



TRAINING MANUAL

Version: 20190319

Disclaimer

The information contained in this Training Manual is presented in good faith with the intention of:

- (a) promoting safety in the sports of hang gliding, paragliding and weightshift microlighting;
- (b) providing a clear understanding of the responsibilities and privileges of participants in these sports; and
- (c) providing a framework upon which these sports can be administered and allowed to grow in harmony with other airspace users.

As far as possible, this manual represents the best information available at the time of publication.

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1 Introduction

1.1 The Hang Gliding Federation of Australia Incorporated (HGFA)

The HGFA is a body constituted to administer the sports of hang gliding, paragliding and weightshift microlighting, including all derivations of these disciplines. HGFA members fly under exemption provisions contained in Civil Aviation Orders (CAO's) 95.8, 95.10, and 95.32.

The Civil Aviation Regulations and subsequent exemptions in Australia require that persons acting as pilots in command of hang gliders, paragliders or weightshift microlights must be the holder of a pilot certificate issued by the HGFA (www.hgfa.asn.au), or as an alternative in the case of weightshift microlights a pilot certificate issued by the Recreational Aviation Australia Incorporated (RA-Aus) who maintain their own operations manual (see www.raa.asn.au for details).

1.1.1 HGFA Training Manual

This manual is agreed and approved by CASA and governs and limits our operations under the exemptions of the CAO's.

The Civil Aviation Regulations and Orders require that a pilot undergo training and is subject to the privileges and limitations specified within the HGFA Operations Manual. The Operations and Training Manuals are empowered by the CAO's, therefore non compliance with these manuals, means the pilot is not covered by the CAO exemptions and full aviation regulations apply.

To effectively control the safety of the sport, the HGFA has established standards for operations, pilot certification and pilot training. Operations that are not in accordance with these standards and procedures may result in breaches of the Civil Aviation Act or Regulations. The standards and any amendments are prepared by the Hang Gliding Federation of Australia and submitted for approval by the Civil Aviation Safety Authority.

HGFA members operating in breach of these standards may be disciplined in accordance with the HGFA Constitution. Persons who breach the requirements of the CAO's or the HGFA Operations Manual may face prosecution by the Civil Aviation Safety Authority.

2 Flight Training Syllabus

2.1 Training

All HGFA Training will be conducted to an approved HGFA training syllabus, as amended from time to time.

2.1.1 Pilots Piloting CAO 95.8 Aircraft

Prior to a Student Pilot undertaking solo flight, he or she is required to reach the levels of competency as indicated in the Syllabus of:

- (a) Basic Aeronautical Knowledge, and
- (b) Practical Flight Training.

2.1.2 Pilots Piloting CAO 95.10 & 95.32 Aircraft

Prior to a Student Pilot attempting solo flight in a weightshift microlight or powered paraglider, he or she is required to reach the levels of competency as indicated in the Syllabus of;

- (c) Basic Aeronautical Knowledge, and
- (d) (WM) Practical Flight Training, or
- (e) PPG Training Workbook – Foot & Wheel

2.1.3 Flight Tests

Prior to the student being issued with any HGFA Pilot Certificate he or she will be required to undergo a flight test conducted by a Flight Instructor or Chief Flight Instructor. The student pilot will be required to demonstrate his / her aircraft control and judgement skills to the standard required by the appropriate Flight Training Syllabus and to the satisfaction of the Instructor.

2.1.4 Flight Tests, Instructors

Instructors will be required to demonstrate to the HGFA Operations Manager or his/her delegate, his or her ability to conduct flight instruction for given skill sequences as well as an ability to perform all basic skill manoeuvres to the highest standard and the satisfaction of the HGFA Operations Manager (or delegate).

2.1.5 HGFA Radio Operators Certificate

Carriage and use of VHF radio is mandatory for all HGFA aircraft operations in the vicinity of Registered, Certified and Military aerodromes as defined in CAR166.

Use of aeronautical VHF aeronautical frequencies is illegal unless the pilot is appropriately licensed or certified.

A HGFA Radio Operator Endorsement complies with the relevant CAO requirements for use of aeronautical band radios.

2.2 Theory

2.2.1 Basic Aeronautical Knowledge (HG/PG/PPG)

Because the gross motor control skills of flying foot launch and weight shift aircraft are not too difficult to acquire, it is of paramount importance that the student pilot does not fly into situations beyond his/her theoretical understanding and hence beyond the point of making appropriate and safe judgements and decisions.

The advancement of student pilots without sufficient understanding or knowledge is as potentially risky as advancement without sufficient physical control skills, therefore much planning should go into the scheduling, preparation and delivery of theory support lessons.

The following syllabus outlines, the subject areas and specific teaching points that are to be covered in the pilot training program. The qualifying letters are used to indicate the degree of knowledge and understanding necessary for each topic at the key stages of progress toward acquiring HGFA Pilot Certificates:

- (a) Basic understanding of the subject matter, sufficient, with some assistance from the instructor, for the solution of simple practical problems.
- (b) Sound understanding of the subject material, sufficient, without assistance, for the solution of more complex problems and the application toward flight strategies.
- (c) Thorough understanding of the subject matter, capable without assistance, to provide detailed explanations of strategies, problem solutions and forward planning, by both explanation and practical application.
- (d) Practical application of relevant procedures and knowledge.

Table 2: Syllabus of Aeronautical Knowledge (SYL-01)

Subject Area	Flights >200' AGL	Sup'v-HG PG2 & PG3.	Int-HG & PG4.	Adv-HG & PG5.	PPG Pilot Cert.
1. An understanding of the following terms:					
Aerofoils – camber, span & chord	A	B	C	C	C
Aspect ratio	A	B	C	C	C
Weight, lift and drag as forces acting on an aircraft	C	C	C	C	C
Parasitic & induced drag	A	B	C	C	C
Wing tip vortices	B	C	C	C	C
Angle of attack – relative airflow	B	C	C	C	C
Stalling angle of attack	C	C	C	C	C
Wing loading	A	B	C	C	C
Pitch, roll and yaw	C	C	C	C	C
Wash-out (wing twist)	B	C	C	C	C
Wing sweep	A	B	C	C	C
Anhedral & dihedral	A	A	B	C	C
Trim speed	B	C	C	C	C
Glide angle & L/D ratio	B	C	C	C	C
Variable billow (VB & VG)	A	B	C	C	C
2. Relationship of the following factors in the production of lift and drag by an aerofoil:					
Angle of attack	C	C	C	C	C
Air density	A	B	B	C	C
Angle of bank	A	B	C	C	C
Velocity	A	B	C	C	C
Surface area/shape	A	B	C	C	C
3. The relationship of the following factors:					
Airspeed, ground speed and wind strength	C	C	C	C	C
Angle of attack and stall	C	C	C	C	C
Angle of attack and brake position/bar position and pressures	C	C	C	C	C
Aircraft dive recovery and wing design features	A	C	C	C	C
Wind strength direction and glide angle penetration	B	C	C	C	C
Wash out and stall recovery	B	C	C	C	C
Wing tip vortices, induced drag and ground effect	B	C	C	C	C
Centre of Gravity and Centre of Pressure (and pendulum stability) related to aircraft control	B	C	C	C	C
Centre of Gravity and hang point of positioning and limits)	A	A	B	C	C
Altitude indicated air speed ground speed & glide performance	A	B	B	B	B
Air speed stall speed and G loading		B	C	C	C
Effects of wing loading on take-off, flight and landing	-	B	C	C	C
Consideration for security of loads/equipment	-	B	C	C	C
4. An understanding of the primary controls and how they should be used:					

