

PROPOSED PPL (A) GROUP D  
MPG  
SYLLABUS  
SOLO METHOD

**PPL GROUP D (MPG)  
SYLLABUS FOR SOLO TRAINING  
METHOD**

**INTRODUCTION**

This syllabus has been formulated by the British Microlight Aircraft Association and is approved by the Civil Aviation Authority (CAA).

All Motor Para-Glider (MPG) instruction **MUST** be conducted according to this and no other syllabus - unless it is submitted to and approved by CAA.

There is a school of thought that feels that the nature of the modern canopy is such as to warrant a preliminary para-glider course prior to undergoing powered training.

The BMAA feel that this would complicate the issue and point out that the flexwing microlight pilot does not have to undergo a preliminary hang gliding course.

Acknowledging that the modern canopy may have certain attributes which make it less forgiving, it must also be realised that any training on the solo method will be undertaken on the present forgiving type of canopy. By the time a modern canopy has been given Section S Approval and been fitted to a motor para-glider, there will be dual training available to eliminate the problem.

There are two main sections - 1. Flying  
- 2. Ground Subjects

The Flying section is divided into four phases and is further broken down into exercises. Each exercise is then further sub-divided into different elements, each of which must be fully understood by the student.

Each individual exercise has a specific stated aim. To ensure that these aims are achieved, each phase has a specific stated standard of skill which must be achieved by the student.

In general, instruction should not proceed to a next phase until the student has attained the required standard on the preceding one.

**USE OF THE SYLLABUS**

Every student should be issued with a copy of the complete syllabus and each element therein should be ticked off as completed to the satisfaction of the instructor and acknowledged by the student.

No format is laid down for the ground subjects but to say that adequate and appropriate knowledge must be acquired as flight training progresses.

A record card of student progress must be maintained and kept by the school providing the training. BMAA Form T/001 is suitable for this purpose.

## SUMMARY OF SYLLABUS

### PART 1 (FLYING)

#### PHASE 1

- 1.1 Aircraft Familiarisation
- 1.2 Preparation for Flight and Action after Flight

#### PHASE 2

- 2.1 Air Experience in dual controlled Flexwing Microlight
- 2.2 Ground Control of Trike
- 2.3 Ground Control of Trike with Canopy attached prior to Launch
- 2.4 First Solo Circuit

#### PHASE 3 7 HOURS

Solo circuit of local area and general flying consolidation up to GFT with

- Minimum 25 take-offs and landings
- Local flying no further than 5 nm of take-off point (except in Phase 4)
- Hours as required to complete the minimum of 7 hours total flying experience (excluding GFT) and to include the following exercises

- 3.1 Effect of Controls
- 3.2 Straight and Level Flight
- 3.3 Climbing / Descending
- 3.4 Medium Level Turns / Climbing and Descending Turns
- 3.5 Slow Flight / Stalling
- 3.6 Take off and Climb to Downwind Position
- 3.7 The Circuit
- 3.8 Advanced Turns
- 3.9 Forced Landings with and without Power

#### PHASE 4 5 HOURS

A minimum of 5 hours navigation training (at least 3 hours of which MUST be solo) to include

- Two 25 nm solo cross country flights to include one outlanding during each of the flights.
- The two solo cross country flights must be over different routes with the outlandings at different sites.

- 4.1 Pilot Navigation

**PART 2**

**GROUND SUBJECTS**

1. MEDICAL REQUIREMENTS
2. PRINCIPLES OF FLIGHT
3. AVIATION LAW
4. AVIATION NAVIGATION/MAP READING
5. AVIATION METEOROLOGY
6. AIRFRAMES AND ENGINES
7. AIRCRAFT INSTRUMENTS
8. FIRE, FIRST AID AND SAFETY EQUIPMENT

PHASE 1  
PRE-FLIGHT PROCEDURES  
&  
AIRFIELD RULES

1.1 AIRCRAFT FAMILIARISATION

*AIM: To become familiar with all  
the component parts, controls  
and systems of the aircraft.*

1.1.1. EXPLANATION OF THE AIRCRAFT

- \_\_\_ Rigging / de-rigging
- \_\_\_ Component parts of aircraft
- \_\_\_ Main flight controls
- \_\_\_ Engine controls

