The South African Model Aircraft Association

Standard Operating Procedure

PROFICIENCY TESTS
FOR
FIXED-WING POWERED MODEL AIRCRAFT

TABLE OF CONTENTS

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SECTION 1

GENERAL

This document deals with proficiencies for **fixed wing powered model aircraft.** Similar documents exist for proficiency tests for flying of helicopters, gliders, control line models, turbine jets, multi-rotors, and model parachuting (skydiving).

INTRODUCTION, OBJECTIVES, HISTORY

In the interest of the hobby/sport of model aircraft flying, it is essential that:
an adequate standard is set before a **beginner/pupil** is allowed to fly on his own without a qualified instructor in attendance, and secondly,

that further goals are set to challenge the model aircraft pilot to improve his flying skills.

The SAMAA has produced proficiency tests over many years, with the two objectives mentioned above in mind.

The first proficiency tests introduced in the 1970s were the “Propeller” series, which was replaced in 1984 with the present proficiency system, with the four qualifications of Bronze, Silver, Gold, and Instructor, with a fifth, the Solo, being added.

The Bronze was regarded by SAMAA as the minimum requisite for a radio control pilot to fly a model aircraft on his own. In 2001, it was decided that a more forgiving (in terms of flying requirements) and more comprehensive (in terms of general safety knowledge) test to be introduced. This test is known as the “Solo”.

The purpose of the “Solo” test is to ensure that a model aircraft pilot can fly and control a model aircraft safely when other members are present and flying. It also ensures that the model pilot has been instructed on his club’s by-laws, safety rules, the SAMAA Manual of Procedures, and that he has an understanding and working knowledge of the equipment and radio installation, and a basic understanding related to model aircraft safety, and aerodynamics.

Other changes to the present SAMAA proficiency regulations relate to:

level of qualification needed to instruct or teach a beginner. (Refer to “club instructor”)

the level of competence required for a model aircraft pilot to be allowed to fly at an event held at his own club, with public present.

Also added to this booklet is a “Teaching sequence” for pupil or beginner pilots. This is a milestone-recorded and progress log, which makes it easier for club instructors to monitor the progress of a beginner or pupil.

SECTION 2

DEFINITIONS
Here are some definitions of the terms used in this booklet:

- *Pupil pilot* A pupil pilot is a paid up SAMAA member who is learning to fly a radio-controlled model aircraft and has not yet obtained any proficiency level. When flying with others present, he shall be accompanied by a SAMAA-qualified club instructor.
- *Pilot* A SAMAA member who can fly a model aircraft and has achieved a proficiency level of Solo or better.
- *SAMAA* The South African Model Aircraft Association, the coordinating and managing body for aeromodelling activities in South Africa. All SAMAA rules and regulations shall be incorporated and complied with at all SAMAA clubs that have been granted temporary and permanent approval.
- *Registered club* A field or flying site that has been developed for model aircraft flying. The club or site shall have a responsible committee elected by the members to manage and run all model flying activities.
- *Member* A fully paid-up member of the SAMAA who is in good standing with the Association.
- *Pilot box/ Pilot area* Designated area from which pilots fly their model aircraft.
- *Frequency peg board* The frequency control system used by the club to ensure management of all the frequencies used at the field.
- *Pit area* The area between the club house and the pilot boxes on the runway nearest to the club house and facilities.
- *Run-up area* An area off the side of the taxiways where engines may be checked without interfering with aircraft in the pit area or the hearing of the pilots flying.
- *Tx control area* The area at the back of the pit area where transmitters are impounded in a switched-off state when not in use.
- *Transmitter* A purpose-made, commercially available unit which shall operate on an ICASA-approved frequency and comply with ICASA specifications.
- *Buddy box* A system where the instructor has a “master” transmitter and the pupil pilot has a “slave” transmitter. The instructor can assume control of the transmission to the model aircraft as required.
- *Simulator* A good and affordable method to learn to fly. In principle, it is an attachment to a computer which allows a pupil to learn to fly a model aircraft on a computer screen.
- *Model aircraft* A conventional, powered, fixed-wing model aircraft. The final decision on the type of model aircraft that may be used for the proficiency test, remains with the judges (see clause 8.2).

- *Frequency peg/marker* A marker used to identify the radio frequency being used by the pilot at the field

- *Rules and regulations* Shall mean the SAMAA rules and safety regulations, and the club rules and regulations.

- *Club instructor* A person, who in the view of the club committee, is qualified to assist a beginner to learn to fly. A member who in their views, is proficient, or has obtained a proficiency level which makes him competent to instruct beginners. If circumstances dictate, and a club does not have qualified members, a member with a Solo or Bronze with at least 12 months practical flying could be appointed a club instructor. Unless there are special circumstances, a club instructor shall hold a SAMAA silver proficiency. Any two club instructors with SAMAA Silver or higher, may test a pupil pilot and award a "Solo" status. The club instructor is critical to the future of model flying. Teaching of beginners and pupil pilots in the club, and achieving Solo status, is an essential service to the hobby.

