

# Glider Proficiency Testing and Instruction Guidelines



Model Gliding Association

An authorised SAMAA SIG

[www.samaa.org.za](http://www.samaa.org.za)

GLIDER PROFICIENCY TESTING AND INSTRUCTION

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*To arrange for instruction, tests or for any queries, please contact:*

The South African Model Glider Association (MGA) acting as an appropriately authorised special interest group of SAMAA

[www.samaa.org.za](http://www.samaa.org.za)

*A slim, graceful, long-winged craft arcs upward smoothly and steeply into the summer sky, accompanied only by the faint whistle of air accelerating past its gleaming surfaces. All eyes focus on the machine as it dwindles with each passing second - a surging aerial trout playing out yards of taut singing line. A tiny parachute blossoms and gently returns the shining nylon filament to earth. Someone hurries to pluck the blossom before it touches the ground and soon another, and then another sailplane seeks the sun. Little sound of movement is evident among the small group of pilots whose gazes pierce the sky. Yet there is tension and keen anticipation: all are alert for the tiny, almost indiscernible lift of a wing that signals a bubble of warm, rising air. Now, a turn begins and then at tightening sweep into the lift. The pilot curves his obedient ship upward, betraying his or her satisfaction by just a hint of a smile and a noticeable relaxation. Minutes, or perhaps more than an hour later, the sailplane reappears at a lower altitude and is electronically grooved to a perfect landing on the grass at the feet of its once-remote master. Such a scene is repeated and recreated thousands of times during the soaring season all over the world by men and women of all ages and talents.*

*Who are these people? What are they doing? And WHY?*

*They are R/C Soaring Enthusiasts: imaginative individuals who prefer to do their thing by piloting sleek radio-controlled model sailplanes. Why? A million answers; yet, no answers. To ask is to miss the point. To do and to be is enough while sharing a carefully kept secret. They know the close fellowship, companionship with the birds and the wind, and a supreme challenge.*

*In these frantic times which seem, more than ever, full of sound and fury, signifying nothing, there is an oasis; cool, clean, quiet and very personal. The serenity of soaring is available to each of us just for the asking. Those who pause to refresh themselves at the spring always return to it, or, having found it never depart.*

Ref. League of Silent Flight website  
[www.silentflight.org](http://www.silentflight.org)

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From a safety & control perspective, it is essential that first;

- an adequate standard be achieved before a Beginner is permitted to fly on their own, without a qualified Instructor in attendance, and,
- that further challenges be set to ensure and entice the model Pilot to continue to improve their flying skills.

With these two main objectives in mind, SAMAA produced a number of "Proficiency" tests focussed on ROG (powered) fixed wing models. The MGA, by contrast, originally only provided for Achievement Badges in the form of thermal Eagles and slope Gulls, and later developed the electric-power glider Falcons. We have subsequently "modified" the original SAMAA fixed-wing approach, to form the basis for glider instruction & proficiency rating, as the instruction approaches are similar, even though the models are inherently different. This booklet provides basic guidance to Instructors as well as Pupils, from Solo, to the achievement badges. This text has been developed with thermal gliding in mind, but a number of the aspects specific to slope soaring and electric-power glider instruction are included too.

The "Solo" test intends to ensure that any RC glider Pilot can fly and control a model glider reasonably safely by themselves. It attempts to ensure that the RC glider Pilot has a realistic working knowledge of general and Safety Rules.

This booklet contains:

- a suggested "teaching sequence" for Instructors and for Pupils
- a progress log which could make it easier for an Instructor or Pupil to monitor training or development progress
- the expected level of proficiency required for an RC glider pilot to "instruct" a Pupil
- the necessary forms required to assess a Pupil, achievement badges & instructor applications

If ever in doubt, a vast network of experienced Glider Pilots exists within Clubs who are only too keen to advise the beginner. Should a suitable Instructor not be available at your local club, then it is likely that alternate clubs, who do have active Glider Pilots, can be approached for assistance. Contact the MGA ([www.samaa.org.za](http://www.samaa.org.za)) for assistance in identifying a Club that could source suitable Glider Instructors.

**In the interests of safety, all clubs are recommended to request pilots qualified for other forms of models (e.g. powered fixed wing or helicopters) to undergo the specific glider Solo test prior to flying gliders for the first time.**

At all times, please fly safely.

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### SECTION 2

### GLOSSARY

*Achievement /  
Badge* One of the recognised badges (Bronze, Silver, Gold, Diamond,...) that requires a series of increasingly difficult glider related tasks to be successfully completed and witnessed independently.

*Aircraft /  
Aeroplane /  
Glider* In this text refers to an un-powered RC glider or electric-powered glider as defined within the most recent FAI rulings, which at the time of writing are:

- Maximum flying area 150dm<sup>2</sup>
- Maximum mass 5 kg
- Wing loading 12-75 g/dm<sup>2</sup>

*Electric power  
gliding* The activity of using an electric motor for launching a suitably equipped RC glider.

*Flight line* Means the designated area from which Pilots fly their aeroplanes.

*Frequency Peg  
/ Marker* Will be the marker used to identify the radio frequencies in use at the field. This could be either the "PEG ON" or "PEG OFF" system of control. A list of approved frequencies can be obtained from SAMAA ([www.samaa.org.za](http://www.samaa.org.za)).

*Frequency Peg  
Board* Shall mean the frequency control system used by a club to ensure control over all the frequencies which can be used at the field.

*Buddy Box* Is a system whereby the Instructor has a "master" Transmitter and can assume control of the Pupil's model.

*Glider  
Instructor /  
Instructor* A SAMAA member who has obtained at least the Gold Achievement Badge and has been approved by the MGA committee to instruct. Instructors can test Pupil pilots and approve the "Solo" rating.

Following application for Instructor status by the member's club, the MGA Training Committee may apply their discretion when assessing the applicant against the following criteria:

- The applicant shall be a fully paid up member of SAMAA and be in good standing with regards to payments
- The applicant shall be considered to be mature & experienced glider pilot
- The applicant shall have at least a Gold Badge representing their relevant discipline (Slope, Thermal, Electric)
- The applicant shall be approved and appointed by the MGA Committee

In this text "Instructor" always refers to the context of instruction for RC Gliders unless stated otherwise.

*Landing area /  
spot* Shall mean the area were gliders are intended to be landed.