1.1.2 EXPLANATION OF COCKPIT LAYOUT AND SYSTEMS

- \_\_\_ Operation of flying controls
- \_\_\_ Operation of engine controls
- \_\_\_ Instruments
- \_\_\_ Electrical system
- \_\_\_ Fuel system
- \_\_\_ Operation of safety equipment

1.1.3 CARE OF CANOPY

- \_\_\_ Understanding of material and lines
- \_\_\_ Care of material and rigging

1.1.4 CHECK LISTS AND DRILLS

- \_\_\_ Use of check list and drills
- \_\_\_ Instinctive knowledge of position of controls
- \_\_\_ Familiarisation of hand signals and verbal Commands

1.1.5 EMERGENCY DRILLS

- \_\_\_ Action in the event of fire in air or on ground
- \_\_\_ Failure of equipment or systems
- \_\_\_ Escape drills

1.2 PREPARATION FOR FLIGHT  
&  
ACTION AFTER FLIGHT

*AIM: To understand how to prepare the aircraft and the pilot for flight and how to leave the aircraft.*

1.2.1 AIRFIELD RULES / PROCEDURES / SAFETY

- \_\_\_ Standing orders
- \_\_\_ Booking out
- \_\_\_ Windsock
- \_\_\_ Signals square
- \_\_\_ Fuel storage
- \_\_\_ Fire extinguishers
- \_\_\_ Smoking

1.2.2 STUDENT COMFORT

- \_\_\_ Seating position
- \_\_\_ Suitable clothing for expected conditions

1.2.3 FLIGHT AUTHORISATION & AIRCRAFT ACCEPTANCE

- \_\_\_ Pre-Flight planning
- \_\_\_ Aircraft documentation
- \_\_\_ Air Traffic Control information
- \_\_\_ Personal equipment

1.2.4 PRE-FLIGHT CHECKS

- \_\_\_ Use of manufacturer's check list or mnemonic
- \_\_\_ Explanation of extra items to check if aircraft only just rigged

1.2.5 EXTERNAL CHECKS

- \_\_\_ Position of aircraft suitable for starting
- \_\_\_ Availability of fire extinguisher
- \_\_\_ Taxi Path is unobstructed

1.2.6 STARTING & WARMING UP ENGINE

- \_\_\_ Pre-start checks
- \_\_\_ Stages and controls involved
- \_\_\_ Signals that may be used

1.2.7 PRE-TAKE OFF CHECKS

- \_\_\_ Use of manufacturer's check list or suitable mnemonic
- \_\_\_ Importance of this check (Vital Actions)

1.2.8 STOPPING / SWITCHING OFF

- \_\_\_ Stages and controls involved

1.2.9 LEAVING THE AIRCRAFT

- \_\_\_ Suitably parked / picketed
- \_\_\_ Controls locked or restrained
- \_\_\_ Brief external check

1.2.10 COMPLETION OF POST-FLIGHT DOCUMENTATION

- \_\_\_ Booking in
- \_\_\_ Reporting of defects
- \_\_\_ Entry in Personal Flight log book
- \_\_\_ Entries in Aircraft Engine/Airframe log book

STANDARDS REQUIRED AT THE END OF PHASE 1

- To be fully aware of all ground rules and procedures.
- To be fully aware of all checks required before and after flight
- Full understanding of hand signals and verbal commands to be used
- Competence in rigging, preparing canopy and de-rigging.

## PHASE 2

### LAUNCH CONTROL AND 1ST SOLO

#### 2.1 AIR EXPERIENCE FLIGHT IN FLEXWING MICROLIGHT

*AIM: To familiarise the student with the unusual environment of flight.*

- \_\_\_ Foot throttle control
- \_\_\_ Take off and descent attitudes
- \_\_\_ Appreciation of ground rush, round out and final flare
- \_\_\_ Appreciation of circuit area

#### 2.2 GROUND CONTROL OF TRIKE

*AIM: To familiarise the student with the foot throttle and ground handling without canopy attached.*

##### 2.2.1 TAXI-ING PRACTICE WITHOUT CANOPY ATTACHED

- \_\_\_ Straight taxi-ing
- \_\_\_ Turning, braking and stopping

#### 2.3 GROUND CONTROL OF TRIKE AND CANOPY

*AIM: To familiarise the student with control of the canopy and trike just prior to launch.*

- \_\_\_ Canopy inflation - self inflation or wing tips
- \_\_\_ Action of controls on canopy
- \_\_\_ Taxi-ing straight and into wind with canopy inflated

