HONG KONG AVIATION CLUB

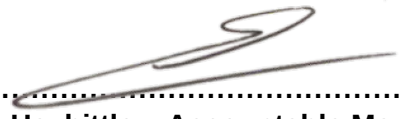
Helicopter Training Manual

Volume 1

Copy No. …….

Issued under authority of the Accountable Manager for and on behalf of

The Hong Kong Aviation Club



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(Giles Haybittle – Accountable Manager)

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Glossary of Abbreviations

AFI	Assistant Flight Instructor
AIRPROX	Aircraft Proximity
AIC	Aeronautical Information Circulars
AIP	Aeronautical Information Publication
AN(HK)O	Air Navigation (Hong Kong) Order
ATA	Actual Time of Arrival
ATC	Air Traffic Control
AUW	All Up Weight
C of G	Centre of Gravity
CAD	Hong Kong Civil Aviation Department
CAD54	Pilot Licences and Associated Ratings Requirements Document
CAD360	AOC Requirements Document
CFI	Chief Flight Instructor
CRM	Crew Resource Management
ETL	Effective Translational Lift
FI	Flight Instructor
ft	Feet
GFS	Government Flying Service
HKAC	Hong Kong Aviation Club
HKIA	Hong Kong International Airport
HOT	Head of Training
IAS	Indicated Airspeed
ICAO	International Civil Aviation Organisation
IGE	In Ground Effect
lbs	Pounds
LTE	Loss of Tail Rotor Effectiveness
MAP	Manifold Pressure
NOTAM	Notice to Airmen
OGE	Out of Ground Effect
OM	Operations Manual
PC	Proficiency Check
PFL	Practiced Forced Landing
PIC	Pilot in Command
PLO	CAD Personnel Licensing Office
POH	Pilot Operating Handbook
RRPM	Rotor Revs Per Minute
SC	Stage Check

TEM	Threat and Error Management
TK	Theoretical Knowledge
TRE	Type Rated Examiner
UCARA	Uncontrolled Airspace Reporting Area
W/V	Wind Velocity

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23	13/11/2020	58	13/11/2020	93	13/11/2020	128	13/11/2020
24	13/11/2020	59	13/11/2020	94	13/11/2020	129	13/11/2020
25	13/11/2020	60	13/11/2020	95	13/11/2020	130	13/11/2020
26	13/11/2020	61	13/11/2020	96	13/11/2020	131	13/11/2020
27	13/11/2020	62	13/11/2020	97	13/11/2020	132	13/11/2020
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Member Details

Name: _____ Membership Number: _____

Address: _____

Mobile Number: _____

Email Address: _____

Weight in lbs: _____

Emergency Contact Name: _____

Emergency Contact Phone Number: _____

Previous Flying Experience

Aircraft Type	Dual Hours Logged	Solo Hours Logged
_____	_____	_____
_____	_____	_____
_____	_____	_____

Licence Type: _____

Licence Number: _____

Licencing Authority: _____

Medical Class Number (Student) _____

Medical – Date of Expiry (1)_____ (2)_____

(3)_____ (4)_____

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Section 4

SECTION 1

1.0 The Training Plan

1.1 The Aim of the Course

The aim of the PPL (H) course is to train the flying members of the Hong Kong Aviation Club to act as PIC under Visual Flight Rules. Training is to be conducted by qualified flying instructors who meet requirements that are stated in CAD 54 Part 2, Chapter 3.

1.2 Pre-Entry/Solo Requirements

Prior to commencing flight training the student must demonstrate the ability to speak and understand the English language which will then be tested prior to the students first solo.

Prior to commencing Solo flight, the student must demonstrate the following:

- He/she is at least 17 years of age; and
- Is the holder of a valid medical certificate prior to solo flight and complies with any conditions subject to which the medical was issued.

1.3 Flight Training

CAD 54 states that a PPL (H) flight training course must provide for a minimum of 40 hours of flight time that includes a minimum of 20 hours dual instruction and 10 hours of solo. Students must be aware that these requirements are the legal minimums to be eligible for a PPL Flight test but may need to be increased in order for an individual to meet the required standard and successfully complete the licence PPL Flight Test.

1.3.1 The course contains the following exercises and the times shown are the minimum hours required. Instructors may deviate from the sequence as required by weather or serviceability constraints or student progress considerations. However, students are not permitted to start a different stage without first completing the relevant stage check. Detailed lesson plans for the flight training are in part 2 of this manual.

***Once an Exercise has been successfully completed, the actual time Dual/Solo to complete the Exercise will be calculated and transferred from the Flight Log in Section 2 and input into the 'Actual Time Flown' column below**

Stage #	Exercise	Time		Actual Time Flown	
		Dual	Solo	Dual	Solo
1	Ex. 1 – Familiarisation with the helicopter	Ground			
1	Ex. 1B – Emergency Procedures	Ground			
1	Ex. 2 – Preparation for and Action After Flight	0.5			
1	Ex. 3 – Air Experience	1.0			
1	Ex. 4 – Effects of Controls	1.0			
1	Ex. 5 – Power & Altitude Changes	1.0			
1	Ex. 6 – Straight & Level	0.5			
1	Ex. 7 – Climbing	0.5			
1	Ex. 8 – Descending	0.5			
1	Ex. 9 – Turning	0.5			
1	Ex.10 – Basic Autorotation	1.0			
1	SFAR 73 Flight	1.0			
1	Ex.11A – Hovering	2.0			
1	Ex.11B – Hover Taxiing, Spot Turns & Emergencies	1.0			
1	Ex.11C – Hovering & Taxi Emergencies	1.0			
1	Ex.12 – Take-off & Landing	1.0			
1	Ex.13 – Transitions from hover to climb & approach to a hover	1.5			
1	Ex. 14A – Circuit Approach & Landing	1.5			
1	Ex. 14B – Steep & Limited Approaches & landings	1.5			
1	Ex. 14C – Emergency Procedures	2.0			
1	**Progress Stage 1 – Pre Solo**	1.0			
2	Ex.15 – First Solo	0.2	0.3		
2	Ex.16 – Sideways & Backwards Hover Manoeuvring	0.5	0.6		
2	Ex.17 – Spot Turns	0.5	0.6		
2	Ex.18 – Hover OGE & Vortex Ring	1.0			
2	Ex.19 – Simulated Engine Off Landings	1.0			
2	Ex.20 – Advanced Autorotations	1.0			
2	Ex.21 – Practiced Forced Landings	1.0			
2	Ex.22 – Steep Turns	0.5			
2	Ex.23 – Transitions	0.5	2.0		
2	Ex. 24 – Quick Stops	1.0			
2	Ex. 25A – Navigation	1.5			
2	Ex. 25B – Navigation Problems at Low Heights and in Reduced Visibility	1.0			
2	**Progress Stage 2 – Navigation**	1.0			
3	First Area Solo		1.0		
3	Ex. 26 – Advanced Take-Off, Landings & Transitions	1.0			
3	Ex.27 – Sloping Ground	1.0			
3	Ex.28 – Limited Power	1.0			
3	Ex.29 – Confined Area	1.0			
3	Supervised Solo		5.5		
3	Ex.31 – Basic Instrument Flight	1.0			
3	PPL Flight Test Prep	1.0			
3	**Progress Stage 3 – Graduation**	1.0			
	Totals	**36.7**	**10.0**		

1.3.2 PPL Theoretical Knowledge Training

The HKAC theoretical knowledge training programme consists of approximately 50 hours of theoretical knowledge instruction that will be delivered in the following format:

Hours	Method of Delivery
20 hours	Classroom / Hanger based instruction
25 hours	Directed self-study
2.5 hours	Practical radio telephony ground training
2.5 hours	Revision for PPL Oral Exam

The HKAC will ensure that all appropriate elements of the Theoretical Knowledge training course have been completed to a satisfactory standard before recommending an applicant for examination.

1.4 Time Scale

Due to the current flight constraints at Shek Kong and changeable meteorological conditions throughout the year in Hong Kong it is estimated that a new student can complete their Private Pilot Licence between 18 and 24 months maintaining a good attendance record. As detailed in this syllabus, each exercise has a completion standard that is to be achieved. In the event that the required standard is not achieved in the minimum time allocated, it will be necessary to repeat all or part of the exercise, which will in turn increase the total amount of flight training hours.

1.5 Training Programme

1.5.1 General

Lessons and aircraft reservations are booked directly through Operations and the student will be given remote access to his/her flight schedule via the internet or phone application. Aircraft will be allocated by Ops by consulting with the instructors and Head of Training. Students must be prepared to fly any of the fleet of aircraft as operational constraints require. As detailed in Section 4 of the Operations Manual if a pilot is unable to fly, they are asked to provide as much notice as possible, 48 hours being the minimum. HKAC enforces a penalty fee for any member that does not adhere to this rule to the value of $600. This penalty fee also applies to a “no-show” on the flight day where the aircraft will then be allocated to another member.
Slots will be available for booking subject to daylight and instructor availability. First Take off shall not be before 0900 and last landing shall not be after 1800 or later than half an hour before sunset whichever is the earlier time.

1.5.2 Theoretical Knowledge Instruction

Instructors will provide Theoretical Knowledge Instruction (TK) as and when required. The date and duration of the TK lesson will be recorded in the student file.

Students are required to complete Air Law, Radio Telephony and Human Performance written exams prior to the first solo flight.

Exams are booked through the Pilots Licensing Office (PLO), contact details and the procedure can be found in 1.7.1 of this manual.

1.5.3 Weather Minima

For all weather minimums reference Part A Section 6.4 of the Operations Manual.

1.5.4 Flight Hour Limitations

For all flight hour limitations reference Part A Section 5.5.18 of the Operations Manual.

1.5.5 Training Records

HKAC will provide an individual training record for each student and it will contain the individual forms listed below. All records will be kept in paper format and/or electronically. Any forms completed by hand must be in a legible manner using indelible ink.

List of Forms:

1. Student Personal Details Form
2. Emergencies training checklist and Student's confirmation of completion
3. Flight report for each flight including, duration exercises completed and a narrative report of the student's performance and progress, together with a running total for Dual and Solo flight time
4. Stage Check Written Test Summery
5. Flight Check Continuation
6. Student Record Sheet

Active training records will be kept electronically, and password protected. Where training records are kept in paper format, they will be stored in Operations in an appropriate cabinet and in both cases, access will be given to the Student, Instructor and Club management.
Students will not be given access to the records of other students

1.5.6 Checking of Records & Logbooks

After completion of the training record of each flight, the instructor will cross check the student's logbook to ensure that they agree and have been logged correctly.
The total hours dual training, solo and total flight time should agree at each stage.
Prior to the recommendation for The PPL Flight Test, the instructor will verify the student's logbook against the student's training record and then notify The Head of Training (HOT) that the student is ready for the PPL Flight Test. Once verified the HOT will sign the student's logbook to certify that the hours recorded are correct as far as the training carried out with the club is concerned.

1.5.7 Standardisation of Entries

Training Records

A flight report for each flight must be completed by the instructor delivering that lesson. Reports should reflect the debrief given and must record items not performed satisfactorily and wherever possible, advice or suggestions on how to achieve the required standard.

Students must initial the comments from each flight to accept the debrief given by the instructor and a date and signature is required once all manoeuvres in the lesson have been completed to standard before moving on to the next lesson.