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<i>Member</i>	Means a fully paid up member of SAMAA who is in good standing with the association.
<i>MGA</i>	Is the SAMAA Special Interest Group (SIG) representing Model Gliders and the interests of model glider pilots. The MGA is authorised to approve or decline achievement or proficiency requests at their own discretion.
<i>Pilot</i>	A member who is in charge of a glider, who can fly a model glider and has achieved the "Solo" proficiency as a minimum. When they switch on their radio transmitter they become a Pilot. In this text "pilot" always refers to the context of flying RC Gliders unless stated otherwise.
<i>Proficiency</i>	A level of skill regarding the general operation & piloting of RC gliders that has suitably demonstrated.
<i>Pupil / Pupil Pilot</i>	An individual who is learning to fly an R/C glider. They must have SAMAA membership but have not yet obtained the "Solo" proficiency level.
<i>RC</i>	Radio Control
<i>Rules and Regulations</i>	Shall include the SAMAA Rules and Regulations, the Club Rules and Regulations, and any Special Rules and Regulations (which have been specifically modified to accommodate any particular club / event requirements).
<i>SAMAA</i>	Is the South African Model Aircraft Association which is the Coordinating and Controlling Body for aero modelling in South Africa. All SAMAA Rules and Regulations are to be incorporated in and enforced at SAMAA registered clubs and fields.
<i>Slope soaring</i>	The activity of using slope lift for maintaining altitude for an RC glider
<i>Thermal flying</i>	The activity of using thermal lift for maintaining altitude for an RC glider
<i>Transmitter Control Area</i>	Shall be an area where all Transmitters are impounded when not in use.
<i>Transmitter / Tx</i>	Shall be a purpose made, commercially manufactured unit which has been manufactured to work within the tolerances of the approved frequency band without interfering with the adjacent frequency bands, with the intent of providing the pilot remote control of a suitably configured model aircraft.
<i>Witness</i>	To obtain the achievement badges, it is necessary to have someone independently witness the task being undertaken.

This section has been introduced to set down some guidelines for Instructors. It is intended to broadly outline the things that a Pupil should know, and its objective is to assist and remind the Instructor of things that they may take for granted, or assume to be general knowledge.

### **3.1 CHECKOUT THE PUPIL'S GLIDER**

The Instructor should endeavour to check out the Pupil's glider, and as far as reasonably. For this purpose it is suggested that the pre-flight checklist (Section 4. PRE-FLIGHT CHECKLIST) be used by the Instructor.

### **3.2 FIELD ETIQUETTE AND SAFETY RULES**

The Instructor should briefly explain the following where relevant:

- Club Rules and Flying Procedures (ref to local club rules & requirements)
- Safety Rules, Safety Code and Procedures (ref [www.samaa.org.za](http://www.samaa.org.za))
- Bye-Laws and Special Regulations (ref to sites regulations)
- SAMAA Rules and MGA Safety recommendations (ref [www.samaa.org.za](http://www.samaa.org.za))
- MGA badges (Section 7. ACHIEVEMENT BADGES)

### **3.3. GENERAL THEORY**

The Instructor should explain the basic principles of RC Gliders, flight and control to the pupil. Where possible, suitable references such as RC glider text books or flight simulators may be recommended to expand the Pupil Pilot's understanding of theoretical aspects, but these are never intended to replace any aspect of instruction. The following guidelines are based on thermal glider flying, but are generally relevant to slope soaring and electric-power gliding. Please note that it is not intended for the Instructor to provide a doctoral thesis on these aspects, but rather to provide the commonly accepted understanding of RC flight.

#### **3.3.1 Theory of Flight**

- Speed / lift as related to Bernoulli pressure principles
- Stalling
- Centre of gravity (forward vs. rearward)
- The 3 axis (yaw, pitch, roll)
- Control surface function and load
- Adverse yaw
- Air density and temperature
- Thermal lift
- Slope lift (slope soaring only)
- Rotor affect (slope soaring only)
- Thrust (electric power only)
- Mass and wing loading
- Reynolds factor

### 3.3.2 Radio Functions

- Basic RC theory (carrier wave & control)
- Actions and functions of Tx
- Actions and functions of Rx
- Actions & functions of servo's
- Radio range checks, batteries, etc.
- 35 Mhz "overlap" issue and additional safety measures (e.g. avoid cellphone & synthesised Tx)
- Maintenance and charging of radio equipment
- PPM vs .PCM receivers and "failsafe" settings
- Differences between the Tx Mode's
- Caution regarding aerial orientation & carbon / metal spars/pushrods
- Caution pointing the Tx antenna towards the model in flight
- Remember to have the correct model selected
- Confirm Tx & Rx frequencies match
- Explain stick movements, and use of trims and rates if necessary
- Demonstrate a comfortable position of hands and fingers on the transmitter

### 3.3.3 Frequency Control

- Describe both systems commonly used in South Africa, i.e. "PEG ON" and "PEG OFF" in some detail, emphasising discipline and consequences of failure to observe the rules
- Transmitter impound system
- Identify the legal SAMAA frequencies & slots

### 3.3.4 Pre-Flight Checks

- Explain the pre-flight checklist as defined in Section 4. PRE-FLIGHT CHECKLIST

### 3.3.5 Launch Check

- Launch area, hold for landing aeroplane, permission from other Pilots launching, flying, or landing (particularly with shared sites)
- Check Wind Direction, lift area, launch & landing area(s)

### 3.3.6 Flying

- Explain "stick towards the wing that's down" theory of orientation when aeroplane is coming towards the Pilot
- Explain use of elevator to adjust speed
- Practice stick "feel"
- Stalling correction & avoidance (straight line flight & circling)
- Disorientation – flying away & towards the pilot
- Dangers of flying through the sun / overhead
- De-thermaling (particularly for built up models)



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- Always turn away from the slope (slope soaring only)
- Changing altitude by means of lift
- Accurate positioning / control of model in the sky
- Approach and landing pattern/circuit
- Low level wind shear/ground effect when turning near to the ground
- Avoid the rotor area (slope)
- Landing
- Identification of Pupil's weakness, revision and practise to improve
- Explain the lost model approach
- First Solo flight, Solo proficiency test
- Bronze achievement badges & further

### 3.4. FLIGHT INSTRUCTION

**NO PUPIL MAY FLY THEIR GLIDER UNATTENDED**

Once the Pupil has listened to all the theory, has forgotten more than half and misunderstood the rest, they are almost ready to fly (☺), but again only after the pre-flight checklist has been completed:

#### 3.4.1 Launch Checks

- Launch – thermal:
  - Connect to the winch/bungy/tow line
  - Explain "tapping" technique on the winch for built up wings/light gliders (gas bags)
  - Explain use of rudder for tracking on the launch
  - Explain up elevator for increased line tension, down elevator for increased speed
  - Rotation - too much tension/speed – wings bending/break
  - "Zoom" or float off depending on glider type
- Launch – Electric:
  - Use of down elevator trim during climb phase (as necessary)
  - Rotation – balancing speed to climb rate to prevent stalls
  - Rudder/aileron correction during climb path
  - Prevention of stall at the top of the climb after motor is switched off
- Launch - Slope:
  - Launch with model's nose pointing slightly downwards, so that the wind does not snatch the plane out of your hands
  - Use speed to gain height, i.e. do not hang on the elevator

