ("XX Buster"); the lead will then reduce power further. Once the wingman has regained his position, the lead may increase the power as appropriate. Climb Checks are to be carried out independently.

3.7. Station Changing.

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

3.7.2. Three Aircraft Formation.

3.7.2.1. VIC to Line Astern. No. 2 is to move to the line astern position while No. 3 slides back to position behind No. 2. No. 2 will call "XX In" followed by No. 3 when settled in the 3-ship line astern position.

3.7.2.2. Line Astern to VIC. No. 2 is to move to the close right position while No. 3 back moves to the left, then forward into the close left position.

3.7.3. Formations with More Than Three Aircraft. For large formations, the type of formation to be flown and the station changing procedures to be used are to be specified during the formation pre-flight brief.

3.8. Practice Break-and-Rejoin. This can be for a straight-ahead rejoin or turning rejoin as initiated by the lead 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 lead will do a lookout towards the area where the exercise is to be carried out. On clearing the area, the lead will give a positive clearance (“XX Clear For Break-and-Rejoin”) or a ‘thumbs-up’ hand signal. The wingman will apply full power and execute a climbing turn away from the lead aircraft using about 45° AOB for three seconds, before reversing the bank to look for the lead aircraft. Once visual with lead, the wingman will call (“XX Visual”).

3.8.1. Straight Ahead Rejoin. The lead will call out his heading, speed and altitude to facilitate the join-up. The wingman will apply full power to achieve at least 20 to 30 kts overtake and put the lead at his 11 o’clock position (when the break is initiated from a close right position). Once the lead aircraft registration becomes readable, the wingman will move into a loose position for joining up. The wingman will initially step-down slightly and maintain one wing span laterally away from the lead until he can achieve his station keeping in this order: Longitudinal-Lateral-Vertical. *If closure is excessive and an overshoot is inevitable, maintain lateral separation, stay below the lead and call “Overshooting”. Do not belly up to the lead by pitching up or overbanking to break away.*

3.8.2. Turning Rejoin. The lead will enter a medium level turn and call out his direction of turn, altitude and speed. The wingman will step 200 to 300 ft below the lead and fly to the inside of the leader’s turn circle putting the leader at the 1:30 or 10:30 position. The wingman will fly to the echelon line by adjusting AOB and position (lead’s aircraft nose in line with the wing tip) while maintaining vertical separation (200 to 300 ft). Maximum closure of 30 kts should be observed while adjusting the AOB to maintain the echelon line to close in. Once the lead’s aircraft registration becomes readable, the wingman will move into a loose position for joining up. Thereafter the join-up will be as per the straight-ahead rejoin. *If closure is excessive and an overshoot is inevitable, roll wings level to fly under the lead and call “Undershooting”. Do not belly up to the leader or overbank to break away.*

3.9. Lead Change. Unless pre-briefed, all lead changes are to be called out on R/T. The leader is to position the formation in close left/right before calling the lead change, (e.g. “XX overhead Sembawang Airfield, XX You Have The Lead”). The R/T call should also include any prevailing restrictions in the training area. The aircraft taking over, as lead will acknowledge and then move out to a safe lateral separation, before moving forward. After passing the wings of the lead aircraft, he is to assume the lead and call out “XX, I Have The Lead.” The lead change is then effected. All formation members are to maintain their original callsigns or numbers.

3.10. Descent. FIE Checks are to be carried out independently before commencing a descent. The lead is **NOT** to use less than 15” MAP/2400 RPM power during the descent.

3.11. Rejoining Airfield. Joining an airfield in formation may be permitted with approval from the ATC. The formation is to run-in and break overhead the airfield with each element executing the break with a minimum interval of five seconds between aircraft.

3.12. Formation Approach. After completing the Pre-Landing Checks, the wingman should call “Checks Complete” or give a ‘thumbs-up’ signal. The wingman should step up slightly till the split between the aileron and flaps of the lead’s outboard wing is visible over its fuselage. The lead should maintain a minimum speed of 5 knots above the normal approach speed in the descent.

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

3.14. Landing. When landing as part of a string of aircraft landing, clearance to land may be given to subsequent aircraft when the front aircraft is still on the runway. Landing aircraft are to move to the Slow Lane (the exit side of the runway), when the aircraft has slowed down to below 40 knots.

