TOURING MOTOR GLIDER TRAINING SYLLABUS

Introduction and comments.

The Glider Pilots Licence (GPL) allows for glider pilots to operate all forms of sailplane. These include traditional gliders, self-launching gliders, and other Motorgliders with a Motorglider endorsement. The new Touring Motorglider Rating has been developed in response to a request from a significant proportion of the gliding community for a licence which allows for the operation of motorised gliders only. The Touring Motorglider Rating will permit the operation of Motorgliders for power on cross-country flight, but will restrict holders of this licence to flight in motorised gliders only. In general this will be mostly (but not necessarily exclusively) "motor on" flight in those motorised gliders that may be described as "Touring Motor Gliders".

It remains incumbent on all pilots to ensure that they are fully current on all the ATC and legal requirements to operate any aircraft in controlled airspace. If a GPL with a Touring Motorglider Rating pilot wishes to operate a Touring Motorglider that pilot is responsible for ensuring that he/she can safely operate in the airspace that she/he plans to enter.

Conversion of GPL with Touring Motorglider Rating to PP: There are current regulations governing the credit in hours of a GPL towards a PPL. The Touring Motorglider Rating should not confer any further advantage on the pilot wishing to convert to a PPL than that conferred by a "conventional" GPL. Thus the pilot wishing to upgrade or convert to a PPL would have to complete all the standard tests, training, experience and examinations appropriate to the PPL.

Flight training should follow that offered to glider pilots using the same general approach and adding the motor aspects as needed.

Definitions: In terms of this licence a Motor Glider is any glider which has a motor. A Touring Motorglider is any Motor Glider that may be used for touring. Thus the use a pilot makes of the Motorglider defines the type of licence rating that is required. E.g. The same glider may be used as a self launching sailplane with engine used only to launch and then be operated as a glider or it may be operated as a touring MG.

The outline syllabus to be followed indicates the training to be covered. A detailed description of the syllabus follows.

Pupil's progression: The pupil will progress through training to solo standard with the instructor. He/she must remain the responsibility of the instructor who is required to authorise all flights. The student will usually be cleared to undertake flights at a level appropriate to her/his level of skill. The pupil will progress from local flying to more advanced levels of activity and will require clearance from the instructor to advance from stage to stage. The stages should be flight within a 15 - 20 Km radius of the field, flights into controlled airspace and ultimately landing at a controlled airfield.

The instructor carries the responsibility of ensuring that the pupil flies safely and does not exceed the instructors pre flight briefing.

Both the student and instructor are expected to operate within the framework of an SSSA approved club.

A "rating" to carry passengers (or offer introductory flights) should only be authorised once the licence is completed. - A commercial rating and instrument rating will not be approved for these aircraft that are operated in the LS1 category which specifically excludes operation "for hire or reward."

Instructors: Instructors and pilots delegated to check students for the licence will need to be identified. At present this will be done by identifying specific individuals who are rated SSSA instructors and who have the necessary skill and experience to operate in this role. These instructors will most likely be individuals with experience of flying in the controlled airspace environment. Subsequently a formal syllabus will be needed to establish new Motorglider instructors. Note that existing instructors who train on Motorgliders may be able to conduct much or all of the basic flight training and that the cross country/ controlled airspace training may require other special individuals with the necessary experience.

FLIGHT SYLLABUS (OUTLINE)

- 1. Systems
- 2. Preparation for flight and actions after flight
- 3. Introductory flight (air experience)
- 4. Effects of controls
- 5. Taxying
- 6. Straight and level flight
- 7. Climbing
- 8. Descending
- 9. Stalling
- 10. Medium Turns
- 11. Climbing and descending turns
- 12. Take off and climb
- 13. Approach and landing
- 14. Spinning
- 15. First solo
- 16. Sideslipping
- 17. Steep Turns
- 18. Precautionary Landing
- 19. Forced Landing (Loss of engine power in flight)
- 20. Navigation
- 21. Soaring
- 22. In flight emergencies

The detailed syllabus leading to the completion of the Glider Pilots Licence endorsed with a Touring Motorgliders rating is set out below.

Training for the Touring Motorglider Rating consists of a number of major elements, namely:

- Flight training in the Air exercises listed below. Some of this training will be dual (with an instructor) and some will be solo practice. A minimum of 6 solo flying hours, with at least one flight of 2 hours in a Touring Motorglider will be required for the Touring Motorglider Rating. The minimum of dual flying is 40 flights, including 20 flights in a Touring Motorglider.
- Examination in the following subjects pertaining to Touting Motor Gliding must be written and passed. These are:, Air law (Rules & Regulations), Aerodynamics - Principles of Flight, Instruments, Meteorology, Airmanship and General (covering aspects pertaining to gliding, soaring and general aspects of sport aviation.), Engines and Airframes, and Navigation, The Airlaw (Rules and regulations) examination MUST be passed before the 1st solo flight).
- The student must obtain the restricted Radio Licence by demonstrating proficiency in the use of the aircraft radio and in the related theory.
- The student must pass a flight test with a SSSA approved examiner. This will include a general flight test as well as a Navigation exercise into a Controlled Airspace. Examiner see above
- The candidate must conform to Civil Aviation Regulations in force at the time. This will include at least a class IV medical, restricted RT licence and have written and passed the Airlaw (Rules and Regulations) examination before being permitted to fly the first solo.

AIR EXERCISES (expected student outcomes in Italics)

1. Systems

Fully understand the principle and means of operation of all controls in the Motorglider. Flight controls, engine controls, undercarriage controls etc

2. Preparation for flight and actions after flight

Be able to calculate and check for the correct fuel uplift for the flight, check for lack of fuel, fuel impurities, check the Motorglider for serviceability by performing a thorough pre-flight check, confirm that Motorglider is within centre of gravity envelope.

