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FOOT LAUNCHED POWERED AIRCRAFT (FLPA) TRAINING SYLLABUS - POWERED HANG GLIDING

Hg Hill or Tow to Powered hang glider (The PHG Endorsement)

1) Course run by:

Instructor (Power) HG may teach whole course to any student holding HG CP rating (hill or tow) or above.

Instructor (Power) HG may also teach whole course to any student holding full annual membership who has completed all HG EP and CP (hill) exercises except Phase 9. (In such cases the qualification will be recorded as a phg rating.)

Senior Power Coach phg may teach whole course to any student holding a hg Pilot rating or above.

Senior Power Coach phg may teach 'Additional tasks for full Endorsement' to any pilot holding a restricted endorsement.

Power Coach phg may only teach 'Additional tasks for full Endorsement' to any pilot holding a restricted endorsement.

2) Pilot Entry Qualification:

See above.

3) Course Syllabus:

a) Ground School

i) Introduction to the power unit and associated equipment

The pilot under training will demonstrate an understanding of all the component parts of the motor unit and their inter-relationships. Particular emphasis will relate to:

(1) Power unit component parts.
(2) Assembly and packing away.
(3) Day inspection of power unit.
(4) Controls: ignition switch; throttle(s); choke; prop brake; starter mechanism; harness controls.
(5) Adjustments for different pilots.
(6) Other equipment; windsock / streamers; tools; basic spares (plug, pull start spring), water trapping funnel, fuel catching tray, ground spike, wheels.
(7) Suitability of chosen glider – weight range, flying characteristics.
(8) Adaptations required to glider – keel length, vg rope, wheels, control frame position and size

ii) Fuel

The pilot under training will demonstrate an understanding of:

(1) Dangers from fuels.
(2) Petrol / oil mixtures (different mixtures/oils for running in, synthetic / semi-synthetic oils etc.).
(3) Water in fuel.
(4) Storage and transport.

iii) Safety

The pilot under training will gain an understanding of:

(1) Dangers to self and others: - propellers
- fuel

(2) Kill switch and engine stopping.

(3) Procedures in the event of fire.

(4) Safety equipment – first aid kit, fire extinguisher, helmet, eye protection, ear defenders

(5) In-flight dangers: - snagging the harness
- Engine failures
- Loose items
- Fire

iv) Maintenance and repair

The pilot under training will gain an understanding of:

(1) Log books and record of usage.

(2) Daily inspections and servicing.

(3) Use of manufacturer's parts whenever possible.

(4) Care of propellers (balance, repair limits (Don't repair!)

(5) Vibration and fatigue life of parts

v) Starting Procedures

The pilot under training will gain an understanding of starting procedures, including:

(1) Daily Inspection of complete aircraft.

(2) Preparation before starting engine (ie fuel line bleeding).

(3) Suitability of area.

(4) Pre engine start checks (fast – fuel, all clear, security, throttles shut).

(5) Priming and starting sequence.

(6) Normal shutting down procedures and in emergency.

(7) Ground running considerations.

b) Theory

i) Powered Hang Glider: critical flight differences

The pilot under training will demonstrate understanding of:

(1) The concept that power governs climb and pitch (bar position) governs air speed.

(2) The importance of climbing from take-off with sufficient airspeed (with bar pressure) and the DANGER of climbing too steeply with power and NOT enough airspeed. (Emphasise that the pilot has to keep the aircraft's attitude correct by keeping the bar pulled in.)

(3) The altered relative bar position with prone powered harnesses (Pilot hangs further forward so trim position appears to be further rearward).

(4) Torque effects.

(5) Emergency and safety procedures.

(6) Co-ordination of pitch (bar) with power changes.

(7) Thrust line – importance of alignment with wing.

(8) Winding–in characteristics in a turn with power on.

(9) Change of apparent bar position with power setting.

(10) Dangers of prop wash – in air and on ground.

(11) Take-off technique.

(12) Setting up a landing:

(a) Prone units: steady legs down; power off; straight approach; out of prone fairly late; running out the landing.