#### 3.4.2 Trim checks

- Check and adjust trims on transmitter for hands-off level flight
- Always land immediately if trims are way-out or aeroplane behaves abnormally

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- After test flight, land and adjust trim on aeroplane to re-centre trims on transmitter
- Re-check trims in flight, re-adjust if necessary

### 3.4.3 Initial training flight(s)

Each Instructor has their own idea as how best to teach a Pupil, but the basics throughout the world show that a "standard" initial approach across most disciplines of RC flying includes:

- Launch by the Instructor, either using Pupils Tx or Buddy Box, and once at a reasonable height trim out for straight and level flight
- Hand over control to the Pupil who will do plenty of porpoise movements and an inordinate amount of seemingly mindless sharp left and right turns, etc.
- Landing by the Instructor

### 3.4.4 Subsequent training flights

Once the Pupil has gained confidence in the "feel" for the controls & the model is no longer being violently jerked across the sky:

- The Pupil continues flying large & small circles, at gradually decreasing height above ground
- The Pupil's first landing should be attempted under the reassuring guidance of the Instructor
- Further flying circles, practising approaches and flight over landing area & occasionally wondering into areas of lift/sink
- First launches – thermal; the Pupil will fly up the line whilst the instructor operates the winch, then they pupil will power the winch whilst the instructor operates the Tx, then the pupil will do both
- First launches – electric; first the pupil will control the model whilst the instructor launches, then the pupil will launch the model under control of the instructor; & finally the pupil will launch & control by themselves
- First launches – slope; first the pupil will launch the model; then the pupil will take over the Tx whilst the instructor launches, then the pupil will do both
- Practising launches, landings, flying the Solo test manoeuvres, and more approaches and landings
- Performing and passing the Solo test

### 3.4.5 Instruction reminder

The Instructor's job is well done and is probably a mental wreck by the end of this, but guess what...there will still be dozens of new Pupils over the years who will still want to learn to fly! We believe that some of the points which must become part of the Instructor's vocabulary:

- Is your peg on the board?
- Are you on the correct frequency?
- Have you charged your batteries?

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- Have you checked out your aeroplane?
- Have you switched on (Tx & Rx)?
- Pull out your aerial!
- Do you have the correct model (memory) selected?
- Keep away from the pits/public/parking/launching!
- Keep up the air speed!
- Keep the wings level!
- Mind that tree/pole/building!
- Tell the other members your intentions!
- Have you switched off?
- Is your power train disarmed (electric only)?
- Is your transmitter back in the Tx impound?
- Have you collected your card from/returned your peg to frequency control?

**This is a general checklist and could be used by Pilots to ensure that their models are adequately airworthy.**

It is recommended that this pre-flight checklist be used in whole during instruction.

#### **4.1 INTRODUCTION**

This checklist should be used to check out a Pupil's glider before it's first flight. To assist, this section has been set out in a fairly logical sequence so that each check or set of checks follows the previous one. The Pilot must practice and become familiar with this checklist. It is recognised that subsequent flights for the day need not require the full checklist & that the Instructor/pilot may apply discretion when selecting checks.

#### **4.2 AIRWORTHINESS**

It is a prerequisite that any new, untried or repaired aeroplane be reasonably checked before its first flight. The checklists which follow are fairly comprehensive and, if in the views of the Instructor, the aeroplane is not airworthy or is unsuitable for a Pupil, now is the time to say so. It is pointless for a Pupil to try to fly an aeroplane which is not airworthy or too advanced, which will likely be crashed or be unsafe.

If the plane has been involved in a mid-air, or excessively hard landing, it should be grounded until such time as the alteration, modification or replacement is done to the satisfaction of the Instructor. A list of the defects, if not fixable at the field, should be given to the Pupil by the Instructor.

Explain to the Pupil, during the check out of the aeroplane, observations and reasons for any adjustments that are made.

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**ALWAYS RESERVE THE TX FREQUENCY BEFORE SWITCHING ON**

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- Note that only approved frequencies are permitted ([www.samaa.org.za](http://www.samaa.org.za)).
- Radio (Tx) switch on then Rx
- Verify that Tx and Rx batteries are charged
- Control checks (direction & throws)
- Airframe appears structurally sound
- Radio installation is reasonably secure
- Model assembly properly
- Range checks as per radio manufacturers instructions
- Launch & landing area clear

### 4.3 STRUCTURE CHECKLIST

#### 4.3.1 *General*

The following general assessments may be considered:

- Check wing for warps (parallel rulers test)
- Check ailerons, flaps, spoiler, rudder & elevator:
  - method of attachment (hinges pinned, etc.)
  - check control surface/wing gap and temporarily seal with tape if excessive
  - movement (adequate movement, no excessive slop)
- Check the centre section of the wing for strength, and the wing overall for stiffness
- Check that the fuselage is straight & that the wing is square to it
- Check if covering of total aeroplane okay - no un-repaired structural/covering damage to airframe
- Check wing & stabiliser incidence
- Check all control surfaces are aligned with flying surfaces, i.e. elevator, rudder and aileron
- Check position of Centre of Gravity
- Method of attaching wing & tail to fuselage secure
- Check that the fin is on straight and square

#### 4.3.2 *Thermal gliders*

As for 4.3.1 General, and:

- Check that tow hook is secure & is not bent outwards

#### 4.3.3 *Electric gliders*

As for 4.3.1 General, and:

- No cracks or nicks in prop and prop nut tight
- Spinner securely attached
- Prop blades able to fold and unfold without binding
- Motor secure
- Power batteries disconnected from the ESC until required for flight/ESC disarmed
- Is ESC matched to battery type (e.g. LiPo vs NiCd) & power requirements (Amps)

### 4.4 RADIO INSTALLATION CHECKLIST

The following general assessments can be used for all glider disciplines:

- Check servo tray (if relevant) & servos attachment:
  - servos mounted firmly & correctly

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- screws in servo output arms, push rods securely fitted and adjusted correctly
  - no binding/bowing of output arms, linkages or push rods over full servo throw, including full trims
- Check flight battery (BEC if relevant):
  - mounted securely, i.e. cannot move and alter C of G, etc.?
  - check battery voltage under load (NB differences between NiCd, NiMh & Lixx discharge)
  - assess if their will be sufficient voltage/power for the number of servos (particularly with BEC unit)?
- Electric power batteries
  - properly secured in the airframe
  - properly insulated
  - no damaged or leaking cells
  - fully charged
- Check exit position of aerial
  - restraint inside fuselage, not under tension
  - away from servos and output arms
  - method of attachments to fin and/or tail plane
  - not doubled back on itself
  - not inside fuselage alongside metal or carbon control rods, or spars?
  - protected at exit point of fuselage?
- Foam rubber packaging (not plastic foam) where necessary for battery / Rx?
- All servo leads okay (not pinched) and plugged in correctly?
- Rx antenna attached / un-damaged
- Check movement of servos:
  - servos move smoothly with no grinding noises, jerkiness or buzzing?
  - correct direction relative to stick movements
  - fail-safe settings on servos if PCM receiver used (recommended that crow/spoiler deployed, throttle "closed", balance of servos to "hold".)