Weight shift control, Use of brakes/back risers	C	C	C	C	C
Glide adjustments both airspeed and altitude	P	B	C	C	C
How the aircraft is turned & the relationship between angle of bank, airspeed and rate radius of turn	B	B	C	C	C
The effects of power settings and angle of attack to achieve varying angles of climb and descent	-	-	-	-	C
How to improve or degrade turn efficiency (control of slip)	A	B	C	C	C
Control of cross-wind headings (crabbing and crabbing turns)	P	C	C	C	C
Responsiveness of control through range of airspeeds	B	C	C	C	C
Pitch and roll co-ordination for 360 degree turns in a variety of conditions	-	C	C	C	C
Maintaining heading and pitch control through turbulence	B	C	C	C	C
5. Stalling:					
The causes of a stall	C	C	C	C	C
Indications of an impending stall	C	C	C	C	C
How to recover from a stall	C	C	C	C	C
The relationship between angle of attack and airspeed	C	C	C	C	C
The relationship between angle of bank and stalling	B	C	C	C	C
The relationship between angle of bank and G loading	B	C	C	C	C
The effect of wing loading on stalling speed	B	C	C	C	C
The effect of angle of bank on stalling speed	B	C	C	C	C
Aircraft response to stalling in a turn	P	B	C	C	C
Use of controls in recovering from a stall in a turn	B	C	C	C	C
How to recognise and recover from a spin or a spiral	B	C	C	C	C
6. Take-off:					
The relationship between wind strength and take-off techniques	B	C	C	C	C
The effect of wind direction on take-off run/roll	B	C	C	C	C
The effects of pitch/brake adjustments during take-off run/roll	P	C	C	C	C
The effect (if any) of propeller rotation and steering control on directional control during take off	-	-	-	-	C
The need to adjust techniques for different or changing launch slope angles	B	C	C	C	C
The use of and commands for assisted launches	P	C	C	C	C
7. Approach and Landing:					
The Standard Landing Approach and its advantages	B	P	C	C	C
Reasons for figure eight landing approach	A	B	C	C	C
Emergency landing options and overshoot control	B	B	C	C	C
Effect of wind gradient and how it is overcome	B	C	C	C	C
Bleeding-off of airspeed and flare timing and technique	P	B	C	C	C
Coping with cross wind landing	P	B	C	C	C
Final glide judgment	A	C	C	C	C
Low turns and wind direction considerations	B	C	C	C	C

Ground handling, parking and de-rigging in various conditions	C	C	C	C	C
Balked/missed approach and go around	-	-	-	-	C

8. Aircraft Maintenance:					
Recognition of defects/damage, causes and implications	P	P	C	C	C
Storage, transport and handling	P	C	C	C	C
Rigging and de-rigging considerations	P	C	C	C	C
Logging maintenance procedures	P	C	C	C	C
9. Rules and Procedures:					
The use and purpose of log book/s	P	C	C	C	C
HGFA Operations Manual	B	C	C	C	C
CAO 95.8, CAO 95.10, CAO 95.32	B	C	C	C	C
Rules of the Air	B	C	C	C	C
Use of Air navigation charts	-	A	B	C	C
Flight & area restrictions/controlled and uncontrolled airspace	-	A	B	C	C
10. Meteorology:					
Airflow and air pressure differences	A	B	C	C	C
Lift, sink and turbulence	B	C	C	C	C
Effect of terrain influences on airflow	B	C	C	C	C
Wind strength considerations and indicators	B	C	C	C	C
Wind direction indicators and considerations	P	C	C	C	C
General observation skills	P	P	C	C	C
Turbulence: mechanical, terrain, convection, local wind,	A	C	C	C	C
Relationship of wind velocity and turbulence	B	C	C	C	C
The evaluation of potential turbulent areas or conditions and their possible effect on flight operations	A	B	C	C	C
Wind gradient	P	C	C	C	C
Sea breezes, valley winds, anabatic and katabatic winds and diurnal wind changes	A	B	C	C	C
Fronts, squalls, storms and thermals	A	B	C	C	C
Major weather phenomena and their indications relative to flight decisions	P	C	C	C	C
Clouds and dangers	A	B	C	C	C
Visibility	-	A	B	B	C
Wind Shear	A	B	C	C	C
Dew-point, lapse rate, convergence and inversions	A	B	C	C	C
Weather Chart analysis	-	-	B	C	C
Soaring forecasts	-	-	B	C	C
Met terminology and standard aviation abbreviations			A	C	C
11. Soaring Strategies:					
Glider sink rate and strength of lift relationship	B	C	C	C	C
Ridge/slope soaring strategies	-	P	C	C	C

Influence of thermals/instability	B	C	A	C	C
Soaring envelope	P	B	C	C	B
Locating thermals	-	A	B	C	B
Thermal soaring strategies	-	A	B	C	A
XC planning	-	-	A	B	B
12. Emergency procedures:					
Tail wind/cross wind landings	B	C	C	C	C
Stall whilst flying near slope	A	C	C	C	-
Stall in wind gradient close to ground	P	C	C	C	C
Overshoot toward surf	A	C	C	C	-
Loss of penetration at normal flying speeds	A	B	C	C	-
High speed oscillations	A	P	C	C	C
Tree, steep slope and water landings	A	A	B	C	A
Obstacles in landing area	-	B	C	C	B
Cloud suck/white out	A	C	C	C	
Extreme turbulence/extreme sink	-	A	C	C	C
13. Airmanship					
Flight Planning and traffic look-out	P	P	C	C	C
Local site rules and considerations	P	P	B	C	C
Pre-flight check-in with SO/ Duty Pilot/ local advanced pilots	P	C	C	C	C
Margins for error and number of variables concept	B	C	C	C	C
Fitting into the flying community	P	P	P	C	C
Liaison with other airspace users	P	P	P	C	C
XC Navigation skills					
Navigation instruments - understanding the application and units of measurement of:					
- pressure altimeter			B	C	C
- Airspeed indicator			B	C	C
- Magnetic compasses and associated considerations in use			B	C	C

2.2.2 Specific to PPG

Subject Area	PPG Pilot Cert.
Engine, trike base and airframe pre-flight	C
Fire prevention considerations during refuelling	C
In-flight power limitations	C
Propeller pitch considerations	B
Effect on engine and aircraft performance of fine and coarse pitch propellers	B
Reduction drives	B
Precautions during engine warm-up, run up and run down	C
Engine and associated systems, understanding:	
how a piston engine functions	B
ignition system components	B

ignition system faults and effects on engine operation	B
understanding fuel and carburation systems	B
understanding octane levels, fuel grading and selection applicable to engine performance	B
venting	B
useable and unusable fuel	C
control of engines and indications of engine performance	C
Engine instrumentation - understanding the application and units of measurement of:	
- Tachometer	C
- Temperature and other relevant engine monitoring gauges	B

2.2.3 Weightshift Microlight Syllabus of Flight Training (Theory).

Please refer to the *Memorandum Of Understanding between the HGFA and RAA*.