Grading

As part of the report and debrief each flight will be graded as follows:

Grade 1 Above Standard

Grade 2 To Standard

Grade 3 Repeat Exercise

When a student is awarded grades 1 or 2 the exercise is considered complete.

1.5.8 Log Book Entries

Students' logbooks are to be completed in accordance of Part IV Article 22 of the AN(HK)O, CAD 54 and Part A Section 5 of the Operations Manual.

1.6 Safety Training

The Chief Flight Instructor (CFI) has the overall responsibility for the PPL (H) syllabus and the contents of this manual.

1.6.1 Instructor Responsibilities

Individual instructors are responsible for ensuring that students complete their training in accordance with the following instructions:

- At the beginning of a training course, Instructors are to advise students of the need for a valid medical certificate to be obtained prior to being sent solo.
- Instructors are responsible for delivering the training course in accordance with the PPL (H) syllabus and the contents of this manual.

1.6.2 Students Responsibilities

Students are responsible for ensuring that they comply with any instructions issued by the club or its staff.

Students are responsible for ensuring that they have a current valid medical certificate before embarking on any solo flight.

1.6.3 Emergency Drills

Emergency Drills are to be taught and refreshed as follows:

Emergency drills are introduced during Stage 1 during Exercise 10 to 14C. The student will be taught the correct course of action in the event of each of the aircraft's potential emergencies. Students shall demonstrate the ability to complete a selection of these drills during the Stage 1 check flight and explain the required actions for those simulated emergencies not flown.

1.6.3.1 SFAR 73 – As part of the training (when flying the Robinson R22 or R44), students will be educated in ground and flight for all of the following items that are associated with FAA's SFAR 73 requirement:

- Energy Management
- Mast Bumping
- Low Rotor RPM (blade stall)
- Low G Hazards
- Rotor RPM Decay

1.6.4 Pre-Area Solo qualifying flight

Prior to completing the Stage 2 check flight, the student shall be current and well versed in all emergency procedures and in particular:

- Precautionary off airfield landing technique (Power Failure and Engine Fire)
- Diversion
- Governor failure

Emergency drills will be thoroughly revised during Stage 3 in preparation for the graduation flight prior to the PPL Flight Test. During stage 3 the student will be advised to expect simulated emergencies during the revision phases. Instructors shall always ensure that the helicopter is in a safe configuration to simulate an emergency and will initiate the drill with the words “SIMULATED EMERGENCY” followed by a description of the symptom(s) to which the student must react appropriately.

NB: Surprise throttle chops are absolutely prohibited

1.6.5 Dual Checks

Students on the PPL course are not authorised to complete solo flights without the instructor satisfying his/herself that the student is competent to do so in the prevailing conditions. If the student is out of recency as detailed in Part A Section 5.5.13 they are required to complete a recency flight and ground check with the instructor prior to being released.

1.6.6 Requirements before First Solo

Before being permitted to fly solo for the first time, a student must:

1. Have successfully completed all exercises in Stage 1 of the training programme
2. Have completed at least 20 hours of dual flight training
3. Have satisfactorily completed the emergency drill training detailed in para. 1.6.3
4. Have passed the Stage 1 check flight
5. Be in possession of a minimum of Class Two Medical Certificate
6. Have passed the Air Law, Human Performance, and Radio Telephony Exams

1.6.7 Requirements Before First Solo Navigation

Before being authorised to undertake the first solo navigation flight, a student must:

1. Fulfil the requirements in paragraph 1.6.6 above, and
2. Have satisfactorily completed Exercises 1-25B of the PPL (H) syllabus, and
3. Have demonstrated the ability to perform the requirements during SC2 to a safe standard without significant assistance.

1.7 Test & Examinations

Flying

1. **Progress Tests**
   Flight Stage Checks are conducted during the course:
   - Prior to first solo flight
   - Prior to first area solo
   - Prior to PPL Flight Test

   Details of the Stage Checks are shown within the Flight Training Syllabus at the end of each stage.
2. **PPL Flight Test**
   - The PPL Flight Test is taken when all the training is complete, and the student has passed Stage Check 3. The test will be conducted by a Type Rated Examiner (TRE) that is appointed by either the HOT or CFI.

1.7.1 Theoretical Knowledge

1. **Progress Tests**
   Ground Stage Checks consisting of Club Written Exams that can be found in Appendix 6 followed by a debrief with either the HOT or CFI are conducted during the course:
   - Prior to first solo flight
   - Prior to first area solo
   - Prior to PPL Skill Test

   The written tests will be securely kept by the Operations Department and issued at the appropriate time by the instructor.

2. **Theoretical Knowledge Examinations**
   Theoretical Examinations must be completed in accordance with the requirements specified in Part IV of the AN(HK)O and CAD 54 Part 2. Examinations will be administered by the Pilots Licensing Office (PLO) and each exam is assigned to a particular day of the week as stated in the latest update of the Aeronautical Information Circulars (AIC) that can be found in the Operations Library or online at ais.gov.hk.
   The Pilot Licencing Office (PLO) requires a minimum of 1 weeks' notice to make a reservation which will be granted subject to availability.

   PLO Contact details:

   Personnel Licensing Office
   Flight Standards and Airworthiness Division
   Civil Aviation Department
   1 Tung Fai Road
   Hong Kong International Airport
   Lantau, Hong Kong
   +852-39163666

   Email: plo@cad.gov.hk.

1.7.2 Authorisation for Test

1. **PPL Skill Test**
   A recommendation for a PPL Flight Test will be made by the Head of Training or designated FI in his/her absence. This can only be completed once the following items have been met:
   - All training is complete
   - The student has signed all lessons
   - The student has passed all the theoretical knowledge examinations

   The Head of Training is permitted to nominate his/herself for this purpose provided he/she has not been the students primary instructor

1.7.3 Test Reports & Records

The students TK Study and Examinations will be recorded in Appendix 5 with the outcome of each examination sitting.

1.7.4 Examination Re-sit Procedures

In the event of an examination being failed, the student's TK Study & Examination Form will be updated to that effect.
In the event that a student does not meet the required pass mark, the exam can be sat a further two times before a 3 month wait period is imposed. Following the break period, the student will have the ability to make 3 more attempts where failing all three will then result in an individual student assessment by the PLO.

1.8 Training Effectiveness

1.8.1 Identification of Unsatisfactory Progress

Instructors should constantly assess student progress. If an Instructor has concerns about a student's capabilities, these should be raised with the student immediately and a note to that effect placed on the student's record. If a student has completed more than 10 hours' flying training but is not, in the opinion of the Instructor, making adequate progress, a three way conversation between the Head of Training/CFI, the student and the Instructor should take place to explain where the deficiencies lie and advise the estimated number of hours of further training necessary to reach the required standard. A plan to correct the deficiencies should be formulated and a copy of the details retained in the student's flight training records.

1.8.2 Actions to Correct Unsatisfactory Progress

After re-briefing, the relevant exercises should be repeated. If the student continues to perform unsatisfactorily, The HOT/CFI and the student will then discuss the situation and agree a way forward. Should a change of instructor be considered advantageous, the HOT/CFI will arrange for an alternative instructor to continue the training. The position will be reviewed after each lesson.

1.8.3 Reporting & Documentation

Details of the debriefing and subsequent discussions and the action plan shall be recorded on the Student Record Sheet in Appendix 3 together with copies of any written communication with the student.

SECTION 2

Flight Log

Date	Exercise #	Manoeuvre #'s Complete	Lesson Flight Time	Flight Time to Date		Grade	Instructor
				Dual	Solo		
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Date	Exercise #	Manoeuvre #'s Complete	Lesson Flight Time	Flight Time to Date		Grade	Instructor
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Date	Exercise #	Manoeuvre #'s Complete	Lesson Flight Time	Flight Time to Date		Grade	Instructor
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2.0 Briefings & Air Exercises

1.1 Air Exercises

During each Air Exercise, instructors shall take the opportunity to emphasise the principles of:

- Threat and Error Management (TEM)
- Cockpit Resource Management (CRM)
- Collision Avoidance
- Flight in deteriorating conditions and the need to avoid this potentially fatal flight regime.

1.2 Air Exercise Reference List

For an abbreviated Air Exercise list, see table contained in Section in 1.3

1.3 Course Structure

1.3.1 Phases of Training

The course is divided into three stages, each terminating in a Stage Checks as follows:

PPL (H)			
Stage	Exercises	Min. Hours	Completion
1	1-14C	20	Stage Check 1
2	15-25B	14.2	Stage Check 2
3	26-31	12.5	Stage Check 3

Flight exercises will normally be taught in numerical order, however if deviation is necessary due to weather or aircraft unserviceability this is acceptable.

Please note that with the exception of the Air Experience Flight, no actual flight training can commence until Ground Lessons 1, 2 & 3 are completed and signed.

Having completed Air Exercises 1 through 31, there is a lesson left to ensure that the required Awareness Training and Emergency & Abnormal Procedures (Appendix 2) have all been covered and can include several flights as required. The student must be able to carry out a practical demonstration of the required procedure (or by discussion in the case of items so designated) to the standard required of a PPL (H) holder. The duration and number of these review flights will be at the discretion of the Instructor until they are satisfied that the Student has reached the standard required to attempt Stage Check 3 and be recommended for test.

1.3.2 Integration of Syllabi

Instructors shall take care to cross relate theoretical knowledge to flying training wherever possible. It is important that the student is familiar with the normal operation of systems before learning emergency procedures associated with that system's failure. Consequently, Instructors must ensure that they teach normal operations before addressing system failures.

1.3.3 Student Progress

Before progressing from one stage of training to the next, a student must have:

- Completed all the flight exercises to a satisfactory standard
- Completed at least the minimum hours indicated in the 2.3.1 table above
- Passed the relevant Stage Check

1.4 Instructional Methods

1.4.1 Pre-flight Briefings

Long Brief – Each flight lesson will be preceded by a ground briefing that will contain a detailed explanation of the exercises to be covered. This can take place on a different day but must be prior to the flight.
Pre-Flight Brief – On the day of the flight, an abbreviated pre-flight brief will be given by the instructor which will recap on all the important points of the lesson ahead.
During the briefing, the Instructor will also review areas from the previous lesson including any element that needs to be re-covered.
In Stage 3 of the course, the student should be able to brief the instructor on the current meteorological conditions and whether conditions are suitable.

1.4.2 Post Flight Discussion

The student should be debriefed as soon as practicable after each flight. The debriefing must match the subsequent entry in the student's training record, which the student must initial.

1.4.3 Adherence to Syllabus

Instructors are to give instruction in accordance with the flight training syllabus in this Part and the theoretical knowledge syllabus in Section 3. It is essential that instruction is standardised to avoid confusion if the student should fly with more than one instructor. Any examples of a lack of standardisation are to be brought to the attention of the HOT or CFI.