### 4.5 RANGE CHECKS

In addition to the radio installation, it is strongly recommended that a daily range check be performed prior to flying:

- SAMAA legal frequency (once slot reserved)
- Output meter on the transmitter reading correctly and in the "green" or more than 9.6V
- Check operating range with transmitter aerial collapsed – should be a minimum of 30 metres without any noticeable "glitching", or as per manufacturers instruction

### 4.6 LAUNCH CHECKS

#### 4.6.1 Winch (thermal only)

- Winch is located within launch area
- Winch & turnaround (preferably with at least a backup stake or as per FAI rules) are firmly anchored
- Winch motor leads can be removed from the batter terminal without a spanner
- Winch line is straight & does not cross any other line
- Winch line is perpendicular to the winch drum – after a pull test
- Winch line is free to move through turnaround, the running end exiting at the top of the turnaround
- Turnaround / winch has not sharp edges to cut line
- Winch has a parachute/pendant at the end
- The line can slip off the model's tow hook easily
- Winch switch can be isolated / disconnected when not in use
- Launching, line breaks, pop-offs & winding down (winch)

#### 4.6.2 Bungy (thermal only)

- The bungy line does not cross over any other lines
- The bungy is anchored firmly (with at least a backup stake)
- The bungy rubber is not nicked or perished
- The line can slip off the model's tow hook easily
- The fully stretched bungy does not extend behind the flight line, other launchers, or pilots
- The bungy is "relaxed" when not in use

#### 4.6.3 Hand-tow (thermal only)

- The line does not cross any other lines
- The hand launch line is firmly anchored (with at least 2 separate backup stakes or as per FAI rules)
- Yolk / leashes are firmly attached to turnaround pulley
- The pulley does not have any sharp edges that could cut the line
- The pulley has a safety disc firmly attached
- The line can easily slip off the model's tow hook

#### 4.6.4 Hand launch (Electric only)

- Motor disarmed whilst moving from pits to launch/ from landing area to pits
- Pilot to ensure that all stand behind propeller when power train armed

#### 4.6.5 Hand launch (slope only)

- Ensure that nobody is standing directly in front of launch

### **5.1 MILESTONES**

This section sets out the proposed learning “milestones” for teaching Pupils. To achieve uniform guidance we have provided a suggested Progress Log which can be modified as required by the Instructor (for example including bungee launches). We suggest that these milestones become a club standard in that any Instructor can see at a glance the status and progress of the Pupil, and carry on instruction from that point.

### **5.2 PROGRESS LOG**

It is recommended that the progress log be signed off by the Instructor after each activity has been satisfactorily completed. It must be noted that for all assessments, the Instructor must be reasonably satisfied that the Pupil understands and can repeatedly perform the desired task safely when required to do so. Refer to the electronic attachment for the progress log pages.

### **5.3 TRAINING TASKS**

The following tasks should be completed to the satisfaction of the Instructor:

- Frequency control system explained and demonstrated to pupil
- Club & relevant safety rules explained to pupil
- Model assembled by Pupil
- Airworthiness of model checked (where reasonable) by Pupil according to pre-flight checklist
- Trims centred and controls move the correct way
- Control functions explained – pupil able to move sticks to achieve desired control
- Range test explained & demonstrated to pupil
- Centre of Gravity checked
- Test flight explained & demonstrated to Pupil
- Gliders first flight OK
- Pupil performs large circles (left & right) with minimal altitude loss
- Pupil demonstrates understanding of Club safety rules
- Model orientation explained and demonstrated
- Ground effect explained to pupil
- Low level circles and landing demonstrated by pupil
- Aircraft trim demonstrated by pupil
- Basic aerodynamics understood by pupil
- Pupil demonstrates straight & level flight path
- Pupil demonstrates predetermined pattern & overall control of model
- Stall explained & demonstrated to pupil
- Pupil demonstrates regular landings within 50 metres of designated spot
- Flight line safety understood by pupil
- Pupil can launch safely (winch for thermal, motor for electric, hand launch for slope)



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- Pupil demonstrates recovery from stall
- Pupil utilises lift & de-thermal without excess strain on model
- Pupil demonstrates understanding of winch/bungy/hand-tow operation and safety (thermal only)
- Pupil understands the differences between winch launching of built-up & composite mode launches (thermal only)

From the attached "Solo Proficiency Test Score Sheet" it can be seen that the flying manoeuvres required are basic. This is intentional, as the reason for this test is to demonstrate to the Instructor(s) that the Beginner or Pupil, has enough knowledge of the relevant rules, procedures, and skills to fly without an Instructor being present, and that the Pupil pilot will not create a liability or danger to those present, including spectators and their possessions at the flying field.

This qualification also fulfils the minimum requirement of the SAMAA Insurance for flying alone. The first two assessments, Verbal and Pre-flight test, will require some preparation by the Pupil pilot. Solo tests should be arranged and conducted in a formal manner, with the correctly qualified persons present at the tests, and the duly signed test papers will be approved by the Club Safety Committee before being placed on file and a copy forwarded to the MGA together with the MGA Solo application form.

### **6.1 VERBAL TEST**

This part of the Solo test requires you know and understand something about the frequency control, Club Rules and the workings of a model aeroplane:

- The test is in the form of random questions which will be asked, and answered to the satisfaction of the Instructors
- A list of the types of questions is set out later in section 6.3 – note that the Instructor(s) are not limited to asking these questions

### **6.2 PRE-FLIGHT CHECK**

- The pre-flight check will be based on the MGA check list (as per section 5 of this text)
- A lack of knowledge of the frequency control system and the basic Club Rules will result in failure of the test

### **6.3 SOLO PROFICIENCY TEST**

This test is scored on pass or fails and is not scaled or by points:

- The Instructors may, if any doubt exists, require you to repeat any of the manoeuvres listed
- The test will consist of two (2) rounds of the same / similar manoeuvres
- The Instructors will tell you whether you passed or failed - their decision is final
- A test may be redone on the same day provided that there is time and the Instructors believe you are capable of passing the test
- As per weather conditions, multiple launches may be used during each round
- Each Instructor must initial each manoeuvre to verify that they are satisfied, and must highlight & sign their overall assessment

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- Showing a lack of control or uncertainty in your control will result in a retest of this manoeuvre
- The tests are applicable to all glider types, unless stated otherwise

### 6.4 LAUNCH INTO THE WIND

#### 6.4.1 Thermal

At least one winch must be laid out into the prevailing wind and the Pupil will be required to self launch:

- Apply sufficient power to maintain line tension without stressing the wings excessively (load cracking/snapping noise indicates excessive power was applied)
- Keep the model flying reasonably straight up the rotation portion of the launch
- Fly off at the peak of rotation or perform a zoom if the model is capable

#### 6.4.2 Electric

- Apply appropriate power to enable a smooth hand launch directly into the wind
- Maintain a climb rate appropriate for the particular power train
- Keep the model flying reasonably straight during the climb
- Prevent a stall from occurring at the top of the climb after motor off

#### 6.4.3 Slope

- Hold the nose slightly down and launch straight into the prevailing wind direction, to avoid the model being snatched out of hand
- Maintain speed and lift to avoid stalling the model

### 6.5 STRAIGHT AND LEVEL FLIGHT

Once sufficient altitude has been gained in a thermal, or immediately after the launch and flight speed is obtained, the pupil must demonstrate their control of the model.

