Hang Gliding Federation of Australia
www.hgfa.asn.au

Powered Paragliding Cross Country Flying Endorsement

V-20170130

CROSS COUNTRY FLIGHT SKILLS

1 Objectives

1.1. The student under radio supervision will demonstrate the ability to:

a. Assess meteorological conditions using internet forecasts and local wind indicators.

b. Understand VMC, VTC, VNC & ERC

c. In relation to airspace and wind strength/ direction set a flight plan.

d. Assess landing options from the air.

e. Under supervision, land and re-launch from a field more than 10 km from the original take off point.

f. Under supervision student will fly to 1000 ft and return to landing paddock with motor idle.

2 Detail

2.1. Venue/lesson type: Approved training site.

2.2. Lesson duration: 1-2 hours in two sessions

2.3. Explanation: Demonstrations and student flight practice.

2.4. Equipment: Paraglider, Paramotor, Wheelbase, Head set, Radios, Altimeter, Map or navigation device.

2.5. Prerequisites:

1) Has completed and holds a PPG endorsement.
2) Has completed and holds a HGFA VHF Radio Operators endorsement.
3) Has gained a minimum 20 hours of flying experience over a minimum of 25 flying days, since attaining a PPG Certificate.

2.6. Student will communicate landing intentions to instructor for approval prior to landing in out field.

3 Progressive Check list

3.1. Weather.

3.2. Fuel.

3.3. Airspace.

3.4. Communications.

3.5. Launch area.

METEOROLOGY

4 Objectives

4.1. The pilot will be familiar with the basics of aviation meteorology and understand the concept of micrometeorology.

4.2. The pilot will be able to explain the relationship between air movement and glider/wing behaviour and performance. The student will be familiar with resources for meteorology observations, and understand weather charts.

4.3. Duration: 1 hr Classroom.

5 Applied Meteorology

5.1. Understanding general forecasts and aviation forecasts.

5.2. Wind strength and direction, observations and judgment.

5.3. Wind strength and terrain induced turbulence (rotor).

5.4. Other causes of turbulence.

5.5. General weather observations (clouds, fronts, squalls, storms, etc).

5.6. Pressure systems, air masses and fronts.

6 Meteorology as applied to safe operations

6.1. The relationships of airspeed, wind strength and ground speed.

6.2. Glide angles at varying airspeed and penetration.

6.3. Headwinds and the relationship between throttle and angle of attack and airspeed (AOA).

6.4. Wind strength and airflow effects on takeoff run and pitch control.

6.5. Wind strength effects on landing, bleed-off and flare.

6.6. Wind gradient considerations and dangers.

6.7. Local micrometeorology (sea, land and valley breezes, katabatic and anabatic).

6.8. Temperature: (lapse rate, stability, inversions, temperature trace, dew point).

6.9. Convection and thermic lift.

6.10. Orographic clouds, cumulonimbus and cloud suck.

NAVIGATION

7 Objectives

7.1. The pilot will be able to navigate the aircraft under visual meteorological conditions using pilot navigation methods.

7.2. The pilot will be able to read a VNC and ERC Low, understanding Airspace restrictions.

8 Detail

8.1.	Venue / Lesson type:	Briefing room / Theory briefing.
8.2.	Duration: Approximately:	1 hour.
8.3.	Equipment:	White board, videos
8.4.	Other materials:	VNC & ERC Low chart. GPS.

9 Basic Concepts, Definitions and Charts

9.1. Latitude and Longitude.

9.2. Practical navigation – definitions.

9.3. VNC & ERC Low Charts.

9.4. NOTAMs

10 Flight Planning

10.1. Weather considerations: wind, cloud, visibility. (Reiterate VMC requirements)

10.2. The flight plan: fuel requirements, radio requirements, altitudes, air space.

10.3. Calculating distances.

10.4. Altimeter settings and QNH (the barometric altimeter setting which will cause the altimeter to read altitude above mean sea level).