2.4.3.1 Cross Type Flying – Fixed Wing pilots that are learning to fly a helicopter will be equipped with habits and muscle memory that does not necessarily translate well. During the training, the instructor will pay particular attention to the following:

1. Manipulation of the cyclic – The dangers of low G manoeuvres including abrupt forward control input when flying a helicopter with a semi-articulated rotor system must be emphasised. While this would be a normal procedure in a fixed wing to initiate a descent, a helicopter could result in a low "G" condition which could cause mast bumping resulting in the separation of the rotor shaft or one blade striking the fuselage.
   Another example is a reaction to an audible warning. In a fixed wing this would indicate a stall which would command an immediate forward stick input. In a helicopter however this may indicate a low rotor RPM and forward cyclic would result in driving the rotor rpm even lower and could result in a rotor stall.
   Safety Notice 29 of the Robinson R22/R44 Pilots Operating Handbook should be referenced when explaining the above.
2. Pedal Inputs – unlike fixed wing the pedals are not used to turn the helicopter in flight and merely to maintain trim.
3. Fuel Mixture – unlike fixed wing the fuel mixture control must remain in the full rich position regardless of the weather or flight conditions as a leaning action could lead to fuel exhaustion and can be fatal.

Note: Upon successful completion of the PPL training course with emphasis of the points above, the students profile in the online booking system will be updated.

1.4.4 Authorisation for Solo Flight

Students are to be authorised for solo flights only after they have received a thorough pre-flight briefing from the authorising instructor. Assistant Flight Instructors (AFI) are not permitted to authorise the first solo but every solo thereafter.

1.5 Stage Checks

1.5.1 Stage Check 1

Stage Check 1 (SC1) is a test of the student's ability to fly the aircraft safely and to a standard suitable to fly as PIC. The check flight is conducted by either the HOT, CFI or designated FI and must be successfully completed before the student is authorised for the first solo flight. The content of SC1 can be found within the flight training syllabus immediately after Exercise 14C.

1.5.2 Stage Check 2

Stage Check 2 (SC2) is a test of the student's ability to conduct an off-airport navigation flight under VFR and to complete other flight manoeuvres with an acceptable degree of accuracy. The check flight is conducted by either the HOT, CFI or designated FI and must be successfully completed before the student is authorised for the first area solo flight. The content of SC2 can be found within the flight training syllabus immediately after Exercise 25B.

1.5.3 Stage Check 3

Stage Check 3 (SC3) is designed to ensure that the student can complete all of the relevant exercises to the standard required during the PPL Flight Test. The check flight must be successfully completed before a recommendation is made for the student to attempt the PPL Flight Test. The test is conducted by an Authorised TRE by the HOT or CFI. The Content of SC3 can be found within the flight training syllabus immediately after the PPL Flight Test Preparation Flight.

1.5.4 Nominated Examiner

An instructor that has fulfilled the role of a student's primary instructor is not permitted to act as the flight examiner for that student's PPL Flight Test.

1.5.5 Conduct of Stage Checks

A stage check forms part of the training process and instructors must endeavour to conduct the test in an informal and constructive manner. For Stages 1 & 2 all manoeuvres should be conducted safely and the student should demonstrate good airmanship and captaincy. Verbal prompts from the instructor are permitted but physical intervention should not be necessary. For the Stage 3 check, no prompting should be necessary and the individual manoeuvres should be carried out by the student to the standard expected of a PPL holder. The test tolerances for each manoeuvre are detailed in each flight exercise within the training syllabus. Where students fail to meet the required standard on a Stage Check, the checking instructor shall debrief the student and then separately debrief the students course instructor. The purpose of such a debrief being to examine the underlying reasons and identify any gaps in training and any remedial training that might be considered necessary for the student to improve their performance.

Exercise 2 – Preparation for & Action After Flight

Objective

An introduction to the inspection that must be complete before flight along with start-up, shutdown and post flight procedures.

Threat and Error Management

- Use of checklists
- Aircraft limitations

Exercise Briefing

- Flight Authorisation and helicopter acceptance
- Serviceability documents
- Equipment required including maps
- External checks
- Internal checks
- Seat, harness and flight control adjustment
- Starting and warm up checks, clutch engagement, starting rotors
- Power checks
- Running down, system checks and switching off the engine
- Parking, securing and picketing
- Completion of the Flight Authorisation Log

Flight Manoeuvre

1. Start-Up
2. Shutdown

Completion Standard

To demonstrate:

- A basic understanding of what it takes to perform a pre-flight inspection
- A basic understanding of how to follow a checklist during start up and shutdown
- Acknowledgement of the required documentation both in and out of the aircraft

Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 3 – Air Experience

Objective

To introduce the student to rotary wing flight

Threat and Error Management

- ❑ Lookout
- ❑ Aircraft limitations
- ❑ Correct exchange of flight controls
- ❑ Use of checklists
- ❑ SFAR 73 Awareness Training

Exercise Briefing

- ❑ Aircraft Flight Controls
- ❑ Aircraft Instruments
- ❑ Engine Controls
- ❑ Safety Briefing including SFAR 73
- ❑ Handing Over/Taking Over Control Process
- ❑ Exercise Details
- ❑ Safety Briefing

Flight Manoeuvre

1. In flight exercise
2. Hovering exercise

Completion Standard

N/A

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 4 – Effects of Controls

Objective

To learn the primary and secondary effects of flight controls; the effects of airspeed, power changes, yaw, disc loading, controls of selecting hydraulics (where applicable), control friction, instruments, use of carb heat and the use of ancillary controls.

Threat and Error Management

- Lookout
- Aircraft limitations
- Handing Over/Taking Over Control (Positive Exchange of Flight Controls)

Exercise Briefing

- Function of flight controls, primary and secondary effect
- Effects of airspeed
- Effects of power changes (torque/manifold pressure)
- Effects of Yaw (sideslip)
- Effects of disc loading (bank & flare)
- Effects of controls when selecting hydraulics on/off
- Effects of control friction
- Instruments
- Use of carburettor heat or anti-icing control

Flight Manoeuvre

1. Function of flight controls, primary and secondary effect;
2. Cyclic:- Disc & Fuselage Attitude, Airspeed;
3. Collective:- Pitch, MAP, RPM, Yaw;
4. Throttle & Governor:- , MAP, RPM, Yaw;
5. Yaw Pedals:- Yaw, RPM, Trim Strings, Slip ball;
6. Effects of airspeed & Disc Loading on RPM;
7. Effect of Hydraulics where applicable;
8. Use of instruments including scan;
9. Operation of Carb heat/ anti Ice & other controls; and
10. Use of Control Frictions, Trim and Stick Feel.

Completion Standard

Demonstrate:

- Appreciation of the effects of each control when controlled individually
- Correct technique to maintain a stable horizon
- Lookout
- Basic Airmanship

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 5 – Power & Attitude Changes

Objective

To learn and experience the relationship between attitude and airspeed while making power adjustments.

Threat and Error Management

- Lookout – scanning technique and clock system when reporting traffic
- Use of checklists
- Correct exchange of flight controls
- Aircraft limitations
- SFAR 73 – Awareness Training
- Clarification on the effects of throttle and collective inputs

Exercise Briefing

- Relationship between cyclic control position, disc attitude, fuselage attitude and airspeed
- Flap back
- Power required in relation to airspeed
- Power and airspeed changes in level flight
- Use of instruments for precision
- Engine and airspeed limitations

Flight Manoeuvre

1. Power and airspeed changes in level flight

Completion Standard

Demonstrate:

- Correct technique to change power settings and maintain airspeed to within 10 kts
- Set and hold a specified power setting to within 1” MAP and maintain balance.

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 6 – Straight & Level

Objective

To further understand basic coordination by learning how to maintain straight and level flight while adjusting power inputs and speed within allowable margins.

Threat and Error Management

- Lookout – scanning technique and clock system when reporting traffic
- Use of checklists
- Correct exchange of flight controls
- Aircraft limitations
- Clarification on the effects of throttle and collective inputs
- Use of Carb Heat

Exercise Briefing

- At normal cruising power, attaining and maintaining straight and level flight
- Control in pitch, including use of control friction or trim
- Maintaining direction and balance, (ball or yaw string use)
- Limitations – Setting power for selected air speeds and speed changes
- Use of instruments for precision

Flight Manoeuvre

1. Straight & Level Flight at normal cruising power
2. Speed changes using different power settings

Completion Standard

Demonstrate:

- Ability to fly straight and level with altitude $\pm$150ft within $\pm$10° of a chosen heading
- Ability to maintain chosen speed $\pm$10kts
- Display basic airmanship

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 7 & 8 – Climbing, Descending

Objective

To further understand basic coordination by learning how to climb, descend and fly straight and level at given speeds with allowable margins

Threat and Error Management

- Lookout – scanning technique and clock system when reporting traffic
- Use of checklists
- Correct exchange of flight controls
- Aircraft limitations
- Clarification on the effects of throttle and collective inputs
- Use of Carb Heat

Exercise Briefing

- Optimum climb speed, best angle, or rate of climb from power required diagram
- Initiation, maintaining the normal and maximum rate of climb, levelling off
- Climb and levelling off at selected altitudes/heights
- Minimum rate of descent
- Optimum descent speed, best angle, or rate of descent from power required diagram (power curve)
- Descent initiation, maintaining & leveling off
- Descent and levelling off at selected altitudes/heights
- Descent (including effect of power and airspeed)
- Use of Instruments for precision

Flight Manoeuvre

1. Entry to and maintenance of recommended climb speed followed by levelling off at chosen altitude.
2. Entry to and maintenance of a standard descent including level off
3. Levelling off from a descent to a selected altitude (include effect of power and airspeed)
4. Use of instruments to achieve Precision Flight
5. Use of Carb Heat

Completion Standard

Demonstrate:

- Climbing and descending while maintaining direction within $\pm 10°$ & Speed within $\pm$10kts
- Level from a climb or descent within 150ft of a selected altitude within $\pm 20°$ of a chosen heading
- Display basic airmanship and use of Carb Heat where applicable
- Display basic airmanship

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 9 – Turning

Objective

To further understand basic coordination by learning how to turn the aircraft from straight and level and climbing and descending with allowable margins

Threat and Error Management

- Lookout – scanning technique and clock system when reporting traffic
- Use of checklists
- Correct exchange of flight controls
- Aircraft limitations
- Clarification on the effects of throttle and collective inputs
- Use of Carb Heat

Exercise Briefing

- Angle of bank vs disc loading/ load factor
- Coning angle vs RRPM
- Initiating and maintaining medium level turns
- Resuming straight and level flight
- Altitude Bank and Coordination
- Climbing Turns & Descending Turns and effect on rate of climb or descent
- Use of Instruments for precision
- Turns onto selected headings, use of gyro heading indicator (if applicable) and compass
- Magnetic Compass and Associated Errors
- Use of carb heat

Flight Manoeuvre

1. Initiation and maintaining medium level turns
2. Resuming straight flight
3. Turns onto selected headings with use of gyro heading indicator or magnetic compass
4. Climbing and descending turns
5. Levelling off from a descent to a selected altitude (include effect of power and airspeed)

Completion Standard

Demonstrate:

- Complete turns while maintaining level flight within ±150ft and within ±10kts of a chosen speed while rolling out to ±10° of a chosen heading
- Display basic airmanship and use of Carb Heat where applicable
- Display basic airmanship

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 10 – Basic Autorotation

Objective

To introduce the student to the different stages of a basic autorotation

Threat and Error Management

- HASEL checks
- Lookout: below in the descent and above in the go-around
- Select suitable precautionary landing area
- Verbal warning – "Simulated"
- Post entry checks as appropriate to type
- Aircraft performance limitations, specifically RPM

Exercise Briefing

- Height Vs velocity chart
- Safety Checks (HASEL), verbal warning and lookout
- Entry, development and characteristics
- Control of airspeed and Rotor Revolutions Per Minute (RRPM), rotor & engine limitations
- Effect of AUW, IAS, disc loading, G forces and density altitude
- Re-engagement & go-around procedures (throttle override or Engine Revolution Per Minute (ERPM) control)
- Gentle and medium turns in autorotation
- Variable flare and simulated engine off landing (power recovery)
- Potential vortex condition during recovery

Flight Manoeuvre

1. Pre entry
2. Entry
3. Maintenance of airspeed and RRPM control (attitude)
4. Gentle and Medium turns in autorotation
5. Recovery to powered flight
6. Demonstration of variable flare and simulated engine off landing (power recovery)

Completion standard

Demonstrate:

- Demonstrate the ability to enter, maintain and recover from an autorotation
- Airspeed ±10kts, RPM within power off limits

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

SFAR 73 Flight

***Students are only permitted to complete this lesson if they have received the SFAR 73 Ground Lesson detailed in Section 3, Lesson 4.**

Objective

To increase the student's proficiency and awareness involved when flying a Robinson helicopter.