- Announce intention to fly as per the instructor's request for "STRAIGHT & LEVEL"
- At a safe altitude, fly a reasonably straight and level path for 5 seconds into the prevailing wind

### 6.6 CIRCUIT FLYING

#### 6.6.1 Circular flight path (thermal & electric)

Once sufficient altitude has been gained in a thermal, or immediately after the launch and flight speed is obtained, perform gentle left and right hand circles. Here the Pupil must demonstrate their ability to turn the RC glider whilst maintaining a reasonably level flight path.

- After launching announce your intention to fly into left or right circle, or as per the instructor's request "LARGE CIRCLE"
- Proceed to do the gentle turn until a full and reasonable circle is completed (approx 100 metre diameter)
- Announce your intention to fly into left or right tight circle, or as per the instructor's request "TIGHT CIRCLE"
- Perform a far tighter circle (approx 15 metre diameter) without significant loss of altitude

#### 6.6.2 'S' Shaped flight path (slope)

Once sufficient altitude has been gained after the launch, perform gentle turns in an "S" shape, keeping the model in the lift band and running parallel to the slope, before turning away from the slope

- After launching announce your intention to make your first turn, , or as per the instructor's request "S TURNS"
- Either turn to the right or left, depending on the prevailing lift band/zone
- Proceed to complete the turn until the model is flying parallel to the slope
- Perform a Turn in the opposite direction, away from the slope, until the model is flying back past oneself, parallel to the slope.
- Perform the opposite turn to complete the 'S' shape, and keep the model in the lift zone on the front of the slope.

### 6.7 STALL & RECOVER

Whilst at sufficient altitude, the Pupil must deliberately induce a stalled condition by applying up elevator until such time that the forces of lift are insufficient to overcome the weight of the model.

- Announce intention to introduce a stall, or as per the instructor's request "STALL & RECOVER"
- Gradually increase the up elevator until a stall occurs
- Recover to horizontal flight path, wings level

### 6.8 MOTOR RESTART (electrics)

At sometime during the flight, the instructor will request that you restart your motor and place the model in a climbing attitude. On receiving the request to "RESTART";

- Turn the model into prevailing wind
- Apply power smoothly using elevator compensation if necessary to prevent the model from losing height
- Climb without stalling the model for an appropriate period (5 seconds)
- Switch off the motor and recover to level flight as per launch without stalling

### 6.9 LANDING

At some point in the test, the Instructor(s), or gravity, may request you to land immediately. The former instruction should usually be in such a position that you will be able to land within the landing area.

- On receiving the request to "LAND NOW", you must deploy spoilers or crow braking if available, or begin immediate decent towards the landing circuit
- You must judge your circuits and approach so as to be able to land into the wind within the landing area
- Landing on/near the spot or within the landing area is required. Landing further than 50 metres from the spot indicates failure of the test
- Considerable damage to the plane during an excessively hard landing would require a retest

### 6.10 TYPICAL QUESTIONS FOR THE SOLO VERBAL TEST

Answers to all these questions should have been covered by your Instructor during your "learning to fly period"

- Which areas are you not allowed to fly over and why?
- What do you do if you want to fly and there is a peg on your radio frequency?
- How long does your receiver battery last in a day and how do you know it is ok for another flight?
- What is your procedure when you arrive at the club?
- Why is it essential that you secure the frequency spot and place your peg on it before switching on your transmitter?
- What would you do if on launch, just after becoming airborne, your aeroplane turned towards the pit/spectator area?
- If you are going to land and see someone within the landing area to retrieve an aeroplane, what would you do?
- If you were lined up ready for take-off and during your final check you notice a servo glitching, what would you do?
- What would you do if you saw:
  - That the tail plane is loose
  - That the aeroplane is vibrating badly

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## GLIDER PROFICIENCY TESTING AND INSTRUCTION

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- That the wing is skew
- That some covering is loose
- What would you do if you heard - someone yelling "DEADSTICK"
- What would you do if you heard - someone yelling "LANDING"
- What impacts does ground effect have on landing?
- If you are the most senior person at the field and the duty officer is not present, what would you do?
- If you see a child running in the pit area, what would you do?
- If you see a child with a transmitter, what would you do?
- If you are the duty officer for the day, what would you do:
  - If someone is ignoring the safety rules?
  - If after a verbal warning they still persist in ignoring the rules?
- What are your duties of a safety officer of the day?
- What do you do if you want to fly and your frequency spot is not on the board?
- What would you do if after waiting patiently for your frequency spot, the peg is not removed?
- What would you do if someone has placed a peg on the board but he is no longer at the field?
- What would you do if you want to fly but left your frequency peg at home?
- What would you do if you are about to fly and when you switch on your transmitter the meter shows red or under 9 volts?
- How do you know the state and condition of your flight and transmitter battery packs?
- What would you do if you notice that you forgot to switch off your transmitter an hour or so ago?
- What would you do if it starts to rain whilst you are flying?
- What would you do if there is lightning whilst you are flying?
- What would you do if you notice a full-size aeroplane or helicopter is flying IN CLOSE PROXIMITY TO YOURSELF?
- What would you do if you notice a glider, old-timer aeroplane or beginner flying aimlessly?
- What would you do if you noticed a powered model flying recklessly?
- What would you do if you are flying and your cell phone rings?
- What would you do if you feel ill or faint while you are flying?
- What would you do if you lose sight of your aeroplane in the sky?
- What would you do if you are in a thermal going up and want to get down?
- Why would a glider pull to one side on launch?
- What should you do when "de-thermalling" your gas bag?
- What precautions should be taken when landing down wind?

For Thermal only:

- When setting up a winch, how tight do you connect the leads to the battery terminals?
- If there are Pilots standing near the winch line, and you wish to launch, what would you do?
- What would you do if your glider "pop's off the winch line?"