- *SAMAA instructor* A pilot who has satisfactorily obtained his SAMAA instructor proficiency and who has demonstrated to the SAMAA instructor judges that he has a thorough understanding of the safety rules, and comparative scoring system. He shall be allowed to judge when accompanied by a second qualified SAMAA instructor, to award the SAMAA proficiencies for Solo, Bronze, Silver and Gold and together with another qualified SAMAA Instructor Judge to award the SAMAA proficiency for Instructor

- *SAMAA Instructor Judge* After a pilot has obtained his SAMAA instructors' proficiency, he could be appointed as a SAMAA Instructor Judge at the discretion of the SAMAA management committee, provided he fulfills the following criteria.

  a) Shall be a paid-up member of SAMAA and be in good standing with regards to previous payments.
  b) Shall have a minimum of seven years' involvement in model flying.
  c) Shall be mature and shall be respected in the flying fraternity and at his club.
  d) Shall be entitled to judge, together with a SAMAA Gold proficiency pilot, any proficiency up to Gold.
  e) Shall be entitled to judge, together with another SAMAA instructor, a pilot for his Instructor rating.

  It is the decision of the SAMAA management committee as to how many judges are appointed in a region, and instructor judges shall only be appointed when the need arises, with no limit of the number of instructor judges in a region/club.

  An application shall be made in writing to the SAMAA office, and must be properly motivated, endorsed by the applicant's club chairman and another club committee member. This application is tabled at a SAMAA management committee meeting, for approval of the appointment. This instructor judge status may be revoked by the SAMAA management, if the appointee becomes inactive, irresponsible, or does not perform the duties and responsibilities. The appointment is one of responsibility, and service to the aeromodelling community, and must not be seen as a status symbol or a personal achievement.

SECTION 3

STEPS FOR TEACHING A PUPIL PILOT TO FLY

These are guidelines for club instructors who have been assigned by the club management and have undertaken the task of teaching a new member to fly.

It outlines the matters that a pilot should know. Its objective is to assist and remind the instructor of matters that he takes for granted and assumes others might know.

The duties of the club instructor are:

1. To check out the pupil pilots' aircraft before the first flight, or after any repairs, by doing the pre-flight check set out in sections of this booklet.
2. To inform and educate the pupil pilot on the SAMAA MOP, the club's constitution, flying procedures, field etiquette, and the club's safety rules and safety code.
3. To briefly instruct a few general subjects as outlined under "General Instruction".
4. To teach the pupil pilot to fly.

3.1 Check out the Pupil or Beginner's aircraft

Every aircraft must be checked out structurally, and for the method and correctness of the radio, engine, and equipment installation. Use the pre-flight checklist in Section 5.

3.2 Field etiquette and safety rules

This is the instructor's second duty. Clubs shall prepare introductory courses to cover the safety rules etc. as in this section and section 3.3, to ensure that pupil pilots and new members understand the rules and the basics of how the sport and hobby is structured. It is essential for the instructor to work through the following with the pupil pilot:

(a) – Club rules and flying procedures
(b) – Safety rules, safety code, and procedures
(c) – Bye-laws and special regulations.
(d) – SAMAA rules.

3.3. General instruction

The instructor's third duty covers a large scope. It is up to the instructor to give the pupil pilot a good grounding in the following:

3.3.1 Theory of flight

(i) basic forces on a model aircraft (lift, weight, thrust, drag).
(ii) speed/lift. (Bernoulli principle of fluid dynamics).
(iii) stalling.
(iv) centre of gravity (forward = safe, rearward = unsafe).
(v) the three axes (yaw, pitch, roll).
(vi) control surface function.
(vii) adverse yaw.
(viii) air density and temperature.
(ix) mass and wing loading.

3.3.2 Radio functions

(i) very basic theory.
(ii) actions and functions of transmitter (Tx).
(iii) actions and functions of receiver (Rx).
(iv) checks, range, switch, antennae, batteries, etc.

(v) maintenance and charging.
(vi) receiver “failsafe” settings.
(vii) buddy box use
(viii) home flight simulator.

3.3.3 Frequency control

(i) Describe the “PEG ON” system, emphasising the discipline and consequences of failure to observe these frequency control rules.
(ii) The system of “peg on” board before switching on transmitter.
(iii) Transmitter impound system.

3.3.4 Pre-flight checks

(i) radio, start-up, mixture at high and low rpm, mixture when nose of aircraft is held up, reliable idle, etc.
(ii) engine power limits, propeller size.
(iii) control checks.
(iv) taxi and runway discipline.
(v) runway entrance, hold for landing aeroplanes, permission from other pilots flying.
(vi) line up and delays.
(vii) club flying and safety rules.

3.3.5 Flying

(i) power for height, elevator for speed.
(ii) acquisition of stick “feel” – practice.
(iii) simple turns and correction during manoeuvres.
(iv) normal turns and manoeuvres.
(v) disorientation - stick time.
(vi) dangers of flying through the sun.
(vii) basic aerobatics and correction.
(viii) changing altitude.
(ix) accurate positioning of aircraft in the sky.
(x) approach and landing pattern.
(xi) landing.
(xii) take-off procedures (use of rudder at lower speeds).
(xiii) touch-and-go’s.
(xiv) identification of pupil’s weakness, revision, and practice to improve.
(xv) first solo flight.
(xvi) Solo proficiency test.
(xvii) one month check-up and correction of any problems.

3.3.6 Proficiency testing

Reasons and purpose of proficiency tests. (Refer to Section 1 and Section 8)

3.4. Take-off and flying

The instructor’s fourth duty, teaching the beginner or pupil to fly.

NO PUPIL PILOT MAY FLY HIS AIRCRAFT WITHOUT AN INSTRUCTOR OR QUALIFIED PILOT IN ATTENDANCE.