11 Low Level Navigation

11.1. Turbulence: Wind, shear, mechanical, convective turbulence.

11.2. Lift: thermic, ridge, convergence.

11.3. Obstacles.

11.4. Emergency landing options.

12 References

12.1. HGFA Operations Manual.

12.2. Microlight Pilot’s Handbook - Brian Cosgrove.

12.3. Associated Air Services Australia publications/charts.

12.4. Meteorology & Navigation - Trevor Thorn.

12.5. Navigation Computer Handbook.

12.6. Ultralight Navigation.

RADIO OPERATIONS

13 Objectives

13.1. The pilot will demonstrate knowledge and the use of VHF Radio and CASA requirements governing radio procedures.

13.2. The pilot will be able to explain the rules associated with radio operations.

14 Check list **(See Radio Operators Endorsement documentation)**

14.1. VHF Radio - what it is and how to use it.

14.2. Definitions: Broadcast, report, etc.

14.3. What to say and how to say it.

14.4. Radio procedures.

14.5. Emergency radio procedures.

14.6. Radio usage responsibilities.

14.7. Group Calling: When it is acceptable and the ongoing individual pilot responsibility.

14.8. Radio wave propagation and long-range communications.

15 References

15.1. HGFA Operations Manual.

15.2. Flight Radio for Pilots - Trevor Thom.

15.3. Flight Radio for Pilots VFR (Visual Flight Rules) operations CD.

15.4. Air Services Australia publications.

15.5. ERSA (En Route Supplement).

15.6. ERC's, VTC's (En Route Chart, Visual Terminal Charts).

15.7. Other Supplements.

MAINTENANCE

16 Objectives

16.1. The pilot will be able to maintain the aircraft to manufacturer's specifications.

17 Detail

17.1.	Venue / Lesson type:	Briefing room, Hanger, Theory lecture-discussion, practical sessions.
17.2.	Lesson Duration:	4 - 6 hours / 2 - 3 sessions.
17.3.	Equipment:	White board, Aircraft.
17.4.	Other materials:	HGFA Operations Manual, Maintenance documents, PPG Bible Chapter 23.

18 Power Unit

18.1. Periodic inspection requirements.
18.2. Inspection criteria.
18.3. Aircraft log books.
18.4. Defect reports.
18.5. Repairs, modifications.
18.6. Locking procedures for aircraft bolts.
18.7. Belt tightening and belt grip.
18.8. Heavy landing inspections.
18.9. Corrosion / Wear.
18.10. Engine mounts.
18.11. Cage.
18.12. Propeller, prop tape.
18.13. Engine sound.
18.14. Tuning.
18.15. Ignition system.
18.16. Fuel Mix.
18.17. All secure.
18.18. Electrical.
18.19. Fuel filters, fuel lines.
18.20. Exhaust system.
18.21. Attachment points.

19 Paraglider

19.1. Sailcloth / stitching.
19.2. Trimmers.
19.3. Porosity.
19.4. Line stretch.

20 References

20.1. Manufacturer's Handbook, HGFA Operations Manual, Aircraft Log Book, Maintenance Documentation.
20.2. Powered Paragliding Bible

PRACTICAL SKILLS CHECKLIST:

21 Following is a checklist of skills, all of which need to be successfully achieved, demonstrated or understood, before a pilot can be awarded a Cross Country Powered Paragliding endorsement.

21.1 Flight preparation including fuel management and weather assessment.

21.2 A thorough understanding of airspace regulations and flight planning.

21.3 A thorough understanding of VHF broadcast requirements.

21.4 Pre-flight & safety checks:
Paramotor, Paraglider, Wheelbase, Lines, Speed System, Trimmers, Hand Throttle, Communications Equip., and any other equipment required.

21.5 Demonstrates a thorough understanding of rigging a speed system or trim tabs. Also the ability to safely utilize them and the effects on fuel consumption and flight range.

21.6 Ability to operate with other aircraft including airstrip protocol.

21.7 Competent launch and landing in: a: Nil wind
b: Moderate winds

21.8 Full understanding emergency Cross-wind & Down-wind Landings:
The focus being on avoiding them at all costs by always having an appropriate emergency landing option in sight.

22 Two cross country flight with a minimum of 25 km from take off, one with outlanding and re-launch.

22.1 Has gained a minimum 20 hours of flying experience over a minimum of 25 flying days, since attaining a Powered Paragliding Certificate.

Issuing the Cross Country Endorsement.

23 A Powered Paragliding Certificate shall be issued by the Instructor when the pilot has attained all the competencies set out in the syllabus and has passed the theory examination. Then, having flown for not less than 20 hours over 25 days, including 10 hrs under the guidance of a PPG SO/SSO or their instructor, and when the instructor satisfied that the pilot is competent to judge conditions for safe flying, achieving and demonstrating the skills required and knowledge, the instructor may issue the Cross Country PPG endorsement.

23.1 **Endorsement will be:**

Powered Paragliding Cross Country Endorsement – XC

Powered Paragliding Formation Flying Endorsement – FF

(or acronym as designated by the HGFA administration)