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## GLIDER PROFICIENCY TESTING AND INSTRUCTION

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- What would you do if your glider pops-off the winch during launch and other Pilots are waiting to launch?
- 
- What would you do if the winch line breaks while you are launching?
- What would you do if someone else's model got caught in your winch line whilst launching?
- What do you do if you see or hear a winch jam on?

For Electrics Power only:

- What is the minimum safe discharge end voltage for Lipo cells?
- What is the minimum safe discharge end voltage for Nickel Metal Hydride cells?
- What is the minimum safe discharge end voltage for Nickel Metal Cadmium cells?
- Should Lipo batteries get warm when charged?
- What is the maximum charge rate for Lipo cells? (Current technology)
- What is the effect on battery voltage and current when cells are connected in parallel?
- What is the effect on battery voltage and current when cells are connected in series?
- What action would you take if you noticed that one of your Lipo cells had become swollen?
- What action would you take immediately after a crash?
- What is the effect of increasing the voltage supply to your motor?
- How are watts calculated?
- What do the terms C10, C15 and C20 mean?
- What effect does a 'windmilling' prop have on flight efficiency?

For Slope only:

- What is the rotor affect?
- How do you avoid the rotor when landing?
- Why is it not advisable to fly around the edge of a slope?

### 7.1 AUTHORISATION & APPLICATION

- The tasks required for each badge assumes that some level of proficiency has been achieved before the task can be successfully achieved, but it is not intended to define the level of a pilots proficiency
- Each task needs to be witnessed as being successful before application is made for any specific badge
- A pilot must have achieved "Solo" proficiency before applying for any badge to the MGA (Note the "grandfather clause" in Section 8.)

### 7.2 THERMAL GLIDING ACHIEVEMENT BADGE RULES

- All models must comply with current FAI limits
- Launching for the Eagle Badges must be by one of the following:
  - 150 meter bungee (un-stretched – not more than 30 meters elastic)
  - 150 meter hand tow line
  - 200 meter winch – measured turnabout to tow-ring.
- A thermal duration flight commences at the time of release from the end of the towline and ends when the glider touches the ground.
- A spot landing is accomplished by landing the glider so that the extreme forward tip of the nose (or forward most point of the longitudinal centreline), at rest, is within the required distance from the centre of a designated spot on the ground.
- The same aircraft must be used for all tasks for any one badge, but ballast may be changed. The "same aircraft" includes aircraft rebuilt after a crash as well as a new aircraft built to the same plan and with all essentials unaltered. We may require confirmation of the validity of a new or rebuilt model.
- All tasks for any one badge must be completed before any tasks may be recorded for the next badge.
- Not more than one task may be recorded from any one flight.
- The goal for all cross-country or goal-and-return flights must be nominated before the flight, with reference to a suitable, accurate map. Odometer readings are not acceptable. Distance must be measured along the shortest distance between launch point, designated turn point(s) and goal. All cross-country flights must pass outside the turn points and over fly the nominated goal for straight line flights, or over fly the launch point at the start, pass outside the turn points and over fly the launch point at the finish of goal-and-return flights.
- Any system which feeds information back from the aircraft to pilot is not permitted.
- It is the responsibility of pilots to ensure that they are adequately covered by insurance, especially when attempting cross-country flights.
- A report should be submitted with the claim for tasks towards the Diamond Badge and above, and must be witnessed independently.
- The badges are provided free of charge to SAMAA members. Non SAMAA members are required to pay for the badges. Additional badges will also be charged for. The price of these badges is available from the MGA.



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- As safety is of paramount importance, only flights from SAMAA registered flying sites will be recognised.
- On completion of the required tasks, application for a badge must be made in writing on the official form addressed to the MGA badges coordinator.

### 7.2.1 BRONZE EAGLE

- Two 6-minute flights, ending not more than 20m from the spot
- Five landings not more than 10m from spot

### 7.2.2 SILVER EAGLE

- Two 10-minute flights, ending not more than 10m from spot
- Five consecutive landings not more than 10m from spot

### 7.2.3 GOLD EAGLE

- Two 20-minute flights, ending not more than 10m from spot
- Five consecutive landings not more than 5m from spot
- A cross-country flight of not less than 2km

### 7.2.4 DIAMOND EAGLE

- Two 30-minute flights, ending not more than 10m from spot
- Five consecutive landings not more than 2m from spot
- A 2km goal-and-return flight or a 5km cross-country flight
- Two F3B speedruns in not more than 30 seconds each ("F3B speedrun" means four 150m legs of a course A-B-A-B-A)

### 7.2.5 DIAMOND `A' EAGLE

- Three 30-minute flights OR two 45-minute flights, ending not more than 10m from spot
- Five consecutive landings not more than 1m from spot
- A 5km goal-and-return OR a 10km cross-country flight
- Two F3B speedruns in not more than 23 seconds each
- An F3B distance task of 15 laps
- A place in a recognised regional competition, either in the first three in an entry of not less than 15, OR in the first two in an entry of not less than 10.

### 7.2.6 DIAMOND `B' EAGLE

- Three 45-minute flights OR two 60-minute flights, ending not more than 5m from spot
- A 7km goal-and-return flight OR a 15km cross-country flight
- Three F3B speedruns in not more than 20 seconds each
- An F3B distance task of 20 laps
- Place in the top three in a National Championship

### **7.2.7 DIAMOND `C` EAGLE**

- Three 60-minute flights ending not more than 5m from spot
- A 10km goal-and-return flight OR a 20km cross-country flight
- Three F3B speedruns in not more than 18 seconds each
- An F3B distance task of 25 laps
- Win a National Championship
- Establish or improve a South African Gliding Record

### **7.3 ELECTRIC GLIDING ACHIEVEMENT BADGE RULES**

In additional to the relevant Thermal Glider conditions:

- Launching for the Falcon Badges must be undertaken by the pilot
- Each flight has a thermal duration task of 10 minutes for which one point per second is scored. Flight times less than, or greater than, 10 minutes will have one point per second subtracted
- Landing points are awarded based on the distance the model comes to rest from a designated spot and are measured from the closest point on the model to the designated spot. Maximum landing points are 30 for a landing within 1m of the spot. Thereafter 3 points are subtracted for each meter beyond the designated spot. Landings further than 10m from the spot score zero landing points
- Motor run time is unlimited but subtracted from the overall flight time. Any form of electric motor is permissible as a handicap system is used. The handicaps are brushless = 95%, brushed Cobalt = 75%, Ferrite = 40% and Speed 400 = 30%
- Any type of battery and battery configuration is permitted
- An independent timer is required for each flight. Timers require two stopwatches. One for overall flight time and one for motor run time. Pilots and timers must agree on a signal to denote motor on and motor off. Pilots must show their timers which transmitter control is used to activate and deactivate the motor. Transmitter timers are not permitted
- Flight and motor run timing begins when the model leaves the pilot's hand on launch. Flight time stops when the model comes to rest after landing
- Batteries may be recharged between flights

#### **7.3.1 BRONZE FALCON**

Any two flights which each score 500 points or more, using the parameters above.