Once the pupil has digested the above theory, he is now ready to fly, but only after having the instructor explain the following to him:

3.4.1 Pre-flight check procedure

1. Re-check control movements before taxiing.
2. Taxi
   (i) explain up-elevator for a tail dragger.
   (ii) straight taxiing.
   (iii) torque effect.
3. Check that nose wheel is effective.
4. Speed (i.e. enough power for take-off).
5. Refuel if necessary.
6. Explain aerial theory of orientation (don't point aerial at aircraft).
7. Explain "stick towards the wing that is down"-theory of orientation when aircraft is coming towards the pilot.
8. Explain stick movements and use of trims and rates.
9. Explain position of hands and fingers on the transmitter. Lightly grip sticks between thumb and fore-fingers, or thumbs on top of sticks.
10. Explain to pupil to not "paddle" the sticks; give enough, but gentle movements.
11. Explain ill-effects of over-controlling.
12. Give commands to pupil and check his response to positioning aircraft.

3.4.2 Flight checks

1. Take-off.
   (i) more speed required than usual.
   (ii) keep climb-out flattish until safe height is attained.
2. Check and adjust trims on transmitter.
3. Land immediately if trims are way-out or aircraft behaves abnormally.
4. After test flight, land and adjust trim on aircraft to re-centre trims on the transmitter.
5. Re-check trims in flight, re-adjust if necessary.

3.4.3 Teaching the pupil pilot to fly. Flying and sequence of teaching

Each instructor has his preferred method to teach a pupil, but the basics are:

- Take-off by the instructor, either using pupil's Tx or buddy box. Climb to a reasonable height, throttle back, do a 180-degree turn, and trim out the model aircraft for straight and level flight.
- Hand over control to pupil who will do many left turns and right turns, squares, figure eight's, etc.
- Landing by instructor.
- Pupil learning to taxi; pupil taught to use rudder and throttle.
- Pupil flying many hours of circuits, at gradually decreasing height above ground.
- The pupil's first landing.
- More flying circuits, practising approaches, and flight over runway.
- First take-offs.
- Practising take-offs, landings, flying the solo test pattern, approaches, and landings.
- Performing and passing the "Solo" test.
- Periodic check-ups.

The instructor's job is basically done.

Some of the points which must become part of the instructor's vocabulary, *ad nauseum* are:

- Is your peg on the board?
- When last did you check the batteries?
- Have you checked out your aircraft?
- Have you fuelled up?

- Have you switched on, and selected the correct model?
- Be very careful of the spinning propeller.
- Have you extended the Tx aerial? (if applicable)
- Do not fly over the pits.
- Get more height, but not too high where you cannot see the aircraft.
- Announce your intentions to the other pilots on the flight line.
- Have you switched off after landing?
- Have you taken your peg off the board?
- Is your transmitter back in the Tx impound?

SECTION 4

BEGINNERS/PUPIL PILOT MILESTONE LOG

4.1 Pupils/beginners milestones

This section sets out the proposed learning – "achievement milestones" for teaching pupils. To help achieve uniformity, below is a Progress Log, and it is suggested that these milestones become a club standard, so that any club instructor can see at a glance the status and progress of the pupil and carry on instruction from that point.

A suggestion to clubs, is that a paper print of the Progress Log be issued to the pupil, which is presented to the instructor before the pupil flies. This is finally signed off by the instructor. The pupil pilot may then request to be tested for his Solo proficiency rating.

PROGRESS LOG
Pupil's status – Milestones

Pupil's name: ……..…….… Type of aircraft: ……

Club name: …….. SAMAA number:……

Milestones achieved

Item	***Ground***	***Flying***	***Signature and date***
1	Instructor to demonstrate frequency peg system. Instructor to explain basic safety rules, and flying rules	Instructor to explain frequency control system, control functions, movement of sticks, and flying criteria to pupil	
2	Airworthiness checklist okay	Aircraft thoroughly checked out, trims okay, flies okay	
3	Club safety, field rules and flying rules known by pupil	Pupil can ground taxi. Can satisfactorily and consistently perform left-hand and right-hand circles, as well as figure eights at altitude	
4	Safety procedures known and practiced by pupil	Pupil can do left-hand and right- hand circles and figure eights at lower altitude, as well as trim out the aircraft, and do landing approaches, without actually landing	
5	Safety and flying rules and procedures are known by pupil	Pupil can do safe landings, from all directions, and combinations of turn directions. Pupil can do safe dead-stick landings	
6	Basic aerodynamics are known	Pupil can do take-offs	
7	Pupil has satisfied instructor on knowledge of safety, club rules, and basic aerodynamics	With enough confidence and experience, pupil pilot may undertake the Solo proficiency test, and if successful, is now qualified to fly solo at the club	

Instructor signature:_____ Date: _____

Instructor signature: _____ Date: _____

SECTION 5

PRE-FLIGHT CHECKLIST

5.1 Checks

(a) The checks as set out in Points 5.2 to 5.8, are general checklist items and must be used in part or in whole by all pilots, no matter how experienced they are, to check out their aircraft before the first flight of the day. It must be used in whole by pupil pilots who are doing their Solo proficiency tests. The pupil pilot shall demonstrate to the judges that he has a thorough knowledge of his aircraft and the details which ensures safe flying.

(b) This same checklist must be used by the instructor to check out a beginner or pupil's aircraft before its first flight. This section is in a logical sequence so that each check, or set of checks, follows the previous one. The pupil must be present during the check as he will be required to perform this check for the instructor before obtaining "Solo" status.

5.2 Airworthiness

Here is the first of the instructor's duties.