HGFA Doc: **MoU-01** (See 1.3 - HGFA Operational Documents Register)

CASA File: EF11/155471 "MOU between RA-Aus and HGFA"

In accordance with the CASA directive issued on 22nd July 2011, both the HGFA and RAA are to provide assurance to CASA that the oversight of Weightshift Microlights administered by the HGFA & RA-Aus under CAO95.32 are standardised. This standardisation is to be across those elements of flight training and training in aircraft maintenance.

2.2.4 Practical Flight Training

2.2.4.1 Hang Gliding & Paragliding Syllabus

The following syllabi specify the minimum standards of ability required. The percentage values are used to indicate the minimum degree of ability required for each individual item within a particular subject as follows:

% skill	
50%	Assisted by the instructor to perform the activity correctly. {Examples: wire/keel assisted launch; constant radio direction for soaring; under supervision in two place aircraft}
75%	Ability to perform the activity correctly without assistance, but under carefully supervised conditions. {Examples: High glides without radio instructions; soaring or WM operations without radio but with complete debrief and flight analysis}
100%	Ability to perform the skill sequence correctly and adjusts actions automatically to cope with emergencies or environmental fluctuations, without instructional supervision or assistance.
Note:	The percentages indicated define the minimum acceptable standards, for issue of the relevant Pilot Certificate or endorsement, to be achieved prior to undergoing a flight test.

Hang Gliding, Syllabus of Flight Training.

Skill	Ab Initio	Flights > 200 ft AGL	Supervised Certificate	Intermediate Certificate	Advanced Certificate
1. Aircraft Set-up	100%	100%	100%	100%	100%
2. Flight Preparation:					
Pre-flight inspection	100%	100%	100%	100%	100%
Harness/helmet check	100%	100%	100%	100%	100%
Attachment/hang check	100%	100%	100%	100%	100%
3. Ground Handling:					
Assessment of conditions	50%	75%	100%	100%	100%
Establishment/attitude	75%	75%	100%	100%	100%
Pre take off check	75%	100%	100%	100%	100%
4. Launch Phase					

Smooth acceleration	75%	100%	100%	100%	100%
Control of pitch and roll throughout take-off	75%	75%	100%	100%	100%
Smooth transition to flight	75%	75%	100%	100%	100%
Nil wind take-off	50%	100%	100%	100%	100%
Light-moderate wind	75%	100%	100%	100%	100%
Slight cross wind take-off	50%	75%	100%	100%	100%
Moderate winds	N/A	N/A	75%	100%	100%
Wire assisted take-off	N/A	N/A	50%	100%	100%
5. Level and Straight Flight					
Control of pitch, attitude and airspeed	75%	100%	100%	100%	100%
Control of roll and yaw	75%	75%	100%	100%	100%
Maintenance of heading	75%	100%	100%	100%	100%
Airspeed, accuracy at trim speed, best glide, minimum sink for conditions & situation	50%	75%	100%	100%	100%
Prone or harness entry	N/A	50%	100%	100%	100%
6. Approach and Landing					
Final approach, wings level, accuracy of airspeed, glide adjustment and body position	50%	75%	100%	100%	100%
Final flare with appropriate timing and power for conditions	50%	75%	100%	100%	100%
Approach planning	50%	75%	100%	100%	100%
Adaption of approach for changed conditions or emergency	50%	50%	100%	100%	100%
Height loss manoeuvring	N/A	N/A	50%	75%	100%
Small field landing	N/A	N/A	N/A	75%	100%
Moderate cross wind final approach leg	N/A	N/A	50%	100%	100%
Post landing glider control	75%	100%	100%	100%	100%
Spot landing accuracy (within 10 metres)	N/A	N/A	N/A	50%	100%
7. Turning					
Shallow bank/heading maintenance	75%	100%	100%	100%	100%
Look out & traffic separation Efficient turns for height conservation	N/A	50%	100%	100%	100%
Descending turns & control of slip	N/A	50%	75%	100%	100%
Turns in lifting air 360 degree turns, shallow and steep	N/A	50%	100%	100%	100%
Control close to hill	N/A	N/A	50%	100%	100%
8. Stalling					
Recognition of approach of stall	50%	100%	100%	100%	100%
The stall Recovery from straight & Level stall	N/A	75%	100%	100%	100%
Recovery when wing drops	50%	75%	100%	100%	100%
9. Flight Planning:					
Observation & interpretation of Conditions	N/A	75%	100%	100%	100%
Crosswind drift allowances and crabbing flight	N/A	50%	100%	100%	100%
Ridge soaring strategies	N/A	50%	100%	100%	100%
Thermal soaring strategies	N/A	N/A	N/A	75%	100%

Airspace limitations and restrictions	N/A	50%	75%	100%	100%
Emergency procedures	N/A	50%	100%	100%	100%
X/C planning	N/A	N/A	N/A	75%	100%
Navigation (distance >25NM)	N/A	N/A	N/A	50%	100%
Forecast interpretation	N/A	N/A	50%	75%	100%
Close proximity thermaling	N/A	N/A	N/A	50%	100%
10. General Operations					
Flight Log keeping	50%	75%	100%	100%	100%
Flight rules and procedures	50%	75%	100%	100%	100%
Site regulations and Safety Officer/ Duty Officer system	50%	75%	100%	100%	100%
Mixed operations	N/A	N/A	50%	75%	100%
Airfield operations	N/A	N/A	N/A	75%	100%
VHF radio operations	N/A	N/A	N/A	50%	100%
Operations > 5000 ft	N/A	N/A	N/A	50%	100%

Paragliding, Syllabus of Flight Training.