#### **7.3.2 SILVER FALCON**

Two consecutive flights scoring a total of 1100 points or more, using the parameters above.

### 7.3.3 GOLD FALCON

Three consecutive flights scoring a total of 1725 points or more, using the parameters above.

### 7.3.4 DIAMOND FALCON (proposed)

Four consecutive flights scoring a total of 2350 points or more, using the parameters above.

## 7.4 THE GULL SLOPE AEROBATIC GRADES

In additional to the relevant Thermal Glider conditions:

- Pilots must perform the schedule of manoeuvres in the order listed, to be judged by at least one higher Gull holder or by at least two competent judges, who will score each manoeuvre out of 10
- To pass a grade, an overall average of 5 per manoeuvre must be achieved, subject to a minimum of 3 on any one manoeuvre
- As many attempts may be made on any one outing as the pilot wishes and/or his judges will allow, but the schedule must be completed in the correct, unbroken sequence
- The Diamond `A' grade must be achieved flying an aircraft designed and built by the pilot, flying the Diamond schedule but he must score an average of 6 per manoeuvre with a sub-minimum of 4 for any one manoeuvre. He must also submit a written article on his aircraft's design and development and must place in the first three in the Expert Class in a National Slope Aerobatic Championship
- All manoeuvres are described in the Aerobatic Contest Rules, with the exception of the inverted rectangle, which is the same as the landing pattern but starts and ends with half-rolls, which are part of the manoeuvre, and without the loss of height

### 7.4.1 BRONZE GULL

- One large circle (left or right . . . not less than 100m diameter)
- Two consecutive loops
- 10 seconds straight & level across wind
- One roll
- Landing pattern

### 7.4.2 SILVER GULL

- Overhead eight
- Stall turn
- Three consecutive loops
- Immelman turn
- Two consecutive rolls
- 5 seconds inverted flight

- Landing pattern

### **7.4.3 GOLDEN GULL**

- Double Immelman
- Inverted rectangle
- Three consecutive rolls
- Vertical eight
- Three consecutive loops
- Cuban eight
- Three turn spin
- Landing pattern

### **7.4.4 DIAMOND GULL**

- Slow roll
- Vertical eight
- Six turn spin
- Inverted eight
- Four-point roll
- Four consecutive loops
- Figure-M
- Landing pattern
- Horizontal eight
- Place in 'Expert' in a Championships

### **7.4.5 DIAMOND "A" GULL**

- As per Diamond Gull, but with aircraft designed & built by pilot

The training framework have been established so that glider pilots can apply for their Solo proficiency as verification that a satisfactory level of skill has been achieved by the pupil pilot, to permit them to fly on their own, and as per SAMAA Insurance requirements.

As the assessment of a level of skill is the only qualitative measure for gliding achievements, it is necessary that a suitably authorised instructor is delegated responsibility by the MGA to ensure that the pupil has the required level of skill to achieve the Solo criteria.

### **8.1 AUTHORISATION**

- No proficiency test may be conducted by an Instructor who has instructed the Pilot under test
- Only the MGA Committee is authorised to appoint Instructors upon written request from a club

### **8.2 RATING APPLICATION**

- Proficiency and achievement application sheets are attached. The sheets are designed to record the achievements that the Pilot has completed, and need to be independently witnessed.
- Solo tests must be arranged and conducted in a formal manner, with only the appropriately approved persons present at the tests
- Solo test results must be submitted to the MGA together with the Instructor's recommendation
- An Instructor rating should only be applied for after the relevant Gold achievement badge has been achieved.
- The Club Committee may recommend a glider pilot to the MGA for Instructor proficiency consideration. It sole discretion of the MGA Training Committee's to award Instructor status & the Pilot may be requested to attend a panel interview prior to approval

### **8.3 RETROSPECTIVE APPLICATION**

- As this is a new system, pilots who have been flying for some time will not be required to complete the Solo test.
- A "Grandfather Clause" is provided whereby glider pilots who have been flying regularly for years, or who have an appropriate achievement badge, and who in the view of the MGA & club safety committee, are adequately experienced, will be awarded Solo status upon written application, retrospectively.
- All prospective Instructors are to apply to the MGA, with their club recommendation.

### 8.4 PROFICIENCY RATING/ REFLECTION

- All written applications must be sent to the MGA office. The MGA will inform SAMAA of the relevant proficiency/achievement.
- All applications will be recorded and kept in a central data base at the SAMAA offices.
- As and when your SAMAA Cards are re-issued they should reflect the Pilot's gliding proficiency.
- Remember that Glider Solo does not mean you are Solo for other types of aircraft. Nor does holding a Solo badge for any other types of RC aircraft mean you are Solo for gliders.
- A scroll will be issued to all successful applicants and can be displayed in conjunction with the relevant Achievement Badges. The proficiency scrolls must be displayed above the gliding discipline round-all badge.

### 8.5 INSTRUCTOR RATING

The Instructor rating does not reflect a proficiency level, but it does suggest that the individual is a reasonably capable pilot and is able to adequately teach others to fly sufficiently safely. A potential Instructor must have achieved the Gold Achievement Badge as a minimum.

Applications for this grade must be submitted by the applicants club in writing to the MGA, detailing the individuals' potential to be a Glider Instructor. The MGA training committee will evaluate the application and may decide whether to award the rating. The applicant may be invited to attend a meeting with the MGA committee to discuss their case.

As a guide the following pointers have been prepared:

- Possibly the best quality any Instructor must have, is the desire to teach others how to fly.
- Instructors must possess a good understanding of how thermals work and be able to recognize when their model encounters one and be able to pass this knowledge on to others. They must also be able to recognize sink and how to react when flying through these areas.
- Instructors must be able to teach a beginner how to fly their model in a variety of conditions and such that safety is maintained at all times.
- Instructors must be able to take a beginner from assisted flights all the way through to preparing the Pupil pilot for the Solo test. The requirements of Solo & other achievement badges are defined previously.
- Instructors will be required to teach a beginner all aspects of the safety code and explain the importance of frequency control.
- Instructors must be able to teach a Pupil all aspects of bungee, hand tow & winch operation and how to set it out, particularly when they are used in conjunction with others lines at competitions (thermal only)
- Instructors must be capable of communicating all aspects of power train management and safety to pupils (electric only)

## **GLIDER PROFICIENCY TESTING AND INSTRUCTION**

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- Instructors must have a good understanding of how to trim a model to fly “hands off” and be able to teach this to beginners.
- Instructors must be able to demonstrate how the various control actions operate and how they affect a model in flight.
- Instructors must be able to set up a model before its first flight and be able to recognize if the model is unsafe, warped or out of trim.
- Instructors must be able to teach a beginner how to test radio equipment and to carry out range checks.