#### 2.4 1ST SOLO CIRCUIT

*AIM: To execute a take-off and climb to downwind, complete the circuit, approach to land, go round, complete the circuit and land.*

##### 2.4.1 SOLO CIRCUIT STUDENT IN RADIO CONTACT WITH INSTRUCTOR TO RECEIVE VERBAL & HAND SIGNAL COMMANDS.

- \_\_\_ Circuit completed

#### STANDARDS REQUIRES AT THE END OF PHASE 2

The Student is to be fully competent in starting the engine, inflating the canopy, taxi-ing forward to position the canopy overhead in a stable condition prior to launch and have successfully completed one take-off, circuit, go round again and landing under the verbal and visual command of the instructor.

**PHASE 3**  
**SOLO CONSOLIDATION**  
**TO**  
**GFT STANDARD**

3.1 CIRCUIT CONSOLIDATION

*AIM: To execute a take-off and climb to downwind.  
To complete the circuit and land.  
To make sufficient approaches and go rounds to  
practise flared landings combining power and  
canopy brakes; also, approaches and flared  
landing without power.  
To be competent to complete the entire exercise  
without receiving verbal or visual commands from  
the instructor.*

3.1.1 SOLO CIRCUIT

\_\_\_  
\_\_\_ Student in radio contact to receive verbal and hand signal commands  
until able to take off and land unassisted with or without power.

LOCAL FLYING TO INCORPORATE  
PRACTISE IN THE FOLLOWING  
EXERCISES TO GFT STANDARD

3.2 STRAIGHT & LEVEL FLIGHT

*AIM: To attain and maintain flight in a  
straight line at a constant altitude.*

3.2.1 AIRMANSHIP

\_\_\_  
\_\_\_ Lookout  
\_\_\_ Regular checks on fuel state  
\_\_\_ Regular checks on engine instruments  
\_\_\_ Regular checks on canopy

3.2.2 STRAIGHT FLIGHT

\_\_\_  
\_\_\_ Method/s of assessing aircraft attitude in roll - the horizon  
\_\_\_ Altitude appreciation and control  
\_\_\_ Visual reference point  
\_\_\_ Regaining and maintaining visual reference point  
\_\_\_ Effect of torque at different power settings

3.2.3 LEVEL FLIGHT

\_\_\_  
\_\_\_ Power required dependent on load carried  
\_\_\_ Method/s of assessing aircraft attitude in pitch - the horizon  
\_\_\_ Attitude appreciation and control  
\_\_\_ Hands off trim  
\_\_\_ Inherent stability  
\_\_\_ Use of Altimeter to check level

3.2.4 SPEED CONTROL

\_\_\_  
\_\_\_ Use of brakes to vary speed

### 3.3 CLIMBING & DESCENDING

*AIM: To enter and maintain a full power climb and steady cruise climb including return to level flight.*

*Also, to enter and maintain a steady glide descent and steady cruise descent, including return to level flight.*

#### 3.3.1 AIRMANSHIP

- \_\_\_ Look out
- \_\_\_ Altimeter setting
- \_\_\_ Position of aircraft in relation to Airways and Regulated Airspace etc
- \_\_\_ Awareness of blind spots
- \_\_\_ Engine checks

#### 3.3.2 CLIMBING

- \_\_\_ Correct entry to climb
- \_\_\_ Levelling off and maintenance of selected altitude
- \_\_\_ Full power climb
- \_\_\_ Cruise climb
- \_\_\_ Checks during climb
- \_\_\_ Effect of brake during climb

#### 3.3.3 DESCENDING

- \_\_\_ Correct entry to descent
- \_\_\_ Levelling off and maintenance of selected altitude
- \_\_\_ Checks during descent

##### *Glide descent*

- \_\_\_ Rate of descent and angle of descent
- \_\_\_ Effect of windspeed and use of windspeed on glide angle
- \_\_\_ Use of brakes to control glide angle
- \_\_\_ Use of brakes to produce minimum sink without stalling

##### *Powered/Cruise descent*

- \_\_\_ Relationship between power and airspeed
- \_\_\_ Control of rate/angle of descent
- \_\_\_ Control of angle of descent by visual reference point (as on finals)
- \_\_\_ Use of brakes

### 3.4 MEDIUM LEVEL TURNS/CLIMBING AND DESCENDING TURNS

*AIM: To enter and maintain a medium turn whilst maintaining level flight, then return to straight and level flight on a new heading.*