Threat and Error Management

- Safety Checks
- Safe landing area
- Lookout
- W/V

Exercise Briefing

- Recognition and recovery from Low Rotor RPM
- Left & Right 'S' turns
- Variable Glide Speed in Autorotation
- Maximum Glide
- Side Slip

Flight Manoeuvre

1. Recognition and recovery from Low Rotor RPM
2. Revision of the basic autorotation
3. Left & Right 'S' turns
4. Variable Glide Speed in Autorotation
5. Maximum Glide
6. Side Slip

Completion Standard

Demonstrate:

- Ability to recognise a Low RPM condition and perform the correct recovery technique
- One auto of each profile maintaining RPM within permitted range and ±10kts of specified airspeed
- Display appropriate airmanship

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 11A – Hovering

Objective

Discuss and demonstrate the effects of control inputs in an IGE hover and help the student to develop an initial proficiency.

Threat and Error Management

- Lookout – scanning technique and clock system when reporting traffic
- Use of checklists
- Correct exchange of flight controls
- Aircraft limitations (Engine)
- W/V
- Tail Rotor Clearance
- The effects of being tense on the controls

Exercise Briefing

- Foreign Object Damage (FOD)
- Hovering IGE
- Wind Effect
- Translation
- Effects of Controls
- Over controlling
- Hazards – Foreign Object damage (FOD), White out, Brown Out

Flight Manoeuvre

1. Demonstrate IGE hover
2. Student controlling pedals only – holding a heading and completing left and right turns in chosen increments at a controlled rate of turn
3. Student controlling collective lever only – maintaining appropriate height above the ground in a steady hover and when instructor changes the heading with the pedals
4. Student controlling collective and pedals together – maintaining height above ground, heading in a hover and during controlled rate pedal turns
5. Student controlling cyclic only
6. Student incorporating all three controls
7. Demonstration of ground and wind effects
8. Demonstration of gentle forward running touchdown

Completion Standard

Demonstrate:

- To hold a hover $\pm$3ft height, within a designated area maintaining a heading of $\pm$10°

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 11B & 11C – Hover Taxiing, Spot Turns & Emergencies

Objective

Continue to increase hovering proficiency including spot turns and an introduction to hover taxi maintaining height and heading.

Threat and Error Management

- Lookout – position of obstacles relative to the tail rotor
- Aircraft limitations

Exercise Briefing

- Effect of wind speed/direction on helicopter attitude and control margin
- Hover Turns
- Control, coordination during spot turns
- Hovering clearing turn
- Selecting ground reference points
- Dangers of mishandling and over-pitching
- Hydraulics failure in the hover

Flight Manoeuvre

1. Hover revision
2. Hover Taxi – Ground Speed and Height Control
3. Effects of wind direction on helicopter attitude and control margin
4. Control and coordination during spot turns
5. Spot turn through 360° around the mast (Clearing Turn)
6. Constant rate of turn
7. Introduction of gentle forward running landing
8. Hydraulics failure in a hover (where applicable)
9. Introduction to quick stops (into wind)
10. Demonstration of engine failure in a hover and in a hover taxi

Completion Standard

Demonstrate:

- Yaw control during taxi and spot turns
- To maintain a hover ±3ft height while completing the different manoeuvres

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 12 – Take-Off and Landing

Objective

To learn how to take off to, and land from, the hover into wind, cross wind and down wind.

Threat and Error Management

- ❑ Lookout
- ❑ Aircraft limitations
- ❑ Use of checklists
- ❑ Wind Speed and Direction
- ❑ Attempting to land from an unstable hover
- ❑ Failure to position controls

Exercise Briefing

- ❑ Pre-take off checks/drills
- ❑ Lookout
- ❑ Lifting into a hover
- ❑ Hover checks
- ❑ Dangers of horizontal movement near the ground
- ❑ Danger of mishandling and overpitching
- ❑ Landing (without sideways or backwards drift)
- ❑ Take-off and landing (to and from a hover) in all azimuths
- ❑ After Landing checks/drills

Flight Manoeuvre

1. Into wind Take offs and landings
2. Cross wind take offs and landings
3. Downwind take offs and landings

Completion Standard

Demonstrate:

- ❑ To be able to lift into a hover without appreciable attitude change, yaw or drift and to land safely without side or rearward drift carrying out appropriate checks

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 13 – Transitions from Hover to Climb & Approach to Hover

Objective

To learn the transition between a hover and a climb and to a hover from a descent/approach

Threat and Error Management

- ❑ Lookout
- ❑ Aircraft limitations
- ❑ Use of checklists
- ❑ Wind Speed and Direction

Exercise Briefing

- ❑ Pre-take off checks
- ❑ Ground effect, translational lift and its effects
- ❑ Flapback and its effects
- ❑ Transverse flow (Inflow roll)
- ❑ Tail rotor translation
- ❑ Effect of wind speed and direction during transitions to and from a hover
- ❑ Height vs Velocity Chart
- ❑ Constant Angle Approach

Flight Manoeuvre

1. Review Take off and landing
2. Demonstration of Flapback, Ground Effect, Translational lift
3. Transition from a hover to a climb
4. Approach to a hover (including the constant angle approach)
5. Demonstration of variable flare simulated engine off landing (power recovery)

Completion Standard

Demonstrate:

- ❑ Ability to transition from a hover into a climb
- ❑ Ability to maintain the correct approach path and angle to bring the helicopter into a hover at a predetermined spot
- ❑ Display basic airmanship

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 14A – Circuit, Approach & Landing

Objective

To learn the all aspects of flying an accurate circuit

Threat and Error Management

- ❑ Lookout
- ❑ Aircraft limitations
- ❑ Use of checklists
- ❑ Radio procedures
- ❑ Wind Speed and Direction
- ❑ Special awareness and spacing with other traffic

Exercise Briefing

- ❑ Circuit procedures including upwind, crosswind, downwind, base and final legs
- ❑ Approach and landing with power
- ❑ Noise abatement procedures
- ❑ Radio Calls
- ❑ Downwind checks (Pre-landing)
- ❑ Effect of wind on approach and IGE hover
- ❑ Go-around
- ❑ Noise abatement procedures

Flight Manoeuvre

1. Review transitions from a hover to climb and approach to a hover as required
2. Fly a standard helicopter circuit in accordance with published procedures including landing with power
3. Perform a go around

Completion Standards

Demonstrate:

- ❑ Ability to fly a standard helicopter circuit in accordance with published procedures
- ❑ Carry out the correct actions in the event of an emergency occurring in the circuit
- ❑ Maintain ±150ft of the required altitudes with Airspeed ±10kts of the desired speed on each leg

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 14B – Steep & Limited Power Approaches & Landings

Objective

To learn how to transition to and from the hover when the power is limited

Threat and Error Management

- Lookout
- Aircraft limitations
- Landing site reconnaissance
- Power checks

Exercise Briefing

- The Steep Approach (Dangers of high sink rate and low airspeed)
- Take-off power checks
- Power curve
- Running take-off
- In flight power check
- Limited power approach (explain danger of high speed at touchdown)
- Running landing with use of ground effect
- Zero speed landing
- Approach to a low hover

Flight Manoeuvre

1. Revise Constant Angle Approach
2. Review circuit procedures and include an approach to a low hover
3. Perform low approach and running landing
4. Perform running take off (If conditions permit)
5. Perform Steep approach
6. Variable flare simulated engine off landing

Completion Standards

Demonstrate:

- Ability to maintain above ETL and not exceed the given power limit for the running landing exercise
- Ability to perform a steep approach and recognise the dangers of a high sink rate and low airspeed
- Maintain ±150ft of the required altitudes with Airspeed ±10kts of the desired speed on each leg

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 14C – Emergency Procedures

Objective

To learn to detect and manage a malfunction or emergency safely

Threat and Error Management

- ❑ Lookout
- ❑ W/V
- ❑ Radio Calls
- ❑ Vortex Ring
- ❑ Use of checklists
- ❑ Touch drills

Exercise Briefing

- ❑ Abandoned take-off
- ❑ Missed approach/go-around
- ❑ Hydraulics off landing (where applicable)
- ❑ Tail rotor control and tail rotor drive failure
- ❑ Hover Autorotations
- ❑ Simulated Emergencies including:
    - Hydraulics failure (where applicable)
    - Simulated engine failure on take-off, cross wind, downwind and base leg
    - Governor failure

Flight Manoeuvre

1. Fly a standard helicopter circuit in accordance with published procedures
2. Abandoned take off
3. Missed approach/go-around
4. Hydraulics off landing (where applicable)
5. Hover and taxi autorotation's
6. Simulated Emergencies in the circuit to include:
    a. Hydraulics failure (where applicable)
    b. Simulated engine failure on take-off, cross wind, downwind and base leg
    c. Governor failure

Completion Standard

Demonstrate:

- ❑ Ability to fly a standard helicopter circuit in accordance with published procedures and carry out the correct actions in the event of an emergency occurring in the circuit area.

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Stage Check 1 – Pre-Solo

Stage 1 written exam must be completed with the required pass mark achieved prior to this flight

Objective

To review the students' progress and ensure that all manoeuvres covered in the previous lessons can be performed to standard in readiness for the students first solo.

Manoeuvres

The following will be covered by the instructor, but it is at their discretion if additional manoeuvres are to be included.

- ☐ Start Up, Lift Off & Hover Taxi
- ☐ Straight & Level Flight at a Specified Airspeed
- ☐ Level Turns onto Specified Magnetic Headings
- ☐ Standard Circuit
- ☐ Emergency Checklist Appendix 2 (Attach completed form to this check form)

***Check each box for every item completed to standard**

Instructor Comments

_____

_____

_____

_____

_____

_____

Date _____ Flight Time _____ Student Signature _____

Flight Instructor Name (Conducting the Check): _____

Flight Instructor Signature (Conducting the Check): _____

***In the event exercise standards are not met the stage check will need to be repeated. The Continuation Form in Appendix 4 should then be inserted here and steps followed.**

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Exercise 15– First Solo

It is a requirement of the HKAC that the student must have received full ground and in-flight components of the Robinson Safety Awareness Training (SFAR73) within the preceding 90 days.