## GLIDER PROFICIENCY TESTING AND INSTRUCTION

<b>SECTION 9</b>	<b>SOLO PROFICIENCY TEST SHEET</b>
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SOLO PROFICIENCY TEST			
Pupil		Club	
SAMAA no.		Date	
Address		Model	
		Details (span/section)	
Postal code			

Description	First Round	Second Round
Oral Test – answer eight questions regarding flying / safety correctly		
Correctly assemble model unaided		
Demonstrate and explain the control actions		
Carry out a range check on equipment		
Understands the operation & dangers of the winch / prop (as applicable)		
Perform a pre-flight Check & Frequency Control		
Controls a launch directly into wind using the winch / motor / slope themselves (as appropriate)		
Fly a straight & level flight path of at least 5 seconds directly into the wind		
Fly a large circle with a diameter of approximately 100 metres (thermal & electric); or Performs a series of 'S' turns on the front of the slope, at a similar altitude throughout – slope only		
Fly a tight circle of not more than 15 metres diameter with minimal loss of altitude		
Performs a deliberate stall & smooth recovery / motor restart (as applicable)		
Land, including the full landing pattern & finishing within the designated launch area		
Overall Instructor assessment (highlight applicable result)	PASS / FAIL	PASS / FAIL

Signature	Signature
Date	Date



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## GLIDER PROFICIENCY TESTING AND INSTRUCTION

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SECTION 10

PROGRESS TRACKING

This log book provides a means of tracking progress & development by the pilot prior to the SOLO test. It may also be used for recording Achievement flights, as long as these are witnessed independently on the badge application forms.

### MGA SOLO PROGRESS

Date	Task	Signature
	Frequency control system explained and demonstrated to pupil	
	Club & relevant safety rules explained to pupil	
	Model assembled by Pupil	
	Airworthiness of model checked (were reasonable) by Pupil	
	Trims centred and controls move the correct way	
	Control functions explained – pupil able to move sticks to achieved desired control	
	Range test explained & demonstrated to pupil	
	Centre of Gravity checked	
	Test glide explained & demonstrated to Pupil	
	Gliders first flight OK	
	Pupil performs large circles (left & right) with minimal altitude loss	
	Pupil demonstrates understanding of Club safety rules	
	Model orientation explained and demonstrated	

**MGA SOLO PROGRESS**

<b>Date</b>	<b>Task</b>	<b>Signature</b>
	Ground effect explained to pupil	
	Low level circles and landing demonstrated by pupil	
	Aircraft trim demonstrated by pupil	
	Basic aerodynamics understood by pupil	
	Pupil demonstrates predetermined pattern & overall control of model	
	Stall explained & demonstrated to pupil	
	Pupil demonstrates regular landings within 50 metres	
	Flight line safety understood by pupil	
	Pupil can self launch safely	
	Pupil demonstrates recovery from stall	
	Pupil utilises lift & de-thermal without excess strain on model	
	Pupil demonstrates understanding of winch / motor safety (as appropriate)	
	Pupil demonstrates differences between gas bag & composite mode launches (thermal only)	
	Pupil demonstrates understanding of motor restart (electric only)	



**GLIDER PROFICIENCY TESTING AND INSTRUCTION**

**SECTION 12** **ACHIEVEMENT BADGE APPLICATION**

**THERMAL EAGLE BADGE APPLICATION FORM**

Badge	Bronze / Silver / Gold / Diamond / Diamond "A" / "B" / "C" (delete as applicable)		
Pilot		Club	
SAMAA no.		Date	
Address		Model	
		Details (span/section)	
Postal code			

	Time	Date	Witness
Duration 1			
Duration 2			
Duration 3			
Landing 1			
Landing 2			
Landing 3			
Landing 4			
Landing 5			
Cross country			
Speed 1			
Speed 2			
Speed 3			
Championship			
Date			
Results			

Record details

**GLIDER PROFICIENCY TESTING AND INSTRUCTION**

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ELECTRIC ASSIST FALCON BADGE APPLICATION FORM			
Badge	Bronze / Silver / Gold / Platinum / Diamond (delete as applicable)		
Pilot		Club	
SAMAA no.		Date	
Address		Model	
		Details (span/section)	
Postal code		Motor type/batteries	

	Score	Date	Witness
Flight 1			
Flight 2			
Flight 3			
TOTAL			

	Distance & time	Nett motor run	Date	Witness
Cross country				

Comments

## GLIDER PROFICIENCY TESTING AND INSTRUCTION

SLOPE GULL BADGE APPLICATION FORM			
Badge	Bronze / Silver / Gold / Diamond (delete as applicable)		
Pilot		Club	
SAMAA no.		Date	
Address		Model	
		Details (span / section)	
Postal code			

	Level*	Points	Points
Large circle	B		
Two consecutive loops	B		
10 seconds straight & level	B		
Roll	B		
Landing pattern	B,S,G,D		
Overhead eight	S		
Stall turn	S		
Immelman turn	S		
Two consecutive rolls	S		
5 seconds inverted flight	S		
Three consecutive loops	S,G		
Double Immelman	G		
Inverted rectangle	G		
Vertical eight	G,D		
Three consecutive loops	G		
Cuban eight	G		
Three turn spin	G		
Slow roll	D		
Six turn spin	D		
Inverted eight	D		
Four-point roll	D		
Four consecutive loops	D		
Figure-M	D		
Horizontal eight	D		
Championship placing	D		
AVERAGE			
Judges			

<b>Comments:</b>

\* B=Bronze, S=Silver, G=Gold, D=Diamond.

**GLIDER PROFICIENCY TESTING AND INSTRUCTION**

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<b>SECTION 13</b>	<b>INSTRUCTOR APPLICATION</b>
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<b>GLIDING INSTRUCTOR APPLICATION FORM</b>			
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Pilot		Club	
SAMAA no.		Instructor Type	Thermal/Slope/Electric <i>(delete as applicable)</i>

We, the undersigned, as authorised representatives of the club, request that the above instructor applicant be considered for Gliding Instructor by the MGA committee

In applying for this rating we have considered that the following requirements have been or can be adequately achieved by the applicant:

1. The applicant has the appropriate MGA Gold Badge required to apply for the Instructor rating
2. The applicant is currently actively involved in flying gliders of the relevant type
3. The applicant is a paid up member of SAMAA
4. We contend that the applicant can be considered to be mature & an experienced glider pilot
5. We believe that the applicant will be able to provide a reasonable level of instruction to pupils

We understand that this application is subject to MGA approval. Only following appointment, will the applicant be permitted to instruct pupils in the RC discipline of thermal/slope/electric (as applicable) gliding.

Signatures	
Name	
Committee role	
Date	