It is a prerequisite that new, **untried,** and **repaired** aircraft be properly checked before its first flight. The check-lists are brief but reasonably comprehensive and, if in the views of the instructor, the aircraft is not airworthy or is unsuitable for a pupil, it must be communicated to the pupil.

If the aircraft is deemed not airworthy, it must 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, must be given to the pupil by the instructor. A copy of this same list must be given to the safety officer, with the pupil's name, the type of aircraft, and his reasons for not allowing the aircraft to be flown.

Checks to be done by the instructor, must include the following:

- Explain to the pupil, during the checkout of the aircraft, the observations and reasons for any adjustments that are made.
- If this check is being done at the field – reserve the transmitter frequency before starting the check.

5.3 Check list:

Structure of the model aircraft

1. Check the wing for warps.
2. Check the ailerons.
   (i) method of attachment (hinges pinned, etc.)
   (ii) check aileron to wing gap and temporarily seal with tape if excessive.
   (iii) movement (correct direction and adequate movement, if two servo's fitted in wing.
3. Check centre section of wing for strength, and wing overall for stiffness.
4. Check that tailplane is on straight and square, and securely fixed.
5. Check that fin is on straight and square, and securely fixed.
6. Check the method of attaching tail surfaces to fuselage.
7. Check rudder and elevator hinges (pinned), and control surface gaps.
8. Check rudder and elevator movements.
   (i) correct direction and amount of movement, (adequate, or excessive).
   (ii) kwiklinks and pushrod locks correctly fitted to both ends of push rods.

9. Check method of mounting engine.
   (i) type of mount.

   (ii) correct type and number of screws, or bolts and lock-nuts.
   (iii) servo linkage, movement correct.
   (iv) no metal-to-metal linkages to cause noise.

10. Check fuel tank.
   (i) is tank at the correct level?
   (ii) position secured: can it move or rotate?
   (iii) correct plumbing to tank: are the pressure and clunk systems okay?
   (iv) filter(s) fitted?

11. Check nose wheel or tailwheel (whichever fitted).
   (i) drag.
   (ii) correct direction of movement.
   (iii) amount of movement.
   (iv) linkages okay, no metal-to-metal links.
   (v) tracks straight when servo is at centre.
   (vi) securely mounted with bracket.
   (vii) nose wheel shaft nearly vertical or slight aft rake.

12. Check main wheels.
   (i) drag/binding.
   (ii) method of attachment to fuselage, and wheels to axles.
   (iii) tracking straight.
   (iv) position of wheels relative to CG.

5.4 Radio installation

1. Check servo tray and aileron servo attachment.
   (i) trays screwed down securely.
   (ii) servos mounted correctly on grommets and eyelets.
   (iii) screws in servo output arms.
   (iv) kwiklinks on push rods fitted and adjusted correctly.
   (v) no binding of output arms or push rods over full servo throw, including trims.

2. Check battery
   (i) position, method of fixing. Can it move and alter CG, etc.?
   (ii) check battery voltage under load.
   (iii) set up “fail safe” settings.
   (iv) check switch position and movement of switch.

3. Check receiver position, and protection and isolation from vibration.

4. Check position of aerial.
   (i) restraint inside fuselage, not under tension.
   (ii) away from servos and output arms.
   (iii) method of attachment to fin and/or tail plane.
   (iv) not doubled back on itself.
   (v) not inside fuselage alongside metal control rods?
   (vi) protected at exit point of fuselage.
   (vii) not inside carbon fibre fuselage.
   (viii) are aerial(s) correctly orientated? (2.4GHz).

5. Linkage on servos.
   (i) no metal-to-metal contact.
   (ii) nyrod outers glued both ends, supported in middle of a long run.
   (iii) end of control rods properly restrained.

6. Foam rubber packing/isolation (not plastic foam) where necessary.

7. (i) Servo leads in good condition and plugged into receiver properly.
   (ii) Servo lead plugs anchored/captured into receiver.

8. Check linkage to elevator, rudder, ailerons, throttle, and nose wheel.
   (i) method of attachment.
   (ii) throttle travel correct or override provided.
   (iii) nose wheel shock absorber (on leg and linkage).
   (iv) clearance of aileron linkages when wing attached to fuselage.
   (v) kwiklinks or clevises locked in place.

9. Check movement of servos.
   (i) servos move smoothly, no grinding noises, jerkiness, or buzzing.
   (ii) no binding during full throws and trims.
   (iii) all moving in the correct directions relative to stick movements on ailerons, elevator, rudder, throttle, and nose wheel.
   (iv) set up high-low rates if necessary.
   (v) check failsafe settings on servos. Motor to low idle, balance of servos to hold.
   (vi) set all trims to zero, if required, adjust mechanical settings.
   (vii) programme exponential if thought to be beneficial .
   (viii) check on direction if two aileron servo's fitted.

5.5 Assembly

1. Check if covering of total aircraft okay.

2. Check wing incidence.

3. Check tailplane incidence.

4. Check thrust line of motor/engine.
   (i) viewed from side for down thrust.
   (ii) check to top of fin for right thrust.

5. Check all control surfaces are aligned with flying surfaces, i.e. elevator, rudder, and aileron.

6. Check position of Centre of Gravity.

7. Method of attaching wing to fuselage.

8. Wing square on fuselage.
   (i) viewed from front.
   (ii) viewed from back.
   (iii) viewed from top.
   (iv) check aerial, servo leads, and battery leads not trapped.

