MOTOR GLIDER HANDBOOK

AGL	Above Ground Level
ANO	UK Air Navigation Order
BGA	British Gliding Association
CAA	Civil Aviation Authority
CAP804	Licensing, Administration and Standardisation
CFI	Chief Flying Instructor
DCFI	Deputy Chief Flying Instructor
FI(A)	Flight Instructor (aeroplane)
FI(SLMG)	Flight Instructor (self launching motor glider)
LAPL(A)	Light Aircraft Pilot Licence (aeroplane)
kt	Knots
LAPL(S)	Light Aircraft Pilot Licence (sailplane)
MG	Motor Glider
NOTAM	Notice to Airmen
NPPL	National Private Pilot Licence
PPL(A)	Private Pilot Licence (aeroplane)
RPM	Revolutions Per Minute
SEP	Single Engine Piston (aeroplane)
SLMG	Self Launching Motor Glider. A UK only rating which covers TMGs and SLS
SLS	Self Launching Sailplane. E.g. DG400, Janus CM
SSEA	Simple Single Engine Aeroplane
TMG	Touring Motor Glider
VP	Variable Pitch

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THE BRITISH GLIDING ASSOCIATION

The BGA is the national governing body of sporting gliding in the United Kingdom under delegation from the Royal Aero Club, which in turn is a member of the Federation Aeronautique Internationale (FAI). The BGA operates through an elected Executive Committee, specialist sub-committees and a small professional staff.

PREFACE AND USE OF THIS DOCUMENT

The UK CAA describes a sailplane that can take off under its own power as a Self-launching Motor Glider (SLMG). EASA describes all sailplanes including powered sailplanes (which include Touring Motor Gliders) as 'sailplanes'. Where this document describes a motor glider (MG), it shall mean any SLMG, self-launching sailplane, TMG or microlight sailplane, regardless of which regulatory system applies.

This handbook is for the guidance of the BGA clubs that have motor gliders (MGs) operating from their sites and for the pilots and owners of these MGs.

The BGA accepts no responsibility for any of the suggested practices contained in this document. Flying motor gliders is subject to the Air Navigation Order, Part-NCO (for TMG only) and other aviation law.

The notes are intended as a general guide to motor glider operations. Each club has its operating environment and problems and should adapt these suggestions to suit their own needs.

Each motor glider pilot should carry a degree of responsibility. Motor gliding is potentially expensive, can create noise and has hazards associated with it. These factors have a bearing on the very existence of gliding and it is therefore essential that motor gliding be carried out safely, efficiently and thoughtfully, paying particular regard to our neighbours.

Motor gliding should be carried out in accordance with British Gliding Association (BGA) and Civil Aviation Authority (CAA) requirements including relevant European Aviation Safety Agency (EASA) requirements and in conjunction with club flying rules. Pilots in command of aircraft are ultimately responsible for the safe conduct of the flight and the actions that they choose to take.

Gender: All references in the text to "he/him/his" shall mean "she/her/hers" where applicable.

PART 1
CLUB ORGANISTION

1 RESPONSIBLE OFFICIAL

There should be a single Club official, reporting to the CFI, responsible for the arrangements for MG flying. This could be the Tugmaster, perhaps a “DCFI Power Flying” or even the CFI himself (should he wish to add this to his already onerous list of responsibilities).

2 QUALIFICATIONS

A current, valid licence is essential. A variety of different licences can carry qualifications valid for flying MG’s; PPL(A) or higher, NPPL, LAPL(A), or LAPL(S). Not all licences are valid for all types of MG; the BGA can advise which is most suitable. Good practice is to require in addition to the licence a gliding qualification such as Silver badge and to establish limits for recency. Most pilots will have gained a Silver badge en-route to their licence. Clubs will normally require that all who fly at the club are members.

3 AUTHORISATION

A policy is required on who may self-authorise and what authorisation is required for other pilots. It should not be difficult to get in touch with an authoriser.

4 SUPERVISION

Supervision, an integral part of normal, safe, gliding operations can be one of the principle differences found by a pilot from a conventional power-flying club. Although low experience MG pilots are best supervised by an MG instructor, most MG flying can be well supervised by a normal gliding supervisor. When “non-power” gliding supervisors are required, they should be briefed on the differences between MG and gliding operations.

5 RESOURCES

In addition to CAA and EASA pilot licensing and medical requirements, Part-NCO requirements, BGA Laws & Rules (available online) and the relevant Flight Manual, there must be ready access to weather and NOTAM briefs. Pilots should be competent in accessing this information.

There must be agreed procedures in the event of an accident.

6 RECORD KEEPING

There must be a suitable system for recording flight details and pilot’s intentions (for search & rescue purposes) together with the normal booking in and out system as found at power-flying clubs. This can sit well with the authorisation details (see 3).