Objective

To conduct a minimum of one circuit without an instructor on board

Threat and Error Management

- Lookout
- W/V
- Radio Calls
- Use of checklists

Exercise Briefing

- Change of attitude (CG) from reduced and laterally displaced weight
- Change of Cyclic position
- Danger of low tail, low skid or wheel during hovering and landing
- Recovery from loss of RRPM and overpitching
- Use of Checklists/pre take-off checks
- Take-off, Circuits, Approaches and Landing Procedures
- Emergencies
- Check of legal and procedural requirements
- Full briefing particularly in regard to differences encountered in:
    - Lift-off and landing, hovering and hover taxiing
    - Hover, climb and descent performance
    - Action in the event of an emergency

Flight Manoeuvre

1. Lift into hover, fly one solo circuit initially conforming to published procedures and land safely back to the designated area
2. Instructor will then decide if further circuits can be completed by the student or additional instruction is required

Completion Standard

Demonstrate:

- Complete circuit conforming to the published procedures including radio calls

Note: Only three hours of solo can be logged at one time. A dual check of at least six minutes or a dual lesson must be used to break up the three hours of solo time.

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 16 – Sideways & Backwards Hover Manoeuvring

Objective

To learn additional techniques when manoeuvring the helicopter in a hover.

Threat and Error Management

- ❑ Lookout: Obstacles
- ❑ W/V
- ❑ Aircraft limitations
- ❑ Use of checklists
- ❑ Wind Speed and Direction
- ❑ Vortex Ring state
- ❑ Ground Effect

Exercise Briefing

- ❑ Sideways and backwards manoeuvring
- ❑ Manoeuvre Recovery
- ❑ Stability & weather cocking
- ❑ Limitations for sideways and backwards manoeuvring

Flight Manoeuvre

1. Sideways manoeuvring heading into wind
2. Backwards manoeuvring heading into wind including recovery (nose pitch down)
3. Combination of sideways and backward manoeuvring
4. Manoeuvring sideways and backwards heading out of wind

Completion Standards

Demonstrate:

- ❑ Ability to initiate and complete each manoeuvre without overcontrolling
- ❑ Ability to maintain sufficient ground clearance

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 17 – Spot Turns

Objective

To increase proficiency in manoeuvring the helicopter in a hover.

Threat and Error Management

- Lookout: Obstacles
- W/V
- Aircraft limitations
- Use of checklists
- Wind Speed and Direction
- Ground Effect
- Failure to maintain sufficient ground clearance in a hover

Exercise Briefing

- Hover Turns
- Control coordination during spot turns
- Clearing Turn
- Limitations

Flight Manoeuvre

1. Review Spot Turn Manoeuvres from Exercise 6 as follows:
    a. Turn on spot through 360°
        i. Around the pilot
        ii. Around the tail rotor
        iii. Around helicopter geometric centre
        iv. Square and safe visibility clearing turn
    b. Rotor RPM control, torque effect, cyclic limiting stops due to CG position and wind speed direction

Completion Standards

Demonstrate:

- Ability to maintain a stable hover throughout each turning manoeuvre
- Ability to maintain 3-5ft ground clearance

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 18 – Hover OGE & Vortex Ring

Objective

To recognise and carry out the recovery action for the incipient stage of Vortex Ring

Threat and Error Management

- Lookout
- HASEL Check
- Helicopter Limitations

Exercise Briefing

- Establishing OGE hover
- Drift, height/power control
- Vortex Ring, recognition and recovery
- Loss of tail rotor effectiveness
- Symptoms, probable causes and recovery techniques (including Vuichard)

Flight Manoeuvre

1. Hover OGE
2. Controlled Entry to Vortex ring
3. Recognition of incipient stages of vortex ring
4. Standard recovery technique
5. Vuichard recovery technique
6. Recovery with minimum height loss

Completion Standard

Demonstrate:

- Ability to enter and recognise the incipient stages of vortex ring
- Recover from vortex ring in complete control with minimum height loss

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 19 – Simulated Engine Off Landings

Objective

To continue to build confidence and ability in the correct procedure to follow in the event of an engine failure.

Threat and Error Management

- Safety Checks
- Safe landing area
- Lookout
- W/V

Exercise Briefing

- The effect of weight, disc loading, density altitude and RRPM decay
- Optimum use of cyclic and collective to control speed and RRPM
- Variable flare

Flight Manoeuvre

1. Revise Basic Autorotation Entry
2. Variable flare simulated EOL
3. Demonstrate constant attitude simulated EOL
4. Demonstrate simulated EOL from Hover or Hover Taxi
5. Demonstrate simulated EOL from transition and low level

Completion Standard

Demonstrate:

- Ability to perform an engine off landing to a chosen landing spot

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 20 – Advanced Autorotations

Objective

To increase the student's proficiency and awareness involved when manoeuvring the helicopter in an autorotation in order to reach a desired landing area.

Threat and Error Management

- Safety Checks
- Safe landing area
- Lookout
- W/V

Exercise Briefing

- Constant Attitude Autorotation
- 'S' turns
- Turns through 180° and 360°
- Variable Glide Speed in Autorotation
- Maximum Glide
- Effects of angles of descent, Indicated Airspeed, Rotor RPM and effect of All Up Mass

Flight Manoeuvre

1. Review Straight in autorotation entry and glide
2. Over a selected point at various height and speed
3. Revise basic autorotation: note ground distance covered
4. Maximum Glide Autorotation
5. Variable glide speed in autorotation
6. Constant Attitude Autorotation (to be terminated at a safe height)
7. Left & Right 'S' turns
8. Turns through 180° and 360°
9. Variable Glide Speed in Autorotation
10. Maximum Glide
11. Side Slip

Completion Standard

Demonstrate:

- One auto of each profile maintaining RPM within permitted range and ±10kts of specified airspeed
- Display appropriate airmanship

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 21 – Practice Forced Landings

Objective

To learn how to carry out a safe forced landing following an engine failure

Threat and Error Management

- Use of checklists
- Suitable landing area
- Recovery altitude or height
- W/V
- Lookout
- Verbal Warning – “Simulated”

Exercise Briefing

- Procedures and choice of landing areas
- Forced landing checks and crash actions
- Simulated Touch Drills
- Re-engagement and go-around procedures

Flight Manoeuvre – ALL Practiced Forced Landings will be preceded by the word “Simulated” and will terminate with a power recovery at a safe altitude appropriate to the environment

1. Student to choose appropriate technique to safely reach the forced landing area

Completion Standard

Demonstrate:

- Student to demonstrate ability to perform an unbriefed PFL to a safe field using an appropriate mix of techniques as necessary terminating in a power recovery and go around
- Make radio calls including simulated Mayday

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 22 – Steep Turns

Objective

To increase proficiency when turning the helicopter.

Threat and Error Management

- ❑ Lookout: Obstacles
- ❑ W/V
- ❑ Aircraft limitations
- ❑ Use of checklists

Exercise Briefing

- ❑ Steep level turns with a 30° bank
- ❑ Maximum rate turns (45° bank if possible)
- ❑ Steep Autorotative turns
- ❑ Faults in the turn: balance, attitude, bank, and coordination
- ❑ RRPM control and disc loading
- ❑ Vibration and control feedback
- ❑ Effect of wind at low level

Flight Manoeuvre

1. Steep level turns with a 30° bank
2. Maximum rate turns (45° bank if possible)
3. Steep Autorotative turns

Completion Standards

Demonstrate:

- ❑ Ability to perform steep turns in powered flight with a maximum loss of 150 ft in altitude
- ❑ Ability to perform steep turns in an autorotation

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 23 – Transitions

Objective

To increase proficiency when transitioning the helicopter.

Threat and Error Management

- Lookout
- Aircraft limitations
- Use of checklists
- Wind Speed and Direction

Exercise Briefing

- Review ground effect, translational lift and its effects
- Review flapback and its effects
- Review transverse flow (Inflow roll)
- Review tail rotor translation
- Effect of wind speed and direction during transitions to and from a hover
- Height vs Velocity Chart

Flight Manoeuvre

1. Review ground effect, translational lift and Flapback
2. Maintaining constant height – 20-30 ft Above Ground Level (AGL)
3. Transition from a hover to a minimum 50 kts and back to a hover
4. Demonstrate effect of wind

Completion Standard

Demonstrate:

- Ability to maintain a constant height 20-30 ft AGL
- Ability to initiate a take-off profile and then back to a hover
- Display basic airmanship

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 24 – Quick Stops

Objective

To increase the ability to perform a controlled rapid deceleration

Threat and Error Management

- Lookout
- W/V
- Aircraft limitations
- Use of checklists
- Wind Speed and Direction
- Vortex Ring state
- Ground Effect
- Failure to anticipate appropriate height to level off

Exercise Briefing

- Use of power and controls
- Effect of wind
- Quick Stops into wind
- Quick Stops from crosswind and downwind terminating into wind
- Danger of vortex ring
- Danger of high disc loading

Flight Manoeuvre

1. Perform Quick Stops

Completion Standards

Demonstrate:

- Ability to perform Quick Stops maintaining heading and recovering before starting to settle

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 25A – Navigation

***Ground Lesson 8 'Navigation' must be completed prior to completing this flight exercise**

Objective

To learn how to plan and conduct a navigational flight

Threat and Error Management

- ❑ Lookout
- ❑ W/V
- ❑ Helicopter Limitations
- ❑ Flight Planning
- ❑ Legal Aspects

Exercise Briefing

During this exercise, the instructor will specify a location in Hong Kong that the student must navigate to using the following:

- ❑ Flight Planning
- ❑ Weather
- ❑ Nav Log
- ❑ Aeronautical Information
- ❑ Map Selection and Preparation
- ❑ Nav Log
- ❑ Diversion
- ❑ Lost Procedures
- ❑ Re-joining procedures

Flight Manoeuvre

1. Departure
2. Enroute
3. Arrival
4. Diversion
5. Lost Procedures
6. Rejoining

Completion Standard

Demonstrate:

- ❑ Ability to depart and navigate to a chosen location and return to Shek Kong
- ❑ Maintain ±10° of chosen heading ±10 knots of chosen speed and ±150 of chosen altitude

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 25B – Navigation Problems at Low Heights & in Reduced Visibility

Objective

To learn the potential hazards associated with navigating at low level and in reduced visibility conditions.

Threat and Error Management

- Lookout
- W/V
- Helicopter Limitations
- Weather Minimums

Exercise Briefing

- Actions before descending
- Hazards – Obstacles and other aircraft
- Difficulties in map reading
- Effects of wind and turbulence
- Avoidance of noise sensitive areas
- Actions in the event of encountering DVE
- Decision to divert or conduct a precautionary landing
- Bad weather circuit and landing
- Appropriate procedures and choice of landing area
- Precautionary landing

Flight Manoeuvre

1. Simulated encounter of Degraded Visual Environment
2. Simulated Diversion
3. Lost Procedures

Completion Standard

Demonstrate:

- Ability to remain calm in a simulated emergency situation and complete the correct procedure
- Ability to divert in the event of adverse weather conditions
- Procedure to complete if you experience disorientation

***Students are only permitted to move to Stage Check 2 when this exercise can be completed unaided by the instructor**

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Stage Check 2 – Pre-Solo Navigation

Stage 2 written exam must be completed with the required pass mark achieved prior to this flight

Objective

To review the students' progress and ensure that all manoeuvres covered in Stage 2 can be performed to standard in readiness for the students first solo Navigation flight.