(b) Supine units: steady legs down; power off; straight approach; out of supine early (300ft agl for first attempts, 100ft agl minimum); running out the landing.

ii) Airmanship and Navigation

The pilot under training will demonstrate understanding of:

(1) The choice of safe field including climb-out clearance, ground conditions, turbulence generators, obstructions and overshoot areas, including landing out behaviour.
(2) Assessment of conditions for flight.
(3) Safe areas for onlookers.
(4) Noise nuisance and congested areas.
(5) Emergency stopping and take-off abort.
(6) Techniques for avoiding and recovering from pitch-over caused by stalls and sudden power loss.
(7) Methods of navigation. Planning a 30 km (total) Aeronautical Chart based navigation flight either as an out and return flight with a pre-declared turn point or as a flight to a pre-declared goal. (Holders of a PPL are exempt this requirement.)
(8) Emergency and safety procedures.
(9) Air space considerations.

iii) Weather (Not required if Pilot rated or above.)

The pilot under training will demonstrate a general understanding of:

(1) Weather patterns, and associated wind direction and strength.
(2) How weather systems affect flying conditions. This will include:
    (a) Forecasts.
    (b) Cloud recognition.
    (c) High and low pressure systems and fronts.
    (d) Unstable weather, turbulence & gust fronts.
    (e) Stable weather, effect on visibility and inversions.
    (f) Stable/unstable conditions.
(3) How the following localised effects affect flying conditions:
    (a) Airflow on and around hills. Katabatic flow.
    (b) Wind gradient.
    (c) Turbulence, venturi effect and gusts.
    (d) Sea-breezes.
    (e) Thermal cumulus cloud development.
    (f) Standing waves and their effect.
(4) Weather in XC Situations. This will include:
    (a) Methods of determining wind direction.

iv) Air Law

The pilot under training will demonstrate a thorough knowledge of air law and regulations applicable to powered foot launched aircraft with specific reference to `the exemption' to the ANO.

c) Flight training: Restricted Endorsement

i) Daily checks and pre-flight checks.
ii) Observe practical demonstrations.
iii) Practice running with wing without power unit (use lightweight training harness.)
iv) Attach power harness and do runs with a throttle restriction fitted but using mouth throttle (demo first).
v) Demonstrate launch abort.
vi) Non Pilot rated trainees only: Complete three satisfactory powered straight flights from a flat site with approximately 50ft. ground clearance (Instructor to adjust heights to suit site limitations), with unassisted take-off runs, good airspeed and throttle control, good directional control (maintaining course) and finish with stand-up power-off landings (mouth throttle spat out). Instructor must have a means of communication with the student. (E.g. Signal bats or radio.)

vii) Non Pilot rated trainees only: Three consecutive powered flights from a flat site with approximately 500ft.ground clearance, with unassisted take-off runs, smooth 90 deg. left and right turns including good airspeed and throttle control and finish with stand-up power-off (switched off) landings. (Instructor must have one-way radio communication with the student.)

viii) 2 satisfactory launches to minimum of 1000ft a.t.o.

ix) Pilot rated trainees only: 1 satisfactory flight of at least 10 minutes involving climbing to a minimum of 1500ft a.t.o. and making left and right turns under power.

x) Demonstrate consistently good launch technique.

xi) Carry out an accurate power-off landing to the satisfaction of the Instructor from at least 500ft. (Instructor must have one-way radio communication with the student.)

xii) Demonstrate an ability to fly co-ordinated 360 deg. turns under power in both directions (avoiding winding-in tendency).

xiii) Non Pilot rated trainees only: Complete 3 power-off landings within 20m of a defined spot in winds of less than 5 mph.

xiv) Non Pilot rated trainees only: Complete 3 power-off landings within 20m of a defined spot in winds of more than 10 mph.

xv) Display the ability to fly safety with others, maintaining a good Look Out, complying with the Rules of the Air and exhibiting good Airmanship, and demonstrate an ability to manoeuvre safely, considerately and in accordance with air traffic rules.