After flight make appropriate entries in flight folio and replace control locks and covers. Tie down the aircraft if it is to be parked outside, or otherwise secure the aircraft. Must be able to derig/rig the glider.

3. Introductory flight (air experience)

4. Effects of controls

Fully understand and be able to demonstrate:

- a) Primary effects of elevator, aileron and rudder
- b) Secondary and further effects of elevator, aileron and rudder
- c) Effect of airspeed on controls
- d) Effect of propeller slipstream on controls
- e) Effect of trimmer
- f) Effect of engine controls
- g) Effect of flaps
- h) Effect of airbrakes
- i) Effect of lowering and raising undercarriage

5. Taxying

Be able to judge an appropriate taxi speed and be able to safely taxi the Motorglider in windy conditions (use of flight controls to assist)

6. Straight and level flight

Be able to smoothly and quickly transition between the following phases of flight with minimal height gain or loss.

- a) Cruise power setting
- b) Low power setting
- c) Flap

7. Climbing

- a) V_y
- b) V_x
- c) Cruise climb
- Be able to smoothly transition between or to any of the above types of climb.

8. Descending

- Understand and be able to demonstrate:
- a) Power off glide at best glide speed. Procedure for engine shut down & restart in flight
- b) Power off glide at minimum sink speed
- c) Effect of undercarriage, flap, retractable propeller, feathering prop (as applicable) on performance in 8a) and 8b).
- d) Basic final glide predictions based on wind, height etc
- e) Powered descent at nominated rate of descent.

9. Stalling

Be able to safely perform:

- a) Intentional stall recovery without power
- b) Intentional stall recovery with power (minimal height loss)
- c) Power on stall
- d) Stall under approach conditions Demonstrate ability to recover using correct control inputs from:
- a) Wing drop at stall

Low G sensation must be demonstrated

10. Medium Turns

- Be able to smoothly transition into and out of and maintain:
- *a) Medium turns to left and right*
- *b)* Steep turns to left and right Be able to:
- c) Roll out onto nominated compass headings or directions.

11. Climbing and descending turns

Understand and be able to demonstrate tendency of Motorglider to:

- a) Roll into the turn in climbing turns
- b) Roll out of the turn in descending turns

12. Take off and climb

- Be able to safely:
- a) Take off and climb with a headwind
- b) Take off and climb with a crosswind
- Be able to simulate the actions required in the event of :
- c) Engine failure after take off

13. Approach and landing

- Be able to fly a circuit safely making correct use of the radio in circuit:
- a) Approach and land to a full stop landing
- b) Approach and land with a "touch and go" landing
- c) Approach and land without power (glide approach / engine shutdown)
- d) Approach and land with power (power assisted approach)
- e) Execute a short field landing
- f) Land with and without flap
- g) Land with and without airbrake
- h) Land with a crosswind
- i) Execute a missed approach and "go around"

14. Spinning

Be able to safely demonstrate and recover from

- a) Intentional spin to left and right Demonstrate ability to recover using correct control inputs from:
- b) Inadvertent spin (recovery at incipient stage)
- c) Spin entry from both nose high stall attitude and from poorly executed turn

15. First solo

a) Execute a take off, circuit and landing solo

16. Sideslipping

- Be able to smoothly and safely transition to and from a sideslip whilst:
- a) On approach to landing as a means of height loss
- b) Just prior to landing as a means of holding off drift due to a crosswind Note: "Crabbing" method for cross wind drift often more effective in gliders and Motorgliders because of long wingspan and low wing position.

17. Steep Turns

Be able to smoothly perform: Steep turns to left and right Descending steep turns Max rate turns

18. Precautionary Landing

Safely demonstrate a simulated precautionary landing

19. Forced Landing (Loss of engine power in flight)

Safely demonstrate a simulated forced landing with engine shutdown. (Essentially "Outlanding" in gliding terms.)

20. Navigation

Be able to conduct a cross-country navigation flight, demonstrating competency in the following:

- a) Pre flight planning
- Calculation of headings and ground speeds based on wind
- Filing of ATC flight plan
- Marking of map with time marks
- b) Preparation of aircraft
- Fuel calculations and uplift
- Mass and balance
- c) In flight
- Time keeping
- Map reading
- Calculation of ETA's
- Radio Transmission with ATC / other traffic
- Flight into and out of ATC controlled airfield
- Circuit joining procedures at "unmanned" airfields

One solo cross-country flight shall consist of the following:

- A total distance of not less than 300km or 2 hrs cruise flight duration.
- Not less than 3 legs.
- At least 2 "away" full stop landings at the end of 2 of the legs.
- The pupil will fly a dual cross country with the instructor before the solo cross country.

21. Soaring

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Demonstrate competency in:

- a) In-flight engine shutdown (and retraction.)
- b) Soaring (with engine shutdown).
- c) In-flight engine (extension), restart and warm-up.
- d) Understanding of conditions leading to carburettor icing and use of carburettor heat.
- e) Demonstrate a normal engine off glide approach and landing
- f) Final glide and landing (with engine shutdown)

One solo soaring flight shall consist of the following:

- A total of at least 2 hrs of soaring flight (with the engine shut down) ending with a "power off" landing. The engine must remain shutdown for the full 2hr period. This flight may use any type or types of lift.
 - The height at which the engine is initially shut down shall be not higher than 3000' above the final landing airfield.
- The flight must be verified by means of a sealed barograph (or approved logger) and submitted to an official observer as per SSSA rules.

22. In flight emergencies.

- a) Procedures for fire.
- b) Engine restart after starter motor failure.
- c) Other emergencies

Note that the test form is attached below. This may be used to monitor training.