Manoeuvres

The following will be covered by the instructor, but it is at their discretion if additional manoeuvres are to be included.

- ☐ Dead Reckoning Navigation
- ☐ Enroute Radio Calls
- ☐ Engine Failure Procedures
- ☐ Lost Procedures
- ☐ Precautionary Landing
- ☐ Emergency Checklist Appendix 2 (Attach completed form to this check form)

***Check each box for every item completed to standard**

Instructor Comments

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Date _____ Flight Time _____ Student Signature _____

Flight Instructor Name (Conducting the Check): _____

Flight Instructor Signature (Conducting the Check): _____

***In the event that the stage check needs to be repeated The Continuation Form in Appendix 4 should be inserted here and steps followed.**

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First Area Solo

Objective

To repeat the navigation flight completed in Exercise 26

Threat and Error Management

- ❑ Lookout
- ❑ W/V
- ❑ Helicopter Limitations
- ❑ Flight Planning
- ❑ Legal Aspects

Exercise Briefing

- ❑ Discuss any items that either the Instructor or Student noted from Exercise 25 that needs to be reviewed
- ❑ Review of legal and procedural requirements
- ❑ Review:
    - Pre-flight calculations
    - Flight plan and filing
    - Departure
    - Route
    - Rejoining procedures
    - Lost Procedures
    - Action in the event of an emergency

Flight Manoeuvre

1. Fly route as planned and return to Shek Kong

Completion Standard

Demonstrate:

- ❑ Ability to complete a pre-planned navigation flight
- ❑ Ability to adhere to altitude and airspace procedures

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 26 – Advanced Take-Off, Landings & Transitions

Objective

To increase proficiency when completing an approach, departure, or go-around.

Threat and Error Management

- ❑ Lookout: Obstacles
- ❑ W/V
- ❑ Aircraft limitations
- ❑ Use of checklists
- ❑ Dynamic Rollover

Exercise Briefing

- ❑ Landing and take-off out of wind (performance reduction)
- ❑ Ground effect, translational lift and directional stability variation when out of wind
- ❑ Vertical take-off to simulate obstacles
- ❑ Cushion creep take-off
- ❑ Reconnaissance of landing site
- ❑ Running landing
- ❑ Zero speed landing
- ❑ Crosswind and downwind landings
- ❑ Steep approach
- ❑ Go-around

Flight Manoeuvre

1. Landing and take-off out of wind (performance reduction)
2. Ground effect, translational lift and directional stability variation when out of wind
3. Vertical take-off to simulate obstacles
4. Cushion creep take-off
5. Reconnaissance of landing site
6. Running landing (where airfield permits)
7. Zero speed landing
8. Steep approach
9. Go-around

Completion Standards

Demonstrate:

- ❑ Ability to perform flight manoeuvres out of wind and without over controlling

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 27 – Sloping Ground

Objective

To learn the procedures and techniques for operating from sloping ground

Threat and Error Management

- Landing site reconnaissance
- W/V
- Helicopter Limitations
- PAX to exit down slope
- No nose down landings
- Dynamic Rollover
- Mast Bumping

Exercise Briefing

- Limitations, assessing slope angle
- Wind and slope relationship – blade and control stops
- Effect of C of G when on slope
- Ground effect on slope, power required
- Right skid upslope
- Left skid upslope
- Nose up slope
- Avoidance of dynamic rollover, danger of sideways sliding on soft ground on touchdown
- Danger of striking main/tail rotor by harsh control movement near ground

Flight Manoeuvre

1. Right skid upslope
2. Left skid upslope
3. Nose up slope

Completion Standard

Demonstrate:

- Carrying out all landings and take offs whilst maintaining position and remaining within the helicopter's limits
- Discard any attempt where the helicopter limits are likely to be exceeded

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 28 – Limited Power

Objective

To review manoeuvres with limited power and increase proficiency.

Threat and Error Management

- Lookout
- W/V
- Use of Checklists
- Helicopter Limitations

Exercise Briefing

Manoeuvre Review:

- Vertical take-off
- Running landing
- Zero speed landing
- Approaches
- Hovering OGE
- Take-off power check
- In-Flight power check
- Go-around

Flight Manoeuvre

1. Take-off power check
2. Vertical take-off over obstacles
3. In-flight power check
4. Running landing
5. Zero speed landing
6. Approach to low hover
7. Approach to hover
8. Approach to hover (OGE)
9. Steep approach
10. Go-around

Completion Standard

Demonstrate:

- Increased ability to perform manoeuvres under the restrictions of limited power

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 29 – Confined Area

Objective

To learn the procedures and techniques for conducting a reconnaissance, an approach, manoeuvring within, and departing from a confined area

Threat and Error Management

- Lookout
- Wind Velocity (W/V)
- Reconnaissance
- Vortex ring
- Loss of Tail Rotor Effectiveness (LTE)
- Power Checks

Exercise Briefing

- Landing capability, performance assessment (Power Check)
- Identifying appropriate landing site, assessing windspeed and direction
- High & Low Reconnaissance and SWAT Check
- Select markers and devise circuit pattern
- Select direction and type of approach
- Approach to commitment and go-around (escape route)
- Power check and performance assessment in and out of ground effect

Flight Manoeuvre

1. Recce of site (High & Low, SWAT)
2. Steep Approach
3. Approach to a high hover
4. Landing
5. Clearing turn and manoeuvring technique
6. Power checks
7. Hover IGE & OGE
8. Normal take off with best angle of climb (if obstacles permit)
9. Max performance take offs (Over obstacles)

Completion Standard

- Carry out recce, power checks and calculate margin available, select profile and execute profile without exceeding MAP limit set by instructor
- No Appreciable drift on vertical profiles
- Display appropriate airmanship

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Supervised Solo

Objective

To conduct a solo flight remaining in the circuit

Threat and Error Management

- Change of attitude from reduced and laterally displaced weight
- Danger of low tail, low skid or wheel during hovering and landing
- Recovery from loss of RRPM and overpitching
- Use of Checklists
- Take-off, Circuits, Approaches and Landing Procedures
- Emergencies
- Change of CG and Cyclic position

Exercise Briefing

- Discuss any items that either the Instructor or Student noted from the previous solo that needs to be reviewed
- Review of legal and procedural requirements
- Review:
    - Take-off and landing, hovering and hover taxiing
    - Hover, climb and descent performance
    - Action in the event of an emergency

Flight Manoeuvre

1. Lift into hover, fly circuits or area solo as directed by the instructor

Completion Standard

Demonstrate:

- Complete circuit or area solo conforming to the published procedures including radio calls

Note: Only three hours of solo can be logged at one time. A dual check of at least six minutes or a dual lesson must be used to break up the three hours of solo time.

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Exercise 31 – Basic Instrument Flight

Objective

To introduce the student to basic instrument flying techniques

Threat and Error Management

- Lookout
- W/V
- Helicopter Limitations

Exercise Briefing

- Physiological sensations
- Limitations of the human body
- Instrument appreciation & limitations
- Scan technique
- Technique for attitude instrument flight by sole reference to panel

Flight Manoeuvre

1. Instrument appreciation
    a. Attitude Instrument Flight
    b. Instrument Scan
2. Instrument Limitations
3. Basic manoeuvres
    a. Straight and level at various airspeeds and configurations
    b. Climbing and descending
    c. Standard rate turns
    d. Climbing and descending with turns onto selected headings
    e. Climbing and descending turns
    f. Recoveries from unusual attitudes

Completion Standard

Demonstrate:

- Carry out all manoeuvres at ±10 knots, Altitude ±150ft, Heading ±10°
- Carry out checks and drills in accordance with the aircraft checklist
- Display appropriate airmanship

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

PPL Flight Test Prep

Objective

To ensure that the student can complete all of the manoeuvres within the syllabus to the required PPL standard in preparation for the PPL Flight Test.

Threat and Error Management

- Lookout
- W/V
- Helicopter Limitations

Exercise Briefing

- A review of all manoeuvres in the PPL Syllabus

Flight Manoeuvre

1. Navigation
2. Lost Procedures
3. Confined Area Recce & Approach
4. Confined Area Departure
5. Limited Power Profiles
6. Sloping Ground
7. Quick-stops
8. Emergency Checklist Appendix 2 including items marked with a * (Attach to this check form)

Completion Standard

Demonstrate:

- Complete all manoeuvres to the required standards as stated in each individual lesson

Instructor Comments & Recommendations

*Instructor to start each comment with the date of the flight and the student must initial each comment following the post flight briefing.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Stage Check 3 – Pre PPL Flight Test

Stage 3 written exam must be completed with the required pass mark achieved prior to this flight

Objective

To review the students' level of ability and airmanship in all manoeuvres within the PPL (H) syllabus.

Manoeuvres

- ❑ Navigation
- ❑ Lost Procedures
- ❑ Confined Area Recce & Approach
- ❑ Confined Area Departure
- ❑ Limited Power Profiles
- ❑ Sloping Ground
- ❑ Quick-stops
- ❑ Emergency Checklist Appendix 2 including items marked with a * (Attach to this check form)

Completion Standard

Demonstrate:
Complete all manoeuvres to the required standards as stated in each individual lesson

***Check each box for every item completed to standard**

Instructor Comments

_____
_____
_____
_____
_____
_____
_____

Date _____ Flight Time _____ Student Signature _____

Flight Instructor Name (Conducting the Check): _____

Flight Instructor Signature (Conducting the Check): _____

***In the event that the stage check needs to be repeated The Continuation Form in Appendix 4 should be inserted here and steps followed.**

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SECTION 3

3.0 Theoretical Knowledge (TK)

2.1 Course Structure

The theoretical knowledge training course for a Private Pilot's Licence Helicopter contains Formal Classroom Work both one to one and group sessions along with guided home study.

Within the TK specified in the PPL (H) syllabus, there is a requirement for enhanced Awareness & Emergency Training on specified subjects. These will be covered during the PPL (H) course incorporated into the relevant Air Exercise Briefings and through TK Training as contained in the syllabus.

2.2 Study Material

The following reference books are available through Operations at the beginning of the training course:

- Pilots Operating Handbook
- Navigation
- Aviation Law & Meteorology
- Human Factors for Pilots
- A Pilots Guide R22 (If applicable)
- Principles of Helicopter Flight

2.3 Progress Testing

At the end of each stage, a club written exam will be administered to assess student knowledge and identify any weak areas that need to be re-covered. The pass mark for each exam is 70%.