4. FORMATION EMERGENCIES

4.1. The Pilot-In-Command (PIC) of the aircraft is responsible for the immediate handling of an aircraft emergency. It should be reported as soon as possible to the formation lead to facilitate decision-making on the course of action to be taken for the formation as a whole.

4.2. Aborting Takeoff. The pilot will call out immediately, e.g. “XX Aborting”. If safe to do so, the other aircraft will continue with their takeoff, 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.

4.3. 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.

4.4. Radio Failure

4.4.1. 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 lead on Skylark Ops frequency.

4.4.2. Total Radio Failure. If a total radio failure is confirmed, the unserviceable aircraft is to alert another member of the formation using the appropriate hand signals. If necessary, a wingman can also attract the lead’s attention by moving into a line abreast position, before using hand signals. If any emergency occurs when R/T communication is lost, use the **HEFOEA** Code (see Annex A).

4.5. Loss of Lead in Weather. If adverse weather is anticipated, the lead is to inform the formation to allow the wingman to maintain close formation. If a wingman loses visual contact with the lead in weather, the wingman is to call out “XX Blind” immediately, and adopt the following procedures as appropriate:

4.5.1. 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 lead as soon as possible.

4.5.2. Level Turn (Wingman on Outside of Turn). Roll wings level and inform the lead. Fly 30° away from the rollout heading called out by the lead for 10 secs and then turn to the lead’s heading.

4.5.3. Level Turn (Wingman on Inside of Turn). Increase AOB to 45° and inform the lead. The lead will roll wings level and advise his rollout heading. The wingman will roll out 30° away from the heading called by the lead and maintain for 10 secs before turning to the lead’s heading.

4.5.4. In a Sustained Climb or Descent. Obtain lateral separation as in paras 4.5.1 to 4.5.3 above. The wingman should then stack 500 ft above the lead if the formation was descending, or 500 ft below the lead if climbing.

4.6. Loss of Lead in Visual Meteorological Conditions (VMC). If the wingman loses contact with the lead in VMC, a hard turn towards the last known safe area is to be made. He must inform the lead, e.g. “XX, Blind, Breaking Left/Right”.

4.7. Fire. 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 is received. The serviceable aircraft is to stay in loose formation and provide assistance by managing R/T calls, etc. (see Annex A).

4.8. Engine Failure / Forced Landing. The serviceable aircraft is to stay in loose formation with the stricken 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 Search & Rescue (SAR) operations until directed otherwise or when the minimum safe fuel state needed to return to base is reached.

4.9. Electrical Failure. The aircraft with an electrical failure is to attract attention using the **HEFOEA** Code, and is to be escorted back to base as soon as possible.

4.10. Fuel Shortage. The first aircraft in the formation to reach Joker/Bingo fuel state is to call out. If R/T is lost, hand signals are to be used (See Annex A).

4.11. Collision. In the event of a collision aircraft control should be regained as soon as possible. If possible, a visual inspection for damages is to be arranged with another SYFC aircraft in the vicinity. If it appears safe to do so, reduce the aircraft speed progressively to 75 knots, and check that the aircraft remains controllable as the speed decreases. At any point if the aircraft displays signs of instability (e.g., buffeting or

excessive roll), note the speed and stop any further reduction in speed. Recover for an approach at a speed 15 knots above the noted speed. 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.

4.12. Brake Failure. 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 the stricken aircraft are to move over to the slow lane.

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 lead's head. For all other signals, action is taken on cessation of the signal/s.