Skill	PG1	PG2	PG3	PG4	PG5
1. Aircraft Set-up	100%	100%	100%	100%	100%
2. Flight Preparation:					
Pre-flight inspection	100%	100%	100%	100%	100%
Harness/helmet check	100%	100%	100%	100%	100%
Attachment/hang check	100%	100%	100%	100%	100%
3. Ground Handling:					
Assessment of conditions	50%	100%	100%	100%	100%
Establishment/attitude	75%	100%	100%	100%	100%
Pre take off check	75%	100%	100%	100%	100%
4. Launch Phase					
Smooth acceleration	75%	100%	100%	100%	100%
Control of pitch and roll throughout take-off	75%	100%	100%	100%	100%
Smooth transition to flight	75%	100%	100%	100%	100%
Nil wind take-off	50%	100%	100%	100%	100%
Light-moderate wind	75%	100%	100%	100%	100%
Slight cross wind take-off	50%	100%	100%	100%	100%
Moderate winds	N/A	75%	75%	100%	100%
Wire assisted take-off	N/A	75%	50%	100%	100%
5. Level and Straight Flight					
Control of pitch, attitude and airspeed	75%	100%	100%	100%	100%
Control of roll and yaw	75%	100%	100%	100%	100%
Maintenance of heading	75%	100%	100%	100%	100%
Airspeed, accuracy at trim speed, best glide, minimum sink for conditions & situation	50%	100%	100%	100%	100%
Prone or harness entry	N/A	100%	100%	100%	100%
6. Approach and Landing					
Final approach, wings level,	50%	100%	100%	100%	100%

accuracy of airspeed, glide adjustment and body position					
Final flare with appropriate timing and power for conditions	50%	100%	100%	100%	100%
Approach planning	50%	100%	100%	100%	100%
Adaption of approach for changed conditions or emergency	50%	100%	100%	100%	100%
Height loss manoeuvring	N/A	50%	50%	75%	100%
Small field landing	N/A	N/A	50%	75%	100%
Moderate cross wind final approach leg	N/A	N/A	50%	100%	100%
Post landing glider control	75%	100%	100%	100%	100%
Spot landing accuracy (within 10 metres)	N/A	N/A	N/A	50%	100%
7. Turning					
Shallow bank/heading maintenance	75%	100%	100%	100%	100%
Look out & traffic separation Efficient turns for height conservation	N/A	100%	100%	100%	100%
Descending turns & control of slip	N/A	75%	75%	100%	100%
Turns in lifting air 360 degree turns, shallow and steep	N/A	100%	100%	100%	100%
Control close to hill	N/A	50%	50%	100%	100%
8. Stalling					
Recognition of approach of stall	50%	100%	100%	100%	100%
The stall Recovery from straight & Level stall	N/A	100%	100%	100%	100%
Recovery when wing drops	50%	100%	100%	100%	100%
9. Flight Planning:					
Observation & interpretation of Conditions	N/A	100%	100%	100%	100%
Crosswind drift allowances and crabbing flight	N/A	100%	100%	100%	100%
Ridge soaring strategies	N/A	100%	100%	100%	100%
Thermal soaring strategies	N/A	N/A	N/A	75%	100%
Airspace limitations and restrictions	N/A	75%	75%	100%	100%
Emergency procedures	N/A	100%	100%	100%	100%
X/C planning	N/A	N/A	N/A	75%	100%
Navigation (distance >25NM)	N/A	N/A	N/A	50%	100%
Forecast interpretation	N/A	N/A	50%	75%	100%
Close proximity thermaling	N/A	N/A	N/A	50%	100%
10. General Operations					
Flight Log keeping	50%	100%	100%	100%	100%
Flight rules and procedures	50%	100%	100%	100%	100%
Site regulations and Safety Officer/ Duty Officer system	50%	100%	100%	100%	100%
Mixed operations	N/A	50%	50%	75%	100%
Airfield operations	N/A	50%	50%	75%	100%
VHF radio operations	N/A	N/A	N/A	50%	100%
Operations > 5000 ft	N/A	N/A	N/A	50%	100%

2.2.4.2 Powered Paragliding Syllabi (Foot/Wheel), Including Cross Country Endorsement.

The following syllabi specify the minimum standards of ability required. The percentage values are used to indicate the minimum degree of ability required for each individual item within a particular subject as follows:

% skill	
50%	Assisted by the instructor to perform the activity correctly. {Examples: wire/keel assisted launch; constant radio direction for soaring; under supervision in two place aircraft}
75%	Ability to perform the activity correctly without assistance, but under carefully supervised conditions. {Examples: High glides without radio instructions; soaring or WM operations without radio but with complete debrief and flight analysis}
100%	Ability to perform the skill sequence correctly and adjusts actions automatically to cope with emergencies or environmental fluctuations, without instructional supervision or assistance.
Note:	The percentages indicated define the minimum acceptable standards, for issue of the relevant Pilot Certificate or endorsement, to be achieved prior to undergoing a flight test.

Syllabus of Flight Training – Powered Paragliding (Foot or Wheel launched)		
Skill	Certificate	PPG XC Endorsement
1. Aircraft Set-up	100%	100%
2. Flight Preparation:		
Pre-flight inspection	100%	100%
Harness/helmet check	100%	100%
Attachment check	100%	100%
Separation requirements - from members of the public	100%	100%
Starting and warm-up, use of power	100%	100%
Aircraft weight management - understand, the effect of wing loading on aircraft performance and handling; and the need to keep aircraft weight to permitted limits	100%	100%
3. Ground Handling:		
Assessment of conditions	100%	100%
Establishment/attitude	100%	100%
Pre take off check	100%	100%
4. Launch Phase		
Smooth acceleration	100%	100%
Control of pitch and roll throughout take-off	100%	100%
Smooth transition to flight	100%	100%
Nil wind take-off	75%	100%
Light-moderate wind	100%	100%
Slight cross wind take-off	100%	100%
Moderate winds	75%	100%
5. Level and Straight Flight		
Control of pitch, attitude and airspeed	100%	100%
Control of roll and yaw	100%	100%
Maintenance of heading	100%	100%
Airspeed, accuracy at trim speed, best glide, minimum sink for conditions & situation	100%	100%
6. Approach and Landing		
Final approach, wing level, accuracy of airspeed, glide adjustment and body position	100%	100%