Ground Lesson 1 – Aircraft Familiarisation

Lesson Content

- ❑ Characteristics of the helicopter, external features
- ❑ Cockpit layout
- ❑ System descriptions
- ❑ Checklists
- ❑ Procedures
- ❑ Controls

Date	Ground Lesson Duration	Grade	Student Signature	Instructor Signature
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/ /				
/ /				
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Instructor Comments & Recommendations
*Instructor to start each comment with the date of the ground lesson and the student must initial each comment.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Ground Lesson 2 – Emergency Procedures

Lesson Content

- Action in the event of a fire in the air or on the ground
- Engine, cabin and electrical system fires
- System failures
- Escape drills, location and use of emergency equipment and exits

Date	Ground Lesson Duration	Grade	Student Signature	Instructor Signature
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/ /				
/ /				
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Instructor Comments & Recommendations
*Instructor to start each comment with the date of the ground lesson and the student must initial each comment.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Ground Lesson 3 – Preparation & Action After Flight

Lesson Content

- ❑ Flight Authorisation and helicopter acceptance
- ❑ Serviceability documents
- ❑ Equipment required including maps
- ❑ External checks
- ❑ Internal checks
- ❑ Seat, harness and flight control adjustment
- ❑ Starting and warm up checks, clutch engagement, starting rotors
- ❑ Power checks
- ❑ Cool down, system checks and turning the engine off
- ❑ Parking, securing and picketing
- ❑ Completion of the Flight Authorisation Log

Date	Ground Lesson Duration	Grade	Student Signature	Instructor Signature
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/ /				
/ /				
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Instructor Comments & Recommendations
*Instructor to start each comment with the date of the ground lesson and the student must initial each comment.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Ground Lesson 4 – SFAR 73

Lesson Content

- ❑ Low G
- ❑ Mast Bumping
- ❑ Low Rotor RPM
- ❑ Energy Management
- ❑ Loss of Tail Rotor Effectiveness
- ❑ Flight into turbulence
- ❑ Review of Robinson Helicopter Company Safety Notices

Date	Ground Lesson Duration	Grade	Student Signature	Instructor Signature
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Instructor Comments & Recommendations
*Instructor to start each comment with the date of the ground lesson and the student must initial each comment.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Ground Lesson 5 – Human Performance

Lesson Content

- ❑ Definition
- ❑ Hypoxia
- ❑ Hyperventilation
- ❑ Pressure Sickness
- ❑ Spatial Disorientation
- ❑ Motion Sickness
- ❑ Decompression Sickness
- ❑ Alcohol & Drugs
- ❑ Stress
- ❑ Fatigue

Date	Ground Lesson Duration	Grade	Student Signature	Instructor Signature
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Instructor Comments & Recommendations
*Instructor to start each comment with the date of the ground lesson and the student must initial each comment.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Ground Lesson 6 – Aviation Law

Lesson Content

- ❑ Introduction to the AN(HK)O
- ❑ Pilot Certification
- ❑ Medical Certification
- ❑ Personnel Licencing – Privileges & Limitations
- ❑ Solo Requirements & Limitations
- ❑ Acting as and the Responsibility of the PIC
- ❑ Logging Flight Time
- ❑ Rules of the Air
- ❑ Radio Telephony
- ❑ AIP

Date	Ground Lesson Duration	Grade	Student Signature	Instructor Signature
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Instructor Comments & Recommendations
*Instructor to start each comment with the date of the ground lesson and the student must initial each comment.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Ground Lesson 7 – Radio Telephony

Lesson Content

- Radio Communication
- Non-Towered / Non-Controlled Airport Procedures
- Towered Airport Procedures
- Emergency Radio Calls
- Review

Date	Ground Lesson Duration	Grade	Student Signature	Instructor Signature
/ /				
/ /				
/ /				
/ /				

Instructor Comments & Recommendations
*Instructor to start each comment with the date of the ground lesson and the student must initial each comment.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Language Proficiency Check – (Reference Appendix 1)

Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Ground Lesson 8 – Navigation

Lesson Content

- Flight planning
  - **(i) Weather forecast and actual weather at time of flight**
  - **(ii) Map selection, orientation, preparation and use**
- Choice of route
  - (i) Controlled airspace, danger, and prohibited areas
  - (ii) Safety altitudes and noise abatement considerations
- Calculations
  - (i) Magnetic heading(s) and time(s) enroute
  - (ii) Fuel consumption
  - (iii) Weight and balance
- Flight information
  - (i) NOTAM's etc
  - (ii) Radio frequency
  - (iii) Selection of alternate landing sites
- Helicopter documentation
- Notification of the flight
  - (i) Pre-flight admin
  - (ii) Flight plan form
- Departure
  - (i) Organisation of cockpit workload
  - (ii) Departure procedures
    - Altimeter settings
    - ATC liaison in controlled or regulated airspace
    - Setting heading procedure
    - Noting of ETA's
  - (iii) Maintenance of height or altitude and heading
  - (iv) Revisions of ETA and heading
    - 10° line, double track and track error and closing angle
    - 1 in 60 rule
    - Amending an Estimated Time of Arrival (ETA)
  - (v) Log Keeping
  - (vi) Use of radio
  - (vii) Use of navigational aids (if fitted)
  - (viii) Minimum weather conditions for continuation of flight
  - (ix) In flight decisions
  - (x) Transiting controlled or regulated airspace
  - (xi) Uncertainty of position procedure
  - (xii) Lost procedure

- Arrival and aerodrome re-joining procedure
  - (i) ATC liaison in controlled or regulated airspace
  - (ii) Altimeter setting
  - (iii) Entering the traffic pattern
  - (iv) Circuit procedures
  - (v) Parking
  - (vi) Security of helicopter
  - (vii) Refuelling
  - (viii) Closing of flight plan
- Post Flight Administrative Procedures

Date	Ground Lesson Duration	Grade	Student Signature	Instructor Signature
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Instructor Comments & Recommendations
*Instructor to start each comment with the date of the ground lesson and the student must initial each comment.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Ground Lesson 9 – Radio Navigation

Lesson Content

- Use of Global Navigation Satellite System (GNSS)
  - Selection of waypoints
  - To or From indications and orientation
  - Error messages
  - Hazards of over-reliance on the use of GNSS in the continuation of flight in DVE
- Use of High Frequency (VHF) Omni Range
  - Availability, Aeronautical Information Publication (AIP) and frequencies
  - Selection & identification
  - Omni Bearing Selector (OBS)
  - To or From indications and orientation
  - Course Deviation Indicator (CDI)
  - Determination of Radial
  - Intercepting and maintaining a radial
  - VOR passage
  - Obtaining a fix from two VHF omni-directional Radio Range (VOR)s
- Use of Automatic Direction Finding (ADF) equipment: Non Directional Beacon (NDB)s
  - Availability, AIP and frequencies
  - Selection and identification
  - Orientation relative to the beacon
  - Homing
- Use of VHF/Direction Finding (DF)
  - Availability, AIP and frequencies
  - Radiotelephony (RTF) procedures and Air Traffic Control (ATC) liaison
  - Obtaining a magnetic heading (QDM) and homing
- Use of En-route or terminal radar
  - Availability and AIP
  - Procedures and ATC liaison
  - Pilots responsibilities
  - Secondary surveillance radar
    - Transponder
    - Code Selection
    - Interrogation and reply
- Use of Distance Measuring Equipment
  - Station selection and identification
  - Modes of operation: distance, groundspeed and time to run

Date	Ground Lesson Duration	Grade	Student Signature	Instructor Signature
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Instructor Comments & Recommendations

*Instructor to start each comment with the date of the ground lesson and the student must initial each comment.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Ground Lesson 10 – Meteorology

Lesson Content

- Properties of the Atmosphere
- Wind
- Clouds & Precipitation
- Visibility
- Fronts & Pressure Systems
- Icing
- Altimetry
- Forecasts, Reports & Warnings

Date	Ground Lesson Duration	Grade	Student Signature	Instructor Signature
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/ /				
/ /				
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Instructor Comments & Recommendations
*Instructor to start each comment with the date of the ground lesson and the student must initial each comment.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Ground Lesson 11 – Aircraft (General)

Lesson Content

- ❑ Properties of Air
- ❑ Principles of Flight
- ❑ Flying Controls
- ❑ Engines
- ❑ Systems
- ❑ Loading & Performance
- ❑ Emergencies
- ❑ Aircraft Airworthiness
- ❑ Structural Limitations

Date	Ground Lesson Duration	Grade	Student Signature	Instructor Signature
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/ /				
/ /				
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Instructor Comments & Recommendations
*Instructor to start each comment with the date of the ground lesson and the student must initial each comment.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

Ground Lesson 12 – Aircraft Type

Lesson Content

- ❑ Rotor System
- ❑ Drive System
- ❑ Power Plant
- ❑ Fuel System
- ❑ Electrical System
- ❑ Limitations
- ❑ Normal Procedures
- ❑ Emergency Procedures

Date	Ground Lesson Duration	Grade	Student Signature	Instructor Signature
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/ /				
/ /				
/ /				

Instructor Comments & Recommendations
*Instructor to start each comment with the date of the ground lesson and the student must initial each comment.

Lesson Completion Date _____ Student Signature _____

Instructor Name _____ Instructor Signature _____

SECTION 4

4.0 Appendices

1. **Licence Currency**
2. **Emergency & Abnormal Procedures Checklist**
3. **Student Record Sheet**
4. **Flight Check Continuation**
5. **Stage Check & CAD Examinations Record Form**
6. **Stage Check Written Exams**

APPENDIX 1

LICENCE CURRENCY

Medical Expiry

Whilst it is a student's responsibility to ensure that they have a valid medical, the Club will also monitor the validity of each student's certificate. When a PPL student first obtains a medical, a copy must be provided to Ops which will be retained in the student's file. The expiry date will be entered into the booking software with an "alert" reminder set for two months before expiry. On receipt of an alert, the student will receive a reminder to arrange for a revalidation of the medical. The student will also lose the permissions to make an online booking until the revalidation has taken place. Students may not fly solo unless they have a valid medical certificate. Instructors are required to check that a student has a valid medical certificate as part of the pre solo checks prior to authorising any solo detail.

Language Proficiency

A language assessment of each flying member that intends to complete his/her PPL will be implemented by either a member of the GC or a FI using the structure detailed below. The goal is to measure speaking and listening skill, language proficiency in an aviation-related environment and the ability to assess voice only messages responding with the use of appropriate phraseology.

The test will be completed after the Radio Telephony Ground Class, before student solo and will consist of:

1. An informal interview on general and aviation related topics
2. A discussion based on a picture with aviation contents
3. A role play radiotelephony interaction task

If the person conducting the test is not satisfied with the level of English demonstrated, a recommendation for further education in the English language will be made which the student must satisfy before he/she is allowed to continue.

Flying Beyond Hong Kong Boundaries

In Accordance with Article 20A of the AN(HK)O and CAD 54 Section 3.2 the HKAC will complete a language assessment of any new pilot who intends to obtain a Hong Kong Private Pilots Licence with the intention of using the licence and privileges outside the boarders of Hong Kong. For this task, the HKAC employs the services of a third party whose contact details are listed below.

There is a grading system that is capped at level 6 (Expert) which does not require renewal. Every other grade comes with an expiry which is inked to the level achieved and counted from the date the proficiency check was completed.

Details of the grade awarded must be given to Operations and where an expiry date is applicable, a reminder will be set up in the booking software with an “alert” reminder set for two months before expiry. On receipt of an alert, the student will receive a reminder to arrange for a for another language proficiency check. The student will also lose the permissions to make an online booking until the check has taken place.