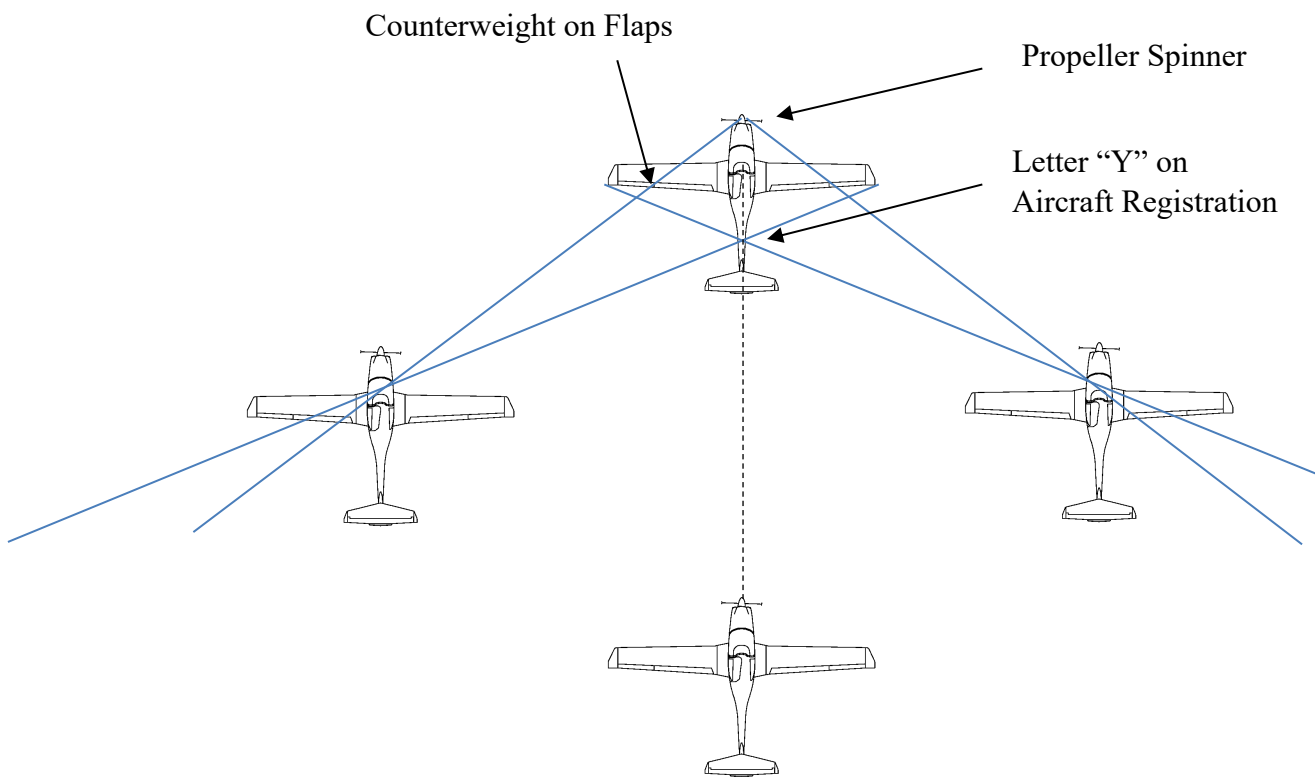
<u>Action / Description</u>	<u>Signal</u>
2.1. Run-Up Engine	Hand raised, forefinger extended describing a circular motion.
2.2. Ready for Take-Off	Thumbs-up.
2.3. "Now"	Head nod (at the end of the down stroke).
2.4. Flap	Open palm, fingers together, facing down, make waving movement three times.
2.5. 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 2 ship or VIC (3 ship)	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.

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<u>Action / Description</u>	<u>Signal</u>
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.
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 45° (facing down) and show landing motion.
2.17. Affirmative	Thumb-up.
2.18. Negative	Thumb-down.
2.19. HEFOEA Code	To signal the use of HEFOEA Code, tap forehead three times with a clenched fist, then indicate the problem with the appropriate number: 1 - H ydraulics 2 - E lectrics 3 - F uel 4 - O xygen 5 - E ngine 6 - A ircrew
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.