*Also, to enter and maintain a climb or descent whilst turning, or to enter and maintain a turn from a straight climb or descent.*

#### 3.4.1 AIRMANSHIP

- Instinctive lookout before turns
- Allowance for wind and maintenance of knowledge of position

#### 3.4.2 USE OF CONTROLS

- Co-ordination of brake and power during turns
- Effect on turns using different amounts of brake

#### 3.4.3 USE OF POWER

- To control height
- Using structure of aircraft to provide datum during the turn
- Awareness of heading during the turn
- Use of visual reference points to ensure accurate rolling out of turns
- Use of low bank angles during climbing turns to maintain rate of climb

### 3.5 SLOW FLIGHT / STALLING

Note: At this stage, full stalling of the aircraft is not possible due to CAA requirements for built in safety limitations of brake control movement.

*AIM: To become familiar with the 'feel' of the aircraft in slow flight, to recognise the symptoms of the incipient stall and to restore the aircraft to safe flight before the stall occurs.*

*Also, to recognise and enter a fully developed stall from various modes of flight both straight and turning with a return to a safe flight mode at a minimum height loss.*

*Also, to recover to safe flight mode at the incipient stall stage.*

- Flight at slowest speed (ie maximum brake) at all power settings
- Normal full scale elements can be included if future developments permit

### 3.6 TAKE OFF AND CLIMB TO DOWNWIND POSITION

*AIM: To take off safely and climb the aircraft to position on the downwind leg at circuit height.  
Also, to land safely in the event of an engine failure after take off or at any other time in the circuit; to decide against and take appropriate action if for some reason continuation of the take off would be unsafe.*

#### 3.6.1 AIRMANSHIP

- \_\_\_ Pre take off checks
- \_\_\_ Planning for power failure on every take off
- \_\_\_ Planning take off with regard to wake turbulence from other aircraft
- \_\_\_ Planning take off with regard to possible low level rotor/turbulence
- \_\_\_ Drills during and after take off. ie. constant planning for an aborted take off; a forced landing due to power failure on take off or in the circuit and monitoring engine instruments during the climb.

#### 3.6.2 FACTORS EFFECTING THE LENGTH OF TAKE OFF ROLL AND INITIAL CLIMB

- \_\_\_ Use of power
- \_\_\_ Use of controls and techniques
- \_\_\_ Nil wind / head wind
- \_\_\_ Ground surface
- \_\_\_ Weight, altitude, temperature and humidity
- \_\_\_ Maximum rate of climb
- \_\_\_ Maximum angle of climb

#### 3.6.3 UNDULATING SURFACE

- \_\_\_ Premature lift off and subsequent control

#### 3.6.4 SHORT AND SOFT FIELD CONSIDERATIONS

- \_\_\_ Effect of brake
- \_\_\_ Decision to use
- \_\_\_ Effects of use

#### 3.6.5 EMERGENCIES

- \_\_\_ Abandoned take off
- \_\_\_ Engine failure after take off
- \_\_\_ Engine failure in the circuit

### 3.7 THE CIRCUIT - THE DOWNWIND LEG, BASE LEG, FINAL APPROACH, POSITIONING AND SKILLS

*AIM: To fly an accurate circuit and carry out a safe approach and landing with or without the use of power.*

#### 3.7.1 AIRMANSHIP

- \_\_\_ Importance of constant look out during circuit and prior to turning
- \_\_\_ Base leg
- \_\_\_ Downwind checks
- \_\_\_ Planning approach and landing with regard to wake turbulence from aircraft landing ahead

#### 3.7.2 FACTORS AFFECTING FINAL APPROACH (AND LANDING RUN)

- \_\_\_ Nil wind, head wind, cross wind
- \_\_\_ Use of power
- \_\_\_ Weight
- \_\_\_ Amount of brake used

#### 3.7.3 TYPES OF APPROACH AND LANDING

- \_\_\_ Powered approach and landing
- \_\_\_ Glide approach and landing
- \_\_\_ Cross wind approach and landing
- \_\_\_ Short field approach and landing
- \_\_\_ Missed approach and overshoot (*Correct positioning to right of runway*)
- \_\_\_ Missed landing and overshoot
- \_\_\_ Effect of ground surface and slope of landing run