Final flare with appropriate timing and power for conditions	100%	100%
Approach planning	100%	100%
Adaption of approach for changed conditions or emergency	100%	100%
Height loss manoeuvring	75%	100%
Small field landing	75%	100%
Moderate cross wind final approach leg	75%	100%
Post landing glider control	100%	100%
Spot landing accuracy (within 10 metres) (Foot launched)	50%	100%
7. Turning		
Shallow bank/heading maintenance	100%	100%
Look out & traffic separation	100%	100%
Efficient turns for height conservation	100%	100%
Descending turns	75%	100%
Turns in lifting air		
360 degree turns, shallow and steep	75%	100%
8. Stalling		
Recognition of approach of stall	100%	100%
The stall	100%	100%
Recovery from straight & Level stall		
Recovery when wing drops	100%	100%
9. Flight Planning:		
Observation & interpretation of Conditions	100%	100%
Crosswind drift allowances and crabbing flight	100%	100%
Turbulence considerations - wake avoidance	100%	100%
Airspace limitations and restrictions	75%	100%
Emergency procedures	100%	100%
10. Cross Country Flight Planning		
Interpretation and use of weather charts and forecasts	75%	100%
Interpretation and use of aeronautical charts, publications and documents	75%	100%
Aircraft weight management - understand, the effect of wing loading on aircraft performance; and the need to keep aircraft weight to permitted limits.	100%	100%
Flight plan, including Fuel management, fuel reserve calculations, and flight note requirements	75%	100%
11. Navigation		
Map reading	75%	100%
Compass use and errors	75%	100%
12. General Operations		
Flight Log keeping	100%	100%
Engine failure during or directly after take-off - partial or complete	100%	100%
In-flight emergency landing options	100%	100%
Mixed operations	75%	100%
Airfield operations	75%	100%

VHF radio operations	100%	100%
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2.2.4.3 Weightshift Microlight Syllabus of Flight Training.

Please refer to the *Memorandum Of Understanding* between the HGFA and RAA.

HGFA Doc: **MoU-01** (See 1.3 - HGFA Operational Documents Register)

CASA File: EF11/155471 "MOU between RA-Aus and HGFA"

In accordance with the CASA directive issued on 22nd July 2011, both the HGFA and RAA are to provide assurance to CASA that the oversight of Weightshift Microlights administered by the HGFA & RA-Aus under CAO95.32 are standardised. This standardisation is to be across those elements of flight training and training in aircraft maintenance.

2.3 Endorsement Syllabus

2.3.1 Aerotow (HG)

Endorsement Syllabus – Aerotow Endorsement for Hang Glider Certificate holders.

Standards of Competency for the issue of Aerotow Endorsement	
Skill	Standard Required
1. Set-up	
Understanding and location of the HGFA Towing Manual	Demonstrated
Introduction to the Tug Pilot and flight parameters the tow pilot must consider	100%
Introduction to the ground crew and specific roles	100%
Setting tow bridle and attachment points to the glider and harness	100%
Understanding and tying weak links	100%
Set up and use of the dolly	100%
Understanding the pilot end of the tow rope	100%
Carries out all pre-flight and pre-tow checks	100%
2. Launch Phase	
Effect of prop wash on performance	100%
Effect of prop wash on visibility	100%
Use of Signals, to launch and in flight	100%
Dolly roll and behaviour in different wind directions	100%
Foot launched technique	100%
Dolly launch technique	100%
3. In flight	
Flight attitude and smooth glider control	100%
Aerotows in moderate thermal conditions	100%
Aerotows in strong thermal conditions	100%
Use of signals	100%
4. Emergency	
Loss of dolly control	100%
Lock out	100%
Weak link breaks	100%

Release failures, tug, glider, both	100%
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2.3.2 Ground Tow (HG/PG)

Endorsement Syllabus – Ground Tow Endorsement for Paraglider, Hang Glider Certificate holders and Powered Paraglider Certificate Holders with a Free Flight Endorsement

Standards of Competency for the issue of Ground Tow Endorsement	
Skill	Standard Required
1. Set-up	
Understanding and location of the HGFA Towing Manual	Demonstrated
Introduction to the tow vehicle or winch and operating parameters the vehicle or winch operator must consider	100%
Introduction to the ground crew and specific roles	100%
Setting tow bridle and attachment points to the glider and harness	100%
Understanding and tying weak links	100%
Set up and use of the dolly	100%
Understanding the pilot end of the tow rope	100%
Carries out all pre-flight and pre-tow checks	100%
UHF Radio – Towing sequence / protocols	100%
2. Launch Phase	
Use of Visual Signals, to launch and in flight	100%
Dolly roll and behaviour in different wind directions	100%
Foot launched technique	100%
Dolly launch technique	100%
3. In flight	
Flight attitude and smooth glider control	100%
Use of signals	100%
4. Emergency	
Loss of dolly control	100%
Lock out	100%
Weak link breaks	100%
Winch or vehicle failure	100%
Release failures	100%

2.3.3 Tugmaster Aerotow (WM)

Endorsement Syllabus – Tugmaster Endorsement for Weightshift Microlights pilots

Standards of Competency for the issue of Tugmaster Endorsement	
Skill	Standard Required
1. Set-up	
Understanding and location of the HGFA Towing Manual	Demonstrated
Introduction to the Glider Pilot and flight parameters the glider pilot must consider	100%
Introduction to the ground crew and specific roles	100%
Setting the bridle and attachment points to the aircraft	100%
Understanding and tying weak links	100%
Understanding the pilot end of the tow rope	100%
Carries out all pre-flight and pre-tow checks	100%
2. Launch Phase	
Effect of prop wash on the glider	100%
Effect of additional drag on aircraft performance	100%
Use of Signals, to launch and in flight	100%
Foot and Dolly launched technique	100%
3. In flight	
Flight attitude and smooth aircraft control	100%
Aerotows in moderate thermal conditions and effect on aircraft performance	100%
Aerotows in strong thermal conditions and effect on aircraft performance	100%
Release & Descent Procedures	100%
Approach, Landing & Go-around procedures	100%
Use of signals	100%
4. Emergency	
Effect of aircraft performance when there is a loss of dolly control	100%
Effect of aircraft performance when there is a Lock out	100%
Weak link breaks and effect on aircraft performance	100%
Release failures, tug, glider, both	100%
Stop on take-off run, (partial or full engine failure procedure)	100%

2.3.4 Cross Country (WM/PPG)

Endorsement Syllabus - Cross Country Endorsement for a Weightshift Pilot or Powered Paraglider certificate holder

Standards of Competency for the issue of Weightshift Microlighting Cross Country Endorsement		
Skill	Before Solo Navigation Flight Standard of Competency	Cross Country Endorsement Standard of Competency
1. Flight Planning		
Preparation for flight, pilot, aircraft, equipment and log book requirements	75%	100%
Interpretation and use of weather charts and forecasts	50%	100%
Interpretation and use of aeronautical charts, publications and documents	75%	100%
Basic flight computer usage	75%	100%
Flight plan, including: cruise level, airspace requirements (avoidance/radio) track, distance, heading, ground speed and time interval calculations fuel management including fuel reserve calculations flight note requirements	75%	100%
2. Navigation		
Map reading	100%	100%
Compass use and errors	75%	100%
Flight log keeping	75%	100%
Diversion procedures	75%	100%
Lost procedures	75%	100%
Flight rules and procedures	100%	100%

2.3.5 Formation Flying (PPG/WM)

Endorsement Syllabus – Weightshift Formation Endorsement for a Weightshift Pilot or Powered Paraglider certificate holder.