5.6 Engine checks

1. Propeller.
   (i) correct size for engine.
   (ii) correct type for engine (not pure nylon).
   (iii) prop nut tightened with wrench, spanner, socket.
   (iv) propeller balanced
   (v) spinner if used, tightened.

2. Glow plug.
   (i) correct type.
   (ii) firmly tightened, but not over tight. Washer/seal present.

3. Carburettor.
   (i) mounted firmly.
   (ii) idle adjusted correctly.

4. Fuel.
   (i) tank full of correct type of fuel.
   (ii) filter recommended in fuel line.

5. Silencer.
   (i) check that the silencer is an approved, unmodified unit.
   (ii) check that the silencer is properly attached to the engine.
   (iii) if deemed excessively noisy, add baffles or modify.

WARN PUPIL ABOUT THE DANGERS OF A SPINNING PROPELLER

6. Start engine.
   (i) check high-speed setting, set intermediate setting.
   (ii) check for fuel foaming.
   (iii) check idle, adjust so that engine stops when pulling throttle trim back.
   (iv) re-check over full rev range and solve problems.
   (v) engine maintains revs with aircraft nose held vertically up.
   (vi) check that the noise level is within SAMAA and club limits when engine is at full revs.

5.7 Range checks

1. Identifying frequency of transmitter.
2. Peg on frequency board before operating transmitter.
3. Output meter on the transmitter reading correctly and in the "green" at plus 9.6V.
4. Check receiver battery voltage under load.
5. Check operating range with transmitter aerial collapsed.
   (Should be at least 30 metres, see manufacturer's specification)

5.8 Buddy box

1. Correctly connected, and control surface movements correct.

NOTE Explain adjustments to the pupil and let him observe, learn, and participate with the necessary checks, adjustments, and range check, and buddy box settings.

SECTION 6

6.1 Requirements for Solo test

The "Solo proficiency test score sheet" shows that the flying manoeuvres are basic. The reason for this test is to demonstrate to the two SAMAA silver-rated pilots that the beginner or pupil, has enough knowledge of the club procedures, and has the experience and ability to fly without an instructor present. When he is on the flight line with other pilots, he must not be a liability or danger to others, including spectators and their property.

The solo test shall be judged by two SAMAA silver-rated pilots or better, neither of whom taught the pupil. The oral and model check tests should be carried out and must be followed by one flight as detailed on the Solo proficiency test sheet. If, in the views of the judges the pilot is competent then he passes. If the judges are uncertain of the pilot's ability they may;

(i) Ask him to re-do the maneuvers they were unhappy with, or
(ii) Ask him to re-do the preflight or the whole test flight.

Please note that if:

(i) The pilot does not have his SAMAA card with him, or
(ii) if the model used, is in the views of the judges not airworthy, or representative of models generally flown at the club (see 8.2), NO TEST shall be done.

A Solo rating fulfills the requirement for flying unaccompanied on the flight line with other pilots present.

The first two items, oral (general and safety) and pre-flight, requires homework from the pupil.

The Solo tests shall be conducted in a formal manner, with the correctly qualified persons present. After the test, the duly signed test papers will be approved by the club safety committee or chairman, placed on file, and a copy forwarded to the SAMAA office. The solo certificate shall be posted to the pilot, or may be collected if more convenient.

Here is a description and requirements for flying and judging. The manoeuvres must be flown in front of the pilot and judges, with a defined centre line to orientate the manoeuvres.

Take-off into the wind

The runway used shall be the one nearest into the wind, and the pupil shall be required to do a take-off which consists of the following:

- Apply power gradually and smoothly.
- Keep reasonably straight down the runway on take-off.
- Lift off, keep straight, climbing slowly, (not hanging on propeller) for at least 5 seconds.
- Do a gentle turn away from the pits/runway.

Left-hand and right-hand circuits

The pupil must demonstrate circuits while maintaining a reasonable altitude.

- After take-off, climb to a reasonable height.
- Pupil to announce intention, i.e. left or right circuit when the aircraft is in front of him.
- Proceed to do the turns (four left, or four right).
- When the turns are complete, repeat the manoeuvre in the opposite direction.

Uncertainty or lack of control or coordination in flying, will result in re-test of this manoeuvre.

Horizontal eights

This manoeuvre has smooth transition between the two circles.
The aircraft approaches in straight and level flight, performs a quarter circle turn away from the pilot, before reaching the centre line, followed by a 360° turn in the opposite direction. This is followed by a 270° turn in the original direction. The manoeuvre is complete after the model has passed the pilot in straight and level flight in the direction of original entry into the manoeuvre.

Dead-stick landing
At some point in the test, the judges will tell the pupil to cut the engine of the aircraft. This command will always be in a position that the pupil will be able to land safely on the runway.

- On receiving the command to cut, the pilot shall throttle the motor or engine back to idle/stop.
- The pilot must judge the circuit and approach to safely land into wind on or near the runway in use.

Landing
See 7.2.15 , except that landing on or near the runway is acceptable. Landing on the pit side of the runway or in an uncontrolled manner, resulting in a crash, shall mean a test failure.

6.2 Solo proficiency test sheet

Below is a "Solo" test sheet divided into:

(a) Oral and Pre-flight check

This part of the Solo test is the more difficult part. The pupil must know and understand the club and the SAMAA rules, and can safely operate his model aircraft, when others are flying. This test is in two parts:

(1)The oral test
Random questions shall be asked, and answered to the satisfaction of the judges. A list of the types of questions with answers appears on pages 39 - 42.