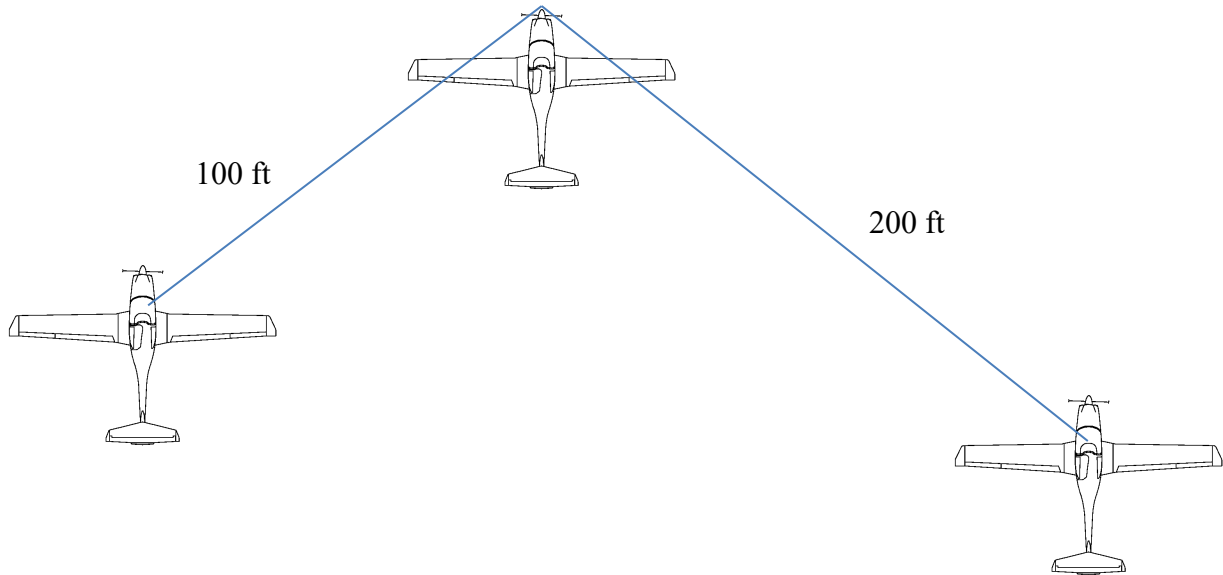
FORMATION POSITIONS

FORMATION POSITIONS FOR CLOSE LEFT/RIGHT AND LINE ASTERN



Instrument Coaming Width \Leftrightarrow Lead Wingspan

FORMATION POSITION FOR ARROW HEAD



SECTION 12

MANAGEMENT OF EXPERIENTIAL FLIGHTS AND FLYING EXPERIENCE PROGRAMME

1. TYPES OF EXPERIENTIAL FLIGHTS

1.1. SYFC conducts experiential flights for the purposes of publicity, student engagement and as an incentive for SYFC pilots to expose their guests to flying. Such flights are categorised as follows:

1.1.1. Experiential Flights (EF). These refer to flights carrying school students/teachers or members of the public for the purpose of publicity. The aim is to generate interest and awareness of the SYFC flying course.

1.1.2. Flying Experience Programme (FEP). When the flights are organised for a group of students, they are referred to as FEP. These are usually organised by the SYFC Recruitment Section or Co-Curricular Activity (CCA) Department for the engagement of school-going students.

1.1.3. Staff Experiential Flight (SEF). SEFs are flights where SYFC pilots carry their own guests as passengers. Approval from the General Manager (GM) or Operations Manager (OM) must be obtained for SEFs and only the GM, OM or Chief Flying Instructor (CFI) are allowed to authorise SEFs. They are not to be conducted more than once per calendar quarter for each pilot, and not during their duty period. For non-staff pilots, it should not be more than once every six months. Application for airside security clearance for the guests is the responsibility of the Pilot-In-Command (PIC).

2. MANAGEMENT OF EXPERIENTIAL AND FEP FLIGHTS

2.1. Non-staff passengers are required to complete and sign the SYFC Consent Form (in Annex A) prior to embarking on the flights.

2.2. The staff responsible for organising the flight is to ensure proper coordination with the ops schedulers for the flight. The form in Annex B is to be completed and submitted to the Scheduling Team at least two working days before the flight.

2.3. The PIC for the flight is to comply with the following:

2.3.1. The flight shall be a day flight, flown in Visual Meteorological Conditions (VMC) and confined to Seletar Airspace and the Light Aircraft Training Areas (LATA).

2.3.2. The flight shall be planned for 0.7 hours.

2.3.3. Passengers are to be within the age range of 5 to 65 years old and not handicapped. Children below 12 years of age must be accompanied by the adult who signed the consent for the child to take the flight. The child and the

accompanying adult are to be seated in the backseat of the aircraft. Any exceptions to the age range stated in this para is to be approved by GM.

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

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

2.3.6. Conduct a safety brief for all passengers on the flight.

2.3.7. Ensure that the aircraft is within the operating limits of its Centre of Gravity (CG) and weight limits.



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. _____

PROCEDURE FOR PLANNING EXPERIENTIAL AND FEP FLIGHTS

This form must be completed and submitted to ops at least two working days before the flight.

S/N	Tasks	Tick when done	Remarks
1	Approval granted by GM/OM		
2	Date/time for flight coordinated with ops Scheduling Team		
3	Airside clearance for passengers approved		
4	Attached duly completed consent form for all passengers.		
5	Ensure all pax meet requirement as per para 2.3		

Submitted by:

(Name/Signature/Date)

Acknowledged by Scheduler:

(Name/Signature/Date)