Standards of Competency for the issue of a Weightshift Formation Endorsement	
Skill	Standard Required
1. Set-up	
Flight planning, participant briefing and position sequence	100%
Aircraft communication planning	100%
Understanding aircraft performance, mixed aircraft and power setting.	100%
Passenger briefing	100%
2. Launch and landing Phase	
Understanding wake turbulence	100%
Variation between aircraft performance during ground roll, different surfaces and wind conditions	100%
Compensating for roll and pitch performance at low speed and aircraft positioning	100%
Communication during launch and preparation for landing	100%
3. In flight	
Effect of power setting and speed relative to additional aircraft	100%
Effect of weather conditions and turbulence on aircraft movement, including sun glare	100%
Maintaining position and maintenance of the flight plan and variation in-flight to flight plans.	100%
Maintaining the 4 stations of flight	100%
Join-up & Breakaway Manouvers	100%
Change of leader during the flight	100%
Communication during all phases of the flight	100%
4. Emergency	
Action in the advent of a communication failure	100%
Collision avoidance action during all stages of the flight	100%

2.3.6 Foot Launch Endorsement (PPG)

Refer to [2.2.4.2](#) “Powered Paragliding Syllabi (Foot/Wheel), Including Cross Country Endorsement”.

2.3.7 Wheel Launch Endorsement (PPG)

Refer to [2.2.4.2](#) “Powered Paragliding Syllabi (Foot/Wheel), Including Cross Country Endorsement”.

2.3.8 Free Flight (PPG)

Endorsement Syllabus – Free Flight endorsement for Powered Paragliding Certificate holders gaining free flight.

Standards of Competency for the issue of Free Flight Endorsement	
Skill	Standard Required
1. Aircraft Set-up	
Aircraft Set-up	100%
2. Ground Handling	
Assessment of conditions	100%
Establishment/attitude	100%
Pre take off check	100%
Smooth acceleration and transition to flight	100%
3. Launch Phase	
Smooth acceleration	100%
Control of pitch and roll throughout take-off	100%
Smooth transition to flight	100%
3. In Flight	
Harness entry and exit	100%
Final flare with appropriate timing	100%
Turns in lifting air	100%
Control close to the hill	100%
Ridge soaring strategies – “Ridge on Right has Right of Way”, and proximity to faster aircraft (eg. Hang Gliders)	100%
Thermal soaring strategies	100%
Close proximity thermaling – Joining thermals	100%
4. Stalling	
Recognition of approach of stall	100%
The stall recovery from straight & Level stall	100%
Recovery when wing drops	100%

2.3.9 Powered Endorsement (Foot launched - HG/PG)

Endorsement Syllabus – Foot launched Powered Hang Gliding/Paragliding endorsement for Hang Glider/Paraglider certificate holders.

Standards of Competency for the issue of a Powered Endorsement	
Skill	Standard Required
1. Preparation for Flight	
Aircraft assembly	100%
Aircraft Log	100%
Pre-flight inspection	100%
Separation requirements - from members of the public	100%
Assessment of Conditions	100%
Starting and warm-up, use of power	100%
Pre take-off checks	100%
Aircraft weight management - understand, the effect of wing loading on aircraft performance and handling; and the need to keep aircraft weight to permitted limits.	100%
2. Flight Planning	
Airspace limitations	100%
Take-off into wind	100%
3. Flight	
Take-off	100%
Lookout and separation from other aircraft	100%
Level & straight flight, climbing, descending, turning, recognizing approach of stall	100%
Turbulence considerations - wake avoidance	100%
Circuit ,approach and landing approach - powered and glide approaches	100%
4. Navigation:	
Map reading	100%
Compass use and errors	100%
5. Emergency Procedures:	
Engine failure during or directly after take-off - partial or complete	100%
In-flight emergency landing options	100%
Confined field landings	100%

2.3.10 Oxygen (HG/PG/PPG/WM)

Endorsement Syllabus – Oxygen Endorsement for Paraglider, Hang Glider, Powered Paraglider & Weightshift Microlight Certificate holders.

Standards of Competency for the issue of an Oxygen Endorsement	
Skill	Standard Required
1. Pre Set-up	
Understanding the body's oxygen requirements with altitude	100%
Able to describe 2 different oxygen systems	100%
Give detailed description of each component of an oxygen supply system	100%
Know oxygen flow rates required at altitude	100%
Describe health risks and signs of oxygen deprivation at altitude	100%
Describe altimetry, airspace and radio requirements above 10,000'	100%
2. Set up Phase	
Set up and testing system, IAW manufacturers manual	100%
Mounting and securing the oxygen system to the aircraft or pilot	100%
Pre take off testing the mounting system for aircraft control in normal and abnormal flight conditions	100%
3. Simulated In flight	
System activation	100%
System control and flow adjustment	100%
Use of altimeter, radio and oxygen systems	100%
Understanding VMC requirements	100%
Understanding altimeter and radio requirements	100%
4. Emergency	
The body's oxygen requirements in high stress or with high physical exertion	100%
Identifying and required action with the loss of oxygen	100%

2.3.11 VHF Radio (HG/PG/PPG/WM)

The following syllabus specifies the minimum standards of ability and understanding required for the issue of a HGFA Radio Operator Endorsement.

The qualifying letters are used to indicate the degree of knowledge and skill required for issue of the endorsement.

- A - Basic understanding of the subject matter.
- B - Thorough understanding of the subject matter, capable without assistance, to provide detailed explanations of requirements and practical application.
- C - Basic practical application.
- D - Thorough application of relevant procedures and knowledge.

Endorsement Syllabus– VHF Radio	
Subject Area	Radio Operator Endorsement
1. Privileges and Limitations of Endorsement holder:	
CAO's, CAR 166 and HGFA Operations Manual	B
Required use of Spectrum Management Approved Radios	B
Requirements for use of hand held equipment	A,D
Requirements for radio /certificate issue	B
2. Communications - General:	
Phonetic alphabet and numbers	B
Standard phraseology	D
HGFA aircraft callsign requirements	B,D
Strength and clarity definition	A,D
Definitions relating to communications (refer: AIP-GEN or VFG)	A
UTC Date & Time system	B,D
3. Documentation:	
Aeronautical Information Publication (AIP)	A,D
Enroute Supplement Australia (ERSA)	A,D
Aeronautical Charts (ERC, VTC, PCA)	A,D
NOTAM	A,D
4. Characteristics of VHF Radio:	
Line of sight	B
Carrier wave	A
Modulation	A
Use of squelch	D
VHF aviation band frequency designation	A,C
5. Practical operation of radio equipment:	
Normal operation - on/off, frequency change, squelch, volume	A,D
Fault finding - on/off, frequency change, squelch, volume, circuit breaker, power supply, aerial type and location, electrical interference	AD

2.3.12 Tandem (HG/PG)

Endorsement Syllabus – Tandem Endorsement for Hang Gliders and Paragliders.