(2) The pre-flight check
This is based on the SAMAA instructors check list (per section 5 of this booklet) and is a hands-on test. The pupil checks out the model aircraft in front of the judges, showing that he understands the problem areas which may cause an accident, and which will need regular checking.

As stated elsewhere, a lack of knowledge on the frequency control system, the basic club rules, safety rules, and field rules will result in a failed test.

(b) Flying
The pupil shall be required to fly one flight in accordance with the Solo test sheet, in a conventional and acceptable manner, with a suitable model aircraft. This is a test of a pilot's skill level, and the pilot's ability to safely handle the aircraft. It is not a test of aircraft type, and the Solo test may also be taken with a park-flying, or foamie-type aircraft.

The judges have the right, if doubt exists, to have the pilot repeat any of the manoeuvres listed. This test is scored on a simple pass or fail..the pilot can either safely and recognisably perform a particular manoeuvre, or not. The judges shall inform the pupil whether he has passed or failed, and at their discretion, advise of him of flying shortcomings. Their decision is final. A test may be redone a second time on the same day provided there is time, and the judges believe he is capable of passing the test. If, at any time during the flying test, a pilot fails a manoeuvre, the judges shall instruct him to land, since there is no point in continuing the flight. However, they may request a pilot to refly a manoeuvre to satisfy themselves that the pilot has the skill to safely perform the manoeuvre.

SOLO

NB. Please check SAMAA membership card, to validate membership

No.	Description/name of manoeuvre	Only one flight: Judge 1	Only one flight: Judge 2
Oral test - eight questions regarding flying, safety, club rules, SAMAA rules (tick only✓)			
Pre-flight check of aircraft and radio done to satisfaction of judges (tick only ✓)			
1	Controlled take-off into wind		
2	Left-hand circuit - end of circuit parallel to runway		
3	Right-hand circuit - end of circuit parallel to runway		
4	Two horizontal figure eights *(one upwind, and one downwind)*		
5	Simulated dead-stick landing - engine at low speed		
6	Landing approach from left		
7	Landing approach from right		
8	Landing into wind		
	No numerical scores assigned to manoeuvres. Tick only✓ if completed to satisfaction.		

Please complete the following information, to be captured/verified on the SAMAA database.

PILOT NAME ..... Test location .....

Date of test ..... Pilot's home club .....

Pilot's SAMAA no. ..... Expiry date of membership .....

Pilot's cellphone no. ..... e-mail address .....

Pilot's signature .....

Judge 1 name ..... Signature ..... Rating .....

Judge 2 name ..... Signature ..... Rating .....

Club chairman/proficiency officer recommendation .....

Comments .....

.....

SECTION 7

7.1 Information, requirements, and conditions for proficiency tests

7.1.1 Bronze and Silver proficiency test

7.1.1.1 **Requirement for SAMAA Bronze and Silver tests are as follows:**
No proficiency test may be judged or signed off by an instructor, who was not present at the test, or who taught the pilot undergoing a test.

Tests for Solo and Bronze
These tests may be judged by any **two members with at least SAMAA Silver** status. One flight only required; preflight check and questions must be answered satisfactorily.

Tests for Silver
This test may be judged by any **two members with at least SAMAA Gold** status. Questions mandatory. Note only one test required for Silver.

7.1.2 Gold, and Instructor Proficiency tests

7.1.2.1 **Requirement for Gold and Instructor Proficiency:**

(i) Applicant to complete the Gold and Instructor proficiency application form and email to admin@samaa.org.za. Application form to be found on the SAMAA website – www.samaa.org.za
(ii) The SAMAA will assign judges from surrounding clubs to judge proficiencies, where practical and without cost.
(iii) The SAMAA will nominate the club where the test shall be flown, where practical, and without cost to the pilots and judges.
(iv) Preferably three (3) dates to be selected/nominated for proficiency flying.
(v) The applicant shall be advised of who the judges will be, and at which club for testing, and the judges' contact details will be sent to the applicant to arrange a time with the judges.
(vi) Applicant to make sure that a spotter/caller is present and that scoresheets are available when flying the proficiency.
(vii) Gold and Instructor proficiency may be flown on the same day.
(viii) No proficiency test may be judged or signed off by an instructor who taught the pilot undergoing the test.
(ix) ***All new Gold or Instructor proficiency tests are subject to a 14 day cool-off period before the pilots are allowed to fly at an airshow.***

Tests for Gold
This test will be judged by **two members. One Gold and one at least Instructor, both assigned by the SAMAA office.** Questions are mandatory.

Tests for Instructor
This test will be judged by two judges, one of whom shall be **a SAMAA Instructor and the other a SAMAA Instructor Judge, both assigned by the SAMAA office.**
Questions are mandatory.

NB! No pilot will be allowed to do an instructors proficiency test without having first passed the Gold proficiency test.

SAMAA offers the following proficiency tests: Solo, Bronze, Silver, Gold, and Instructor.

Sample score sheets appear in this document. The score sheets are designed for two rounds of whichever test the pilot has chosen, (only one flight required for Solo, Bronze, and Silver),

and are to be scored by both judges. These tests are conducted in a formal manner, with the approved persons present at the tests. The original test papers for Solo, Bonze and Silver will be submitted to the club committee for approval and will require ratification by the main club committee before being sent to SAMAA, to be entered into the database proficiency register. The original test sheets for Gold and Instructor will be sent directly to the SAMAA office for ratification and will be captured on the database proficiency register. Clubs are requested to keep a copy of each test sheet sent to the SAMAA office.