Language Proficiency Assessor:

Ms. Karen Mak

E-mail address: karenpymak@gmail.com

HK Mobile No.: 9745 3777

APPENDIX 2

Emergency & Abnormal Procedures Check List

The reference source for Emergency Procedures training is to be the latest version of the Pilot's Operating Handbook (POH) as carried in the aircraft used for the PPL (H) Training course. Students are to ensure that they have read the entire Emergency Procedures Section. The following checklist is not definitive but should act as an aide-memoire for instructors when checking student understanding.

Exercise: _____
Pilot Name (To be Reviewed): _____
Helicopter Type: _____ POH Version: _____
Date/Time: _____

Emergency Procedure			**Student Initials**
Power/Drive Failure in a Hover			
Loss of T/R Thrust in a Hover	*		
Vortex Ring			
Autorotations – Basic, Range, Low speed & 360° turns			
Power/Drive Failure in Flight with Power Recovery			
Governor Failure			
Hydraulic Failure including approach and landing (if applicable)			
Level turns 180° left and right by sole reference to instruments	*		
Low RPM Recognition and Recovery			
Carb Heat System			
Simulated			
RT Equipment Failure			
Generator Failure/Alternator Failure			
Battery System Failure			
Tachometer Failure			
Clutch Failure			
Fuel Control or Pump Failures (If Applicable)			
Electrical System Malfunctions			
Carbon Monoxide Detected			
Touch Drills			
Air Restart Procedure (Touch Drills)			
Operation of Floats (If Applicable)			
Engine Fire During Start on Ground			
Engine Fire in Flight			
Electrical Fire in Flight			
Discussion Only			
Ditching			
Fuel Filter Failures			
Low Fuel			
Temperature & Chip Lights			
Pitot/Static System			
Effect, Danger of & Recovery from Low G Manoeuvres			

*Denotes Emergencies to be included & reviewed during Stage Check 3

I understand that whilst every effort has been made to cover all malfunctions, the above is not a definitive list and that it is, and will be, my responsibility to ensure that I am always up to date and familiar with all emergency procedures.

Student Signature _____ Date_____

APPENDIX 3

Student Record Sheet

Date _____ Student _____

Instructor _____ HOT/CFI _____

The following section will used to comment on student performance and anything that needs to be addressed in order to satisfactorily move forward with flight training.

Instructor Comments

_____
_____
_____
_____
_____
_____
_____
_____
_____

Student Comments

_____
_____
_____
_____
_____
_____
_____
_____
_____

Date _____ Flight Time_____ Student Signature _____

Stage Check Instructor Name _____ Instructor Signature _____

APPENDIX 4

Flight Check Continuation

Review Flight

Manoeuvres to be Reviewed

- ❑ _____
- ❑ _____
- ❑ _____
- ❑ _____
- ❑ _____

Date_____ Flight Time _____

Student Signature _____ Instructor Signature _____

Stage Check Retake Flight

Once the student has performed the outstanding manoeuvres listed above to standard he/she is then permitted to move on to the next stage.

Instructor Comments

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Date _____ Flight Time_____ Student Signature _____

Stage Check Instructor Name _____ Instructor Signature _____

APPENDIX 5

Stage Check & CAD Examinations Record Form

Subject	Attempt #	Date of Exam	Mark %	Pass/ Fail
Stage Check 1				
Stage Check 2				
Stage Check 3				
Aviation Law				
Human Performance				
Radio Telephony				
Navigation				
Meteorology				
Aircraft (General)				
Aircraft Type				

APPENDIX 6

Stage Check 1

Date: _____ **Grade:** _____

Student Name: _____ **Instructor Name:** _____

1. Who holds the responsibility for the airworthiness of the aircraft prior to flight?

a. _____

2. What aircraft documents are required to be in the aircraft for flight?

a. _____

3. What is the maximum amount of engine oil allowed in the R22?

a. _____

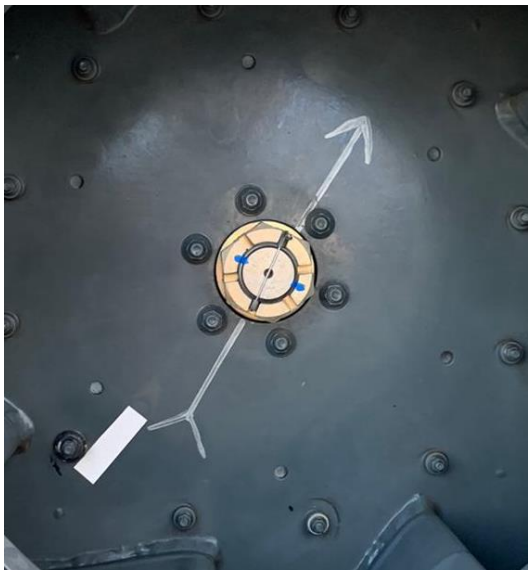
4. What is the maximum amount of fuel that can be carried in a Beta II?

a. _____

5. Name this Orange Sticker and what it is used for?

a. _____

6. During the preflight you notice the safety wire on the cooling fan is not in line with the reference white line. What could this be an indication of and what should you do?



a. _____

_____

7. How do you calculate the maximum amount of power (Manifold Pressure) that can be used for 5 minutes?

a. _____

8. If either the horn or the light on the low rpm warning system is not working are you still permitted to fly?

a. _____

9. What different characteristic should you anticipate when lifting into a hover solo as opposed to dual?

a. _____

10. Why is it important to minimise backwards or lateral drift when lifting into a hover?

a. _____

11. If you are feeling tense and grip the throttle too tightly, what are the potential consequences?

a. _____

12. If you are too high when turning final forcing you to make a steeper than normal approach, what is a potential danger?

a. _____

13. If the Governor fails in the circuit, what is the procedure?

a. _____

14. When flying solo does the Left Seatbelt need to be fastened?

a. _____

15. If the engine is running too rich what is the permitted amount that you are allowed to adjust the Fuel Mixture?

a. _____

16. What conditions of flight should you consider adjusting the carb heat?

a. _____

17. What procedure should you follow if the Engine Tach fails in flight?

a. _____

18. Name two ways of obtaining weather information prior to flight?

a. _____

19. What is the maximum permitted wind speed for a student solo flight at Shek Kong?

a. _____

20. What is the minimum ceiling height for student solo flight at Shek Kong?

a. _____

21. What frequency should the radio be set to for Circuits at Shek Kong?

a. _____

22. What should the Transponder be set to for Circuits at Shek Kong?

a. _____

23. What is the circuit altitude at Shek Kong?

a. _____

24. What is the maximum number of helicopters allowed in the circuit?

a. _____

25. If you are hovering at the white spot with the intention to backtrack and you notice the wind speed has increased to a point that you are not comfortable what should you do?

a. _____

Stage Check 2

Date: _____ **Grade:** _____

Student Name: _____ **Instructor Name:** _____

1. How do you check the weather for the route of flight?

a. _____
_____

2. Draw on the picture below to show the correct procedure to follow when departing from Runway 11 in order to reach Kadoorie Gap:

3. What altitude must you maintain when departing the UCARA's via Kadoorie Gap?

a. _____

4. What is the correct radio frequency for The New Territories?

a. _____

5. When should you make your first radio call when leaving the UCARA's via Kadoorie Gap?

a. _____

6. What should you do if you are unable to make contact with ATC on the "Information" Frequency?

a. _____

7. Once airborne you notice that the left-hand door is open and is starting to bang against the fuselage, what would you do?

a. _____

8. If you identify oncoming traffic what is the correct procedure?

a. _____
_____

9. What are the weather minimums for a flight outside the control zone?

a. _____

10. What is the minimum permitted distance from any vessel, vehicle or structure?

a. _____

11. If you suspect that the radio has stopped working what is the correct procedure?

a. _____
_____

12. If you get disorientated what should you do?

a. _____
_____
_____

13. What is the minimum amount of fuel that you should land back at Shek Kong with?

a. _____

14. While entering Tolo towards the start of your flight you realise that you did not take on as much fuel as you intended. After doing some calculations you decide that you will have enough fuel for the intended route of flight but it would result in you returning to Shek Kong close to empty, what should you do?

a. _____
_____

15. If you encounter turbulent air while flying what precautions should you make and what are the dangers of flying too fast?

a. _____
_____

16. If the cloud base is >3000ft and there is no traffic in your vicinity, would you rather fly at 500ft or 2000ft and why?

a. _____
_____

17. If you experience a rough running engine and the oil light comes on what does that indicate and what would you do?

a. _____
_____

18. What are the three colours of the temperature and pressure gauges and what do they indicate?

a. 1._____2._____
3._____

19. If the Alternator fails, how long can the battery last?

a. _____

20. If the alternator fails and the battery expires will the engine continue to run?

a. _____

21. Draw on the picture below to show the correct procedure to follow when entering the UCARA's via Kadoorie Gap and the route you will follow to rejoin and land on Runway 11:

22. Give two examples of an exceedance followed by the actions you would take if you were to cause one?

a. _____
_____
_____

23. When returning from Tolo with the intentions of returning to VHSK via KDG what other route-in can this sometimes be confused with?

a. _____

24. Name two potential dangers when flying close to the mountains and how would you mitigate against them?

a. _____
_____

25. At the end of your flight, the Hobbs meter reads as the picture below, what number would you record in the flight log?

a. _____

Stage Check 3

Date: _____ **Grade:** _____

Student Name: _____ **Instructor Name:** _____

1. What are the privileges and limitations of a private pilot?

a. _____
_____
_____

2. How long does a class 2 medical last for a 35-year-old?

a. _____

3. How long is a Certificate of Experience valid for?

a. _____

4. What do you have to do in order to maintain recency at Shek Kong Airfield?

a. _____

5. What information should you give a person who intends to fly with you as a passenger prior to flight?

a. _____
_____
_____

6. What is the maximum weight per seat in an R22?

a. _____

7. What is the maximum weight of personal belongings that can be stored under a seat and is that in addition to the maximum weight per seat?

a. _____

8. What is meant by a sterile cockpit?

a. _____
_____

9. What are the maximum permitted items that a passenger can bring with them on a flight?

a. _____

10. Are you permitted to remove either door from the aircraft and go flying?

a. _____

11. What are the dangers if you were to fly with the left door removed?

a. _____
_____

12. If you fly with a non licenced passenger in an R22 what are the rules concerning the dual controls and letting your passenger manipulate them?

a. _____
_____

13. Which of the emergency procedures are you allowed to practice without an instructor?

a. _____

14. After completing the weight and balance calculations for a flight with a friend you discover that by taking the required amount of fuel for the intended route of flight it will put the aircraft overweight. What would you do?

a. _____

15. You are approaching Kadoorie Gap on your way back to Shek Kong and suddenly you notice several strikes of lightening up ahead on the route you intended to fly, what would you do?

a. _____

16. If ATC tells you to “Recycle Transponder” what would you do?

a. _____

17. If you intend to fly in the North Boarder what additional step must you take when filing a flight plan?

a. _____

18. When flying in Port Shelter you notice a GFS helicopter in an OGE hover up ahead and at the same altitude, what would you do?

a. _____
_____

19. When flying you approach another aircraft at similar altitude travelling in the same direction. You decide to overtake, what are the next steps you would take?

a. _____
_____

20. When flying in Port Shelter you come across a Paraglider that has drifted from his designated area, who has the right of way?

a. _____