Standards of Competency for the issue of Tandem Endorsement	
Skill	Standard Required
1. Set-up	
Aircraft design and characteristics for operations	100%
Understanding of aircraft weight and balance and effect of additional weight	100%
Site selection	100%
Weather considerations	100%
Passenger briefing	100%
Ground crew requirements and crowd control awareness	100%
2. Launch and landing Phase	
Effect of additional weight on aircraft speed setting, performance in roll and pitch	100%
Limitations on performance during launch run or roll in varying wind conditions	100%
Passenger briefing and communication during the flight and preparation for landing	100%
3. In flight	
Effect of additional weight on aircraft speed setting for best l/d, stall,	100%
Effect of additional weight on aircraft performance in thermalling,	100%
Passenger communication during all phases of the flight	100%
4. Emergency	
Adverse passenger response or action during all stages of the flight	100%
Preparation and planning for aborted flight at any stage during the flight, landing field selection and passenger briefing	100%

2.3.13 Tandem (PPG) (Foot & Wheel Launched)

Endorsement Syllabus – Powered Paragliding Tandem Endorsement.

Standards of Competency for the issue of a PPG Tandem Endorsement	
Skill	Standard Required
1. Set-up	
Weather & Location	100%
Understanding and calculation of aircraft weight and balance	100%
Passenger briefing	100%
Crowd control awareness and/or measures	100%
2. Launch and landing Phase	
Effect of additional weight on aircraft speed setting	100%
Variation of performance during ground roll, different surfaces and wind conditions	100%
Changes in roll and pitch performance at low speed	100%
Passenger briefing and communication during launch and preparation for landing	100%
3. In flight	
Effect of additional weight on aircraft speed setting	100%
Effect of additional weight on aircraft characteristics in stall and cruise	100%
Effect of additional weight on fuel flow (consumption)	100%
Passenger communication during all phases of the flight	100%
4. Emergency	
Adverse passenger response or action during all stages of the flight	100%
Preparation and planning for aborted flight at any stage during the flight, landing field selection and passenger briefing	100%

2.3.14 Tandem (WM)

Standards of Competency for the issue of a Weightshift Tandem Endorsement	
Skill	Standard Required
1. Set-up	
Weather and Location	100%
Understanding and calculation of aircraft weight and balance	100%
Passenger briefing	100%
Crowd control awareness and/or measures	100%
2. Take-off and landing Phase	
Effect of additional weight on aircraft speed setting	100%
Variation of performance during ground roll, different surfaces and wind conditions	100%
Changes in roll and pitch performance at low speed	100%
Passenger briefing and communication during launch and preparation for landing	100%
3. In flight	
Effect of additional weight on aircraft speed setting	100%
Effect of additional weight on aircraft characteristics in stall and cruise	100%
Effect of additional weight on fuel flow (consumption)	100%
Passenger communication during all phases of the flight	100%
4. Emergency	
Adverse passenger response or action during all stages of the flight	100%
Preparation and planning for aborted flight at any stage during the flight, landing field selection and passenger briefing	100%

2.3.15 Tandem – (Instructional) - (HG/PG/PPG/WM)

Endorsement Syllabus – Tandem Endorsement (Instructional) for Hang Gliders, Paragliders, Powered Paragliders and Weightshift Microlights.

Standards of Competency for the issue of Tandem Endorsement (Instructor)	
Skill	Standard Required
1. Set-up	
Aircraft design and characteristics for operations	100%
Understanding of aircraft weight and balance and effect of additional weight	
Site selection	100%
Weather considerations	100%
Student briefing and training plan	100%
Ground crew requirements and crowd control awareness	100%
2. Launch and landing Phase	
Effect of additional weight on aircraft speed setting, performance in roll and pitch	100%
Limitations on performance during launch run or roll in varying wind conditions	100%
Student briefing and communication during the flight and preparation for landing	100%
3. In flight	
Effect of additional weight on aircraft speed setting for best l/d, stall,	100%
Effect of additional weight on aircraft performance in thermalling,	100%
Student communication during all phases of the flight	100%
4. Emergency	
Adverse Student response or action during all stages of the flight	100%
Preparation and planning for aborted flight at any stage during the flight, landing field selection and student briefing	100%

2.3.16 Speed Wing (PG)

Endorsement Syllabus – Speed Wing for Paragliders.

Standards of Competency for the issue of a Speed Wing Endorsement.	Standard Required
Explains relationship between roll and dive and increased rate of descent.	100%
Explains functionality and proper use of the trim system.	100%
Demonstrates and explains the use of trimmers in terms of speed, sink rate and collapses	100%
Demonstrates layout and pre-flight of the canopy and harness.	100%
Demonstrates 10 consecutive forward inflations with a visual check of the canopy each time.	100%
Demonstrates 10 clean, smooth reverse inflations/reversals prior to launch.	100%
Demonstrates controlled kiting of a glider overhead for 2 minutes in a steady wind.	100%
Demonstrates 2 successful, controlled, confident inflations/launches, where the wind is not exceeding 8 KPH	100%
Demonstrates 2 successful, confident, high-wind inflations/launches.	100%
Explains and demonstrates an aborted launch and reasons for doing so.	100%
Demonstrates 5 safe landings within a designated area 15 meters in diameter.	100%
Demonstrates weight shift S-Turns.	100%
Demonstrates flight(s) along a planned path alternating turns of at least 90 degree change in heading.	100%
Demonstrates smooth, coordinated turns 90, and 180 degrees	100%
Demonstrates flight showing Best Glide Speed, which may or may not be the same as the gliders trim speed, without slowing the glider to near stall.	100%
Demonstrates the ability to judge and allow for proper clearance from a ridge, gliders, and other obstacles.	100%
Demonstrates proper surge control of canopy using properly timed brake application.	100%
Explains proper strong wind landing procedures and how to keep from being dragged back.	100%

2.3.17 WATERBORNE FLOAT AND HULL SYLLABUS

1. MANAGE PRE AND POST FLIGHT ACTIONS

Flying Standards	Before Solo	Pilot Certificate
1.1 Complete pre and post flight administration		
<ul style="list-style-type: none"> Pre-flight planning and documentation is completed in accordance with appropriate procedures 	75%	100%
<ul style="list-style-type: none"> Aircraft take-off and landing performance is calculated in accordance with performance and weight and balance charts 	75%	100%
<ul style="list-style-type: none"> Pre and post flight logbook and flight administration is completed in accordance with appropriate procedures 	75%	100%
<ul style="list-style-type: none"> Aircraft serviceability, with due regard for float and hull integrity, is determined by daily inspection, and certification of daily inspection in maintenance record is completed in accordance with appropriate procedures 	75%	100%
1.2 Perform pre-flight inspection		
<ul style="list-style-type: none"> Equipment and documentation as required by regulation is identified and secured in the aircraft, and internal and external checks are completed in accordance with approved checklist 	75%	100%
<ul style="list-style-type: none"> Ensure lifejackets are in place and have been confirmed as serviceable 	75%	100%
1.3 Perform and certify daily inspection		
<ul style="list-style-type: none"> A daily inspection of aircraft is performed in accordance with aircraft system of maintenance 	75%	100%
<ul style="list-style-type: none"> Bungs and drains 	75%	100%
1.4 Launch waterborne aircraft		
<ul style="list-style-type: none"> Deepwater launch 	75%	100%
<ul style="list-style-type: none"> Beach/ramp launch 	75%	100%
1.5 Check for leaks		
<ul style="list-style-type: none"> Check float/hull buoyancy 	75%	100%
<ul style="list-style-type: none"> Check individual compartments for leaks 	75%	100%