7.1.3 **Scoring**

The scoring system (except Solo) is based on the same basic principles as for aerobatic flying and judging, i.e. out of a total of 10, per manoeuvre.

The purpose of these tests is to determine the proficiency of the pilot rather than the accuracy of flying the manoeuvres. It is emphasised that the landing approach pattern is probably the most important aspect of the proficiency tests and therefore competent approaches from both base legs are essential for the attainment of proficiency merit.

The scoring standard has been set by the SAMAA instructor judges, and although more relaxed than that used for FAI competitions, is still stringent, especially for instructors proficiency. On each scoresheet is a preflight check, and questions on safety and flight line procedure.

Note that the preflight check and questions are a pass or fail, and the final score is unaffected by this item **but obviously a fail in the preflight check, or the questions, is a test fail.**

The divisor used is the number of manoeuvres flown and scored. The final score is the average of the sub-totals. The average score must equal or exceed the passing percentage required, and **no manoeuvre** may score less than the minimum score of 3, 4, or 5 as specified for that particular proficiency test.

A minimum score for a manoeuvre for say a Silver, requires one eight or two sevens, to offset a minimum score of four, to achieve the ultimate percentage!
Manoeuvres are generally performed in front of the pilot and judges, with a defined centre line to aid with the optimum placement of manoeuvres.

7.1.4 **Test failure**

In any of the proficiency tests, a score **less than the minimum** specified for any one manoeuvre means that the test is failed.

7.1.5 **Repeat test**

Two attempts of the same proficiency will be allowed on the same day, provided time permits.

7.1.6 **Time before a re-test**

If a pilot fails both attempts at a proficiency, he must practice for one month before a retest will be allowed. A complete test will be redone, with no cognizance of previous attempts.

7.1.7 **Level of entry**

A pilot may do his first test at any level up to Gold. A pass at any level of proficiency automatically qualifies the pilot for the levels below.

7.1.8 **Proficiency badges**

The initial badge awarded for any proficiency level is presently for free. If the qualifying pilot wishes to purchase the badges of the levels below that which he has qualified for, he may do so, for the costs on the badges contact the SAMAA Office.

7.1.9 **Time-out**

Should a pilot, for some valid reason, such as to refuel or as a result of a dead-stick, require to land, he shall be entitled to continue, and shall in no way be penalized, provided he requests time-out and then proceeds to land in a controlled manner on the runway in use. After the problem has been rectified, he shall resume his test at the point where it was interrupted.

7.1.10 **Time between flights**

A pilot will be given, if he so requests, or if circumstances rule, a break between flights. The length of this break will be at the discretion of the judges, without undue delay to others who have also been scheduled for proficiency testing.

7.1.11 **Pilot's briefing**

A pilot's briefing will be held at the beginning of the test session. The judges will host this session. All pilots doing tests will be properly briefed as to what is required of them. At this time the candidates must clear any queries on the tests to be performed or the manoeuvres required.

7.1.12 **Debriefing**

A debriefing will be held by the judges and results of the proficiency tests will be made available.

7.2 Proficiency test manoeuvres

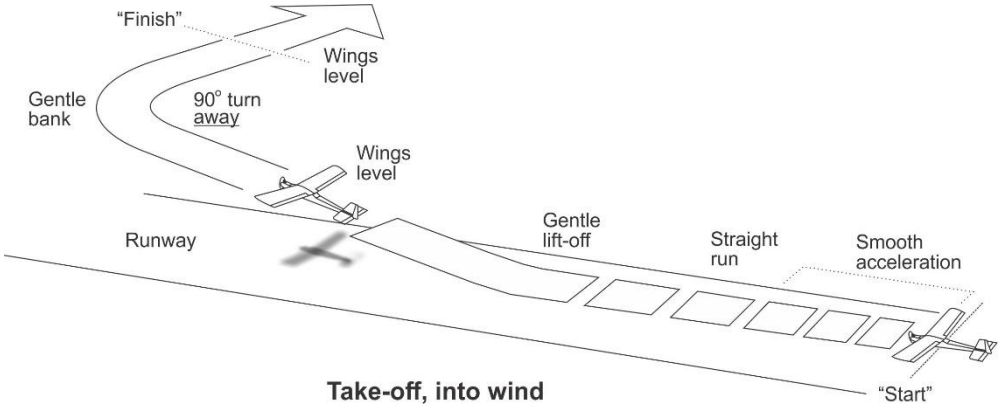
7.2.1 **Preflight check and questions**

The preflight check **shall be done** by the pilot prior to the flight testing of any test. It must be done on the model aircraft and must be a complete safety and airworthiness check, to clearly demonstrate to the judges that the pilot understands the workings of the model. The attached listing in Sections 3.3 and 3.4 of this document give the requirements for a preflight check.

The pilot **is required** to answer questions related to model and club safety, and regulations, as asked by the judges. Examples of these are generally as shown on pages 11 and 12. **Note**: a failure in either of the above sections **is a test failure**.