PART 2
FLIGHT PROCEDURES

7 WIND LIMITS

Standard general aviation advice on taxiing in strong winds is particularly important for MGs; wing walkers/rudder holders can even be needed. A maximum surface wind speed of 25 kt is normally suitable but other issues such as turbulence and crosswind require further consideration. Refer to the aircraft flight manual.

8 PERFORMANCE

Many MGs in current use are less powerful than conventional light aircraft & have worse gliding performance than average gliders. Suitable allowances must be made at every stage of flight. Wet wings can have an extremely detrimental effect on all aspects of MG performance. Refer to the aircraft flight manual.

9 GLIDER LAUNCHING CABLES

On the face of it, taxiing over inert launching cables can seem an innocuous process. A number of fatal accidents over the years have shown, instead, that it is astonishingly easy for the cable to be picked up, perhaps by a wheel brake lever, with disastrous consequences.

There should be robust procedures for keeping MGs apart from cables, both those lying on the ground as well as those in the air; pilots should follow them meticulously.

10 COOLING & ENGINE HANDLING

Almost all motor gliders have piston engines, so care needs to be taken to keep temperatures within limits. Appropriate use must be made of cowl flaps & the time spent in both the high power / low airspeed and low power / high airspeed regimes should be minimised.

Manufacturers' figures for climb speeds should be treated with caution. The indicated airspeed that gives an impressive rate of climb for the brochure may leave little margin for keeping the engine cooling within limits. A small increase in speed may be appropriate.

11 CARBURETTOR ICING

Carburettor icing is a constant threat in the climate of Northern Europe. Therefore engine handling techniques including use of carburettor heat should be understood and used effectively.

Use of carburettor heat before well before of starting descent, when engine airflow is high, can clear the carburettor venturi of any ice. Subsequent use of carburettor heat in descent is necessary but will be less effective. Setting power several hundred RPM above idle will help to keep the engine warm, and also better simulates the performance of modern gliders.

Some MGs are not fitted with carburettor heaters, eg Fourniers, Rotax engine types. In this case, the intake air will be drawn from a warm area of the engine compartment. This does not make these engines immune from carburettor icing. It is still important to use enough power to keep the engine oil temperature above the manufacturers quoted minimum.

The CAA publish a series of safely leaflets, one of which contains further useful information on avoiding engine icing.

12 VARIABLE PITCH PROPELLORS

Many MGs are fitted with variable pitch or 3 position propellers. Pilots do not require formal VP differences training as they do on SEP/SSEA types, but do require thorough training on that type of MG. The consequences of attempting to take off or go around with the propeller pitch setting incorrect are potentially very serious.

13 INSTRUCTORS

In addition to instructor qualifications issued on aeroplane licences and sailplane licences, the BGA MGIR is available to suitably licensed sailplane instructors to teach gliding exercises. Details are in the BGA's 'instructor' requirements within 'Laws and Rules'. FI(SLMG) and FI(A) are both available to teach for the relevant licences.

14 OPERATION AT MINIMUM HEIGHT

MGs are frequently used to train glider pilots in the techniques of field landing and aerotow rope breaks. Although this training is invaluable, it should be remembered that it is still subject to the rules of the air. These rules do not prohibit flying below 500 feet AGL, but it is illegal to fly within a 500 foot 'bubble' containing persons, vessels and structures. Farm animals probably merit an even bigger separation distance.

15 NOISE

Although most MGs are quieter than most powered aircraft, they are not insulated from noise issues. Repetitively flown patterns sometimes give rise to complaints. Neighbours driven to distraction by noisier flying (tugs perhaps) can fail to distinguish between aircraft types when complaining.

Information about local sensitive areas should be easily available and pilots should be meticulous about avoiding them, particularly during climb out.

Adjusting flying to minimise noise can be a tedious business, but less so than reacting to noise complaints.

16 GO AROUNDS

Many, perhaps most, TMG landings are completed with the engine running. Pilots should be prepared to go around at any time the approach or landing is not proceeding safely. Several overrun accidents, or propeller strikes have occurred where the go around option was not used when it should have been.

17 FUEL GAUGING

Engines and avionics have made astonishing improvements in reliability. Fuel gauges, however, have not and so must always be treated with suspicion.

18 GROUND OPERATIONS

Propellers and people do not mix. Unlike power flying organisations, which strive to keep aircraft separate from people and vehicles, gliding operations involve a mixture of all three. Clubs should establish procedures that achieve as much separation as possible. Pilots have a particular responsibility to avoid conflicts whenever taxiing or ground running an engine.

The life of the propeller itself can be prolonged by avoiding operations on loose surfaces.

Suggestions for improvements to this handbook are actively sought.

The current editor is Paul Whitehead