2. CONTROL WATERBORNE AIRCRAFT ON THE WATER

Flying Standards	Before Solo	Pilot Certificate
2.1 Start and stop engine		
<ul style="list-style-type: none"> Pre-start and after start checks are completed in accordance with Flight Manual Engine is started and shut down in accordance with Flight Manual Emergencies are managed in accordance with Flight Manual Pre-and after shutdown checks are completed in accordance with Flight Manual 	75%	100%
2.2 Low speed (Displacement) taxiing		
<ul style="list-style-type: none"> Water rudders Power control Inertia control Wind effects Wake 	75%	100%
2.3 Plough Taxiing		
<ul style="list-style-type: none"> Water rudders Power control Wind effects Centre of Buoyancy (C of B) 	75%	100%
2.4 Step Taxiing		
<ul style="list-style-type: none"> Water rudders Transition to step Stability on step Reverse transition to displacement taxi 	75%	100%
2.5 Step Turns		
<ul style="list-style-type: none"> Floating hull Floats Wind effects 	75%	100%
2.6 Leaks		
<ul style="list-style-type: none"> Check float/hull buoyancy Check individual compartments for leaks 	75%	100%

3. TAKE-OFF WATERBORNE AIRCRAFT

Flying Standards	Before Solo	Pilot Certificate
3.1 Carry out pre-take-off procedures		
<ul style="list-style-type: none"> Pre take-off checks are completed in accordance with approved checklist Waterborne aircraft is lined up Line-up checks completed 	75% 75% 75%	100% 100% 100%
3.2 Take-off waterborne aircraft		
<ul style="list-style-type: none"> Take-off power is applied. Waterborne aircraft is maintained aligned with aiming point with wings maintained level and rotated at recommended speed to achieve water separation Climb airspeed attained Waterborne aircraft is configured for nominated climb profile and track towards aiming point is maintained 	75% 75% 75%	100% 100% 100%
3.3 Carry out after take-off procedures		
<ul style="list-style-type: none"> After take-off checks are performed from memory in accordance with approved checklist 	75%	100%

4. LAND WATERBORNE AIRCRAFT

Flying Standards	Before Solo	Pilot Certificate
4.1 Transitional landings		
<ul style="list-style-type: none"> Waterborne aircraft's rate of descent arrested and stabilised above water Slight power reduction to allow hull/float contact with water in step taxiing attitude Step taxiing attitude maintained Power reduced and reverse transition to displacement taxi Smooth or glassy water landings 	75% 75% 75% 75%	100% 100% 100% 100%
4.2 Conventional landings		
<ul style="list-style-type: none"> Conventional circuit approach to water landing area Power increased prior to flare point Touchdown as per transitional landing Glide approach Touch and go 	75% 75% 75% 75% 75%	100% 100% 100% 100% 100%
4.3 Rough water landings		
<ul style="list-style-type: none"> Wind direction and strength accurately attained Swell avoidance Waterborne aircraft handling Go around 	75% 75% 75% 75%	100% 100% 100% 100%
4.4 Perform go-round procedure		
<ul style="list-style-type: none"> Decision to perform miss-landing is made when landing standards cannot be achieved Control of waterborne aircraft and situational awareness of circuit and other traffic, airborne and waterborne, is maintained 	75% 75%	100% 100%

5. EMERGENCY PROCEDURES

Flying Standards	Before Solo	Pilot Certificate
5.1 Engine failure after take-off (water or land)		
<ul style="list-style-type: none"> Immediate actions are performed in accordance with Flight Manual with due regard to low drag/high inertia design 	75%	100%
<ul style="list-style-type: none"> A landing area within gliding distance is selected, emergency procedures are performed in accordance with Flight Manual and the waterborne aircraft is landed with due regard to high drag/low inertia design 	75%	100%
<ul style="list-style-type: none"> Landing gear retracted or extended as required 	75%	100%
5.2 Manage engine failure elsewhere in circuit (water or land)		
<ul style="list-style-type: none"> Immediate actions are performed in accordance with Flight Manual with due regard to high drag/low inertia design 	75%	100%
<ul style="list-style-type: none"> A landing area within gliding distance, on the aerodrome or elsewhere, is selected 	75%	100%
<ul style="list-style-type: none"> Emergency procedures are performed in accordance with Flight Manual and the aircraft is landed if the engine cannot be restarted 	75%	100%
<ul style="list-style-type: none"> Landing gear retracted or extended as required 	75%	100%
5.3 Manage forced landing en-route (water or land)		
<ul style="list-style-type: none"> Immediate actions are performed in accordance with Flight Manual with due regard to high drag/low inertia design 	75%	100%
<ul style="list-style-type: none"> Landing area within gliding distance is selected, all emergency checks are performed in accordance with the Flight Manual, and if an engine restart is not achieved a controlled landing is performed with due regard to high drag/low inertia design 	75%	100%
<ul style="list-style-type: none"> Landing gear retracted or extended based on available terrain 	75%	100%
5.4 Conduct precautionary search and landing (land or water)		
<ul style="list-style-type: none"> Air Traffic Services are advised of intentions if possible 	75%	100%
<ul style="list-style-type: none"> Landing area is selected and inspected before aircraft is landed 	75%	100%
<ul style="list-style-type: none"> Landing gear retracted or extended as required 	75%	100%
5.5 Capsize		
<ul style="list-style-type: none"> Passenger pre-flight brief conducted 	75%	100%
<ul style="list-style-type: none"> Harness release briefing conducted 	75%	100%
<ul style="list-style-type: none"> Exiting the waterborne aircraft briefing conducted 	75%	100%
<ul style="list-style-type: none"> Personal flotation equipment briefing conducted 	75%	100%
5.6 Manage abnormal situations		
<ul style="list-style-type: none"> Abnormal situation involving fuel, electrical, airframe including undercarriage considerations, flight instrument, flight control, engine or radio, fire, smoke and fumes are identified 	75%	100%
<ul style="list-style-type: none"> Appropriate emergency procedures are conducted in accordance with Flight Manual and published procedures while maintaining control of the waterborne aircraft 	75%	100%