#### 3.7.4 THE FLARED LANDING

- \_\_\_ Ability to apply correct amount of brake and timing
- \_\_\_ Ability to control direction
- \_\_\_ Ability to cope with cross wind
- \_\_\_ Immediate turning off of ignition on touchdown
- \_\_\_ Clearing runway immediately after touch down

#### 3.7.5 THE COMPLETE TAKE OFF, CIRCUIT & LANDING

- \_\_\_ Circuit joining and leaving procedures

### 3.8 ADVANCED TURNS

*AIM: To carry out spiral turns*

#### 3.8.1 AIRMANSHIP

- \_\_\_ Importance of look out
- \_\_\_ Importance of maintaining orientation

#### 3.8.2 360 DEGREE TURNS

- \_\_\_ Level, climbing, descending
- \_\_\_ Wake turbulence

#### 3.8.3 SPIRAL TURNS

- \_\_\_ Effects of turn
- \_\_\_ Effect of weight and centrifugal force
- \_\_\_ Importance of height
- \_\_\_ Recovery - use of brake to dampen oscillation

### 3.9 FORCED LANDINGS WITH AND WITHOUT POWER

*AIM: To carry out a safe descent, approach and landing in the event of a power failure during flight and to carry out a safe unplanned precautionary landing in an unfamiliar field.*

#### 3.9.1 AIRMANSHIP

- \_\_\_ Use of correct drills
- \_\_\_ Correct landing and highly accurate speed control

#### 3.9.2 FORCED LANDING PROCEDURE

- \_\_\_ Choice of landing area
- \_\_\_ Provision for change of plan
- \_\_\_ Gliding distance considerations

#### 3.9.3 THE DESCENT PLAN

- \_\_\_ Engine failure checks
- \_\_\_ Key position on base leg

#### 3.9.4 THE FINAL APPROACH

- \_\_\_ Methods of controlling glide angle (brakes)
- \_\_\_ 'S' turns

#### 3.9.5 PRECAUTIONARY LANDING WITH POWER

- \_\_\_ Undertaken

#### 3.9.6 ACTIONS AFTER LANDING

- \_\_\_ Aircraft security
- \_\_\_ Canopy packed

STANDARDS REQUIRED AT END OF PHASE 3 - All flying skills and airman-  
ship to be up to GFT standard

## PHASE 4

### NAVIGATION/MAP READING

#### 4.1 PILOT NAVIGATION

*AIM: To fly safely and accurately in VMC and under VFR, a pre-determined route without infringing the rules governing regulated airspace.*

##### 4.1.1 AIRMANSHIP

- \_\_\_ Pre flight planning
- \_\_\_ Planned cockpit management
- \_\_\_ Adequate security of loose items

##### 4.1.2 FLIGHT PLANNING

- \_\_\_ Notams
- \_\_\_ Weather forecast and actual/s for planned route
- \_\_\_ Map selection and preparation
- \_\_\_ Choice of route
- \_\_\_ Tie down equipment

##### 4.1.3 CALCULATIONS

- \_\_\_ Magnetic headings and times on route
- \_\_\_ Fuel consumption
- \_\_\_ Weight and performance

##### 4.1.4 AIRFIELD PROCEDURE ON DEPARTURE

- \_\_\_ Organisation of cockpit
- \_\_\_ Altimeter setting
- \_\_\_ Setting of heading
- \_\_\_ Setting of time and noting of ETAs

##### 4.1.5 EN ROUTE

- \_\_\_ Maintenance of altitudes and headings
- \_\_\_ Revisions to ETA and headings
- \_\_\_ Minimum weather conditions for flight to continue at any point
- \_\_\_ In flight decisions
- \_\_\_ Navigation at minimal level
- \_\_\_ Uncertain position procedure
- \_\_\_ Last procedure

##### 4.1.6 ARRIVAL AT DESTINATION PROCEDURE

- \_\_\_ Altimeter setting (QNH to airfield QFE)
- \_\_\_ Airfield circuit and circuit joining procedure
- \_\_\_ Parking procedure
- \_\_\_ Security of aircraft

STANDARDS REQUIRED AT THE END OF PHASE 4 - Good navigational ability  
Good ability to predict weather  
High standard of airmanship

**PROPOSED AEROPLANES PART 1  
(TECHNICAL) EXAMINATION**

(BASED ON AEROPLANES PART 1 (TECHNICAL) SET D3)