Additional tasks for full Endorsement

xvi) Demonstrate the ability to accurately assess suitable flying weather.

xvii) Minimum of 5 hours logged airtime as pilot in command on powered hang gliders, hang gliders or microlights of which at least 3 hours must be on powered hang gliders.

xviii) Non Pilot rated trainees only: Minimum of 25 flights total logged as pilot in command on phg.

xix) Pilot rated trainees only: Minimum of 10 flights total logged as pilot in command on phg.

xx) Must have successfully flown hang gliders or powered hang gliders or microlights as pilot in command on at least 8 separate days within the previous 9 months.

xxi) Pass the BHPA `Power Rating' written exam. (This applies to all pilots regardless of their qualifications due to anomalies in Air Law regarding FLPA's)

xxii) Complete a 30 km (total) Aeronautical Chart based navigation flight with a pre-declared turn point or as a flight to a declared goal or a triangle. (Holders of BHPA Advanced Pilot rating and/or PPL are exempt this requirement.)

xxiii) Optional: 1 in-flight engine stop and restart.

xxiv) PC/SPC/Instructor (power)'s final assessment of attitude and airmanship.

Nb.

- All session a) Ground School and b) Theory tuition must be completed before any session c) Flight Training is commenced.
- A flight in a dual microlight with an Instructor is recommended before Flight Training commences. Specific points that this flight should cover are:
  1. Correct and incorrect climb angles after take-off.
  2. How the flexwing winds in during a full power turn.
  3. What happens with a sudden engine failure, and the desirability of smooth power changes.
  4. Bar / power co-ordination.
  5. Power has to be on throughout in order to climb.
- Ideally the supervising Instructor (power) should check fly the combination to verify trim, hang point and suitability. It also reassures the pilot under training and makes it possible to feedback factors like general handling that may be encountered.
- Simulator: A hg tripod simulator can be very useful:
  - Supine units: Getting the pilot under training used to getting in and out of the supine position.
  - Prone units: Getting the pilot under training used to the bar position. By pushing on the rear of the harness to simulate thrust, the supervising Instructor (power) can check that the pilot under training allows the bar to move to the correct powered harness trim position.

- Suitably sized wheels must be fitted to the glider base bar.
- Avoid nil-wind conditions for first flights.
- Ensure that the pilot is competent at flying the glider to be used.
- All aircraft movements must be correctly entered in the pilot under training's own logbook and qualifying tasks signed off.
- Task c xxii: Where airspace infringement is a possibility, the supervising SPC/Instructor (power) should consider shadowing the student to ensure that this does not occur.

Privileges: Pilot undergoing phg training:

A pilot who has completed session a) Ground School and b) Theory and who does not hold a BHPA Pilot or Advanced Pilot hg rating:

- May fly only under the direct supervision of the Instructor (power).
- May fly only either within sight of or in pre-arranged radio contact with the supervising Instructor (power) unless he is performing a declared cross-country task under the supervision of the Instructor (power).

A pilot who has completed session a) Ground School and b) Theory and who holds a BHPA Pilot or Advanced Pilot hg rating:

- May fly only under the direct supervision of a SPC or Instructor (power).
- May fly only either within sight of or in pre-arranged radio contact with the supervising SPC/Instructor (power) unless he is performing a declared cross-country task under the supervision of the SPC/Instructor (power).

Privileges of FLPA Restricted Endorsement:

A pilot holding a FLPA Restricted Endorsement phg:

- May fly only under the direct supervision of a PC/SPC/Instructor (power).
- Is entirely responsible for all aspects of his flight including site selection, airspace issues, weather suitability etc.
- May only fly within 8nms of his take-off field (unless performing a declared cross-country task under the supervision of a PC/SPC/Instructor (power)).

Privileges of full FLPA Endorsement phg:

A pilot holding a FLPA Endorsement phg:

- May operate without restriction, in accordance with airlaw and BHPA rules.