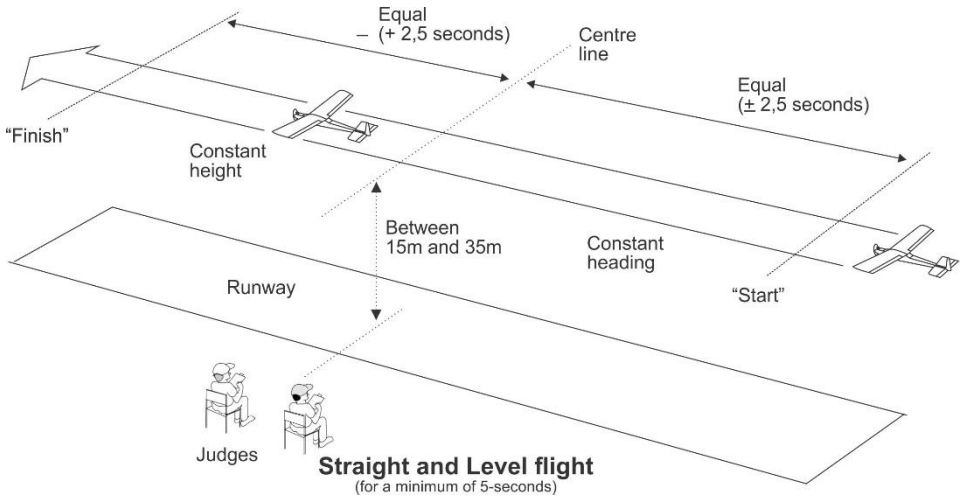
7.2.2 **Take-off into the wind**

The take-off will be judged on model control, particularly use of rudder, use of throttle, length of run, and angle of ascent. Where a tail dragger is used for the test, a reasonable amount of swing on initial acceleration should be tolerated. The take-off should start from a standstill and is complete when the model has performed a 90° turn away from the pilot, runway, and pits.



Take-off, into wind

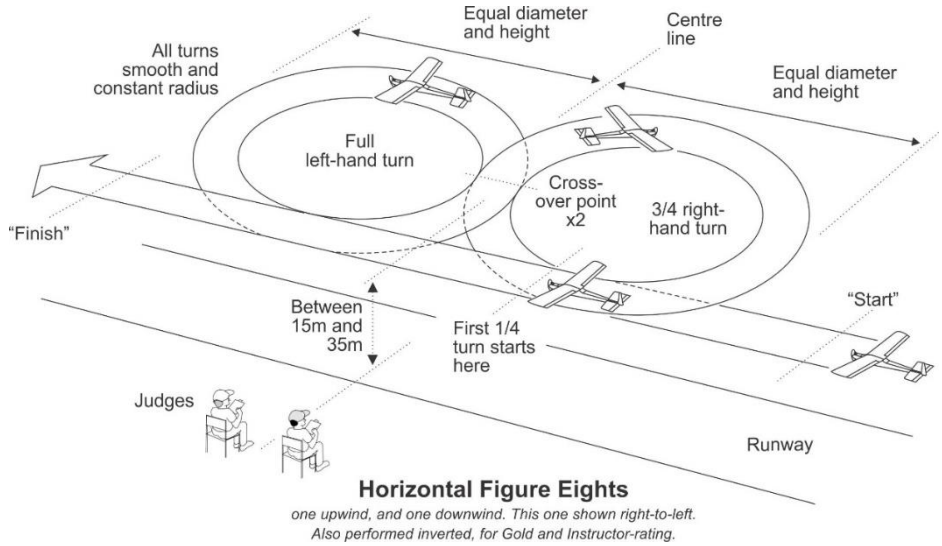
7.2.3 **Straight and level flight** into wind for a minimum duration of five seconds at an altitude of between 15 and 35 metres.



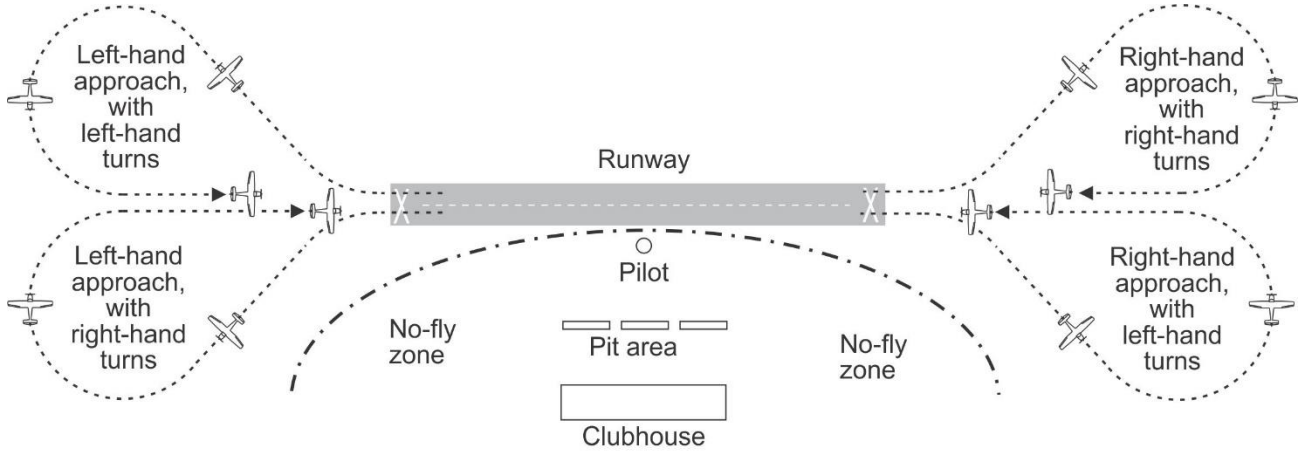
7.2.4 **Two horizontal figures of eight**

Performed one into wind, the other downwind, with longitudinal axes parallel to the runway. Altitude will be maintained within reasonable limits and consistency of the figure of eight will be judged, considering wind strength. Altitude must be between 15 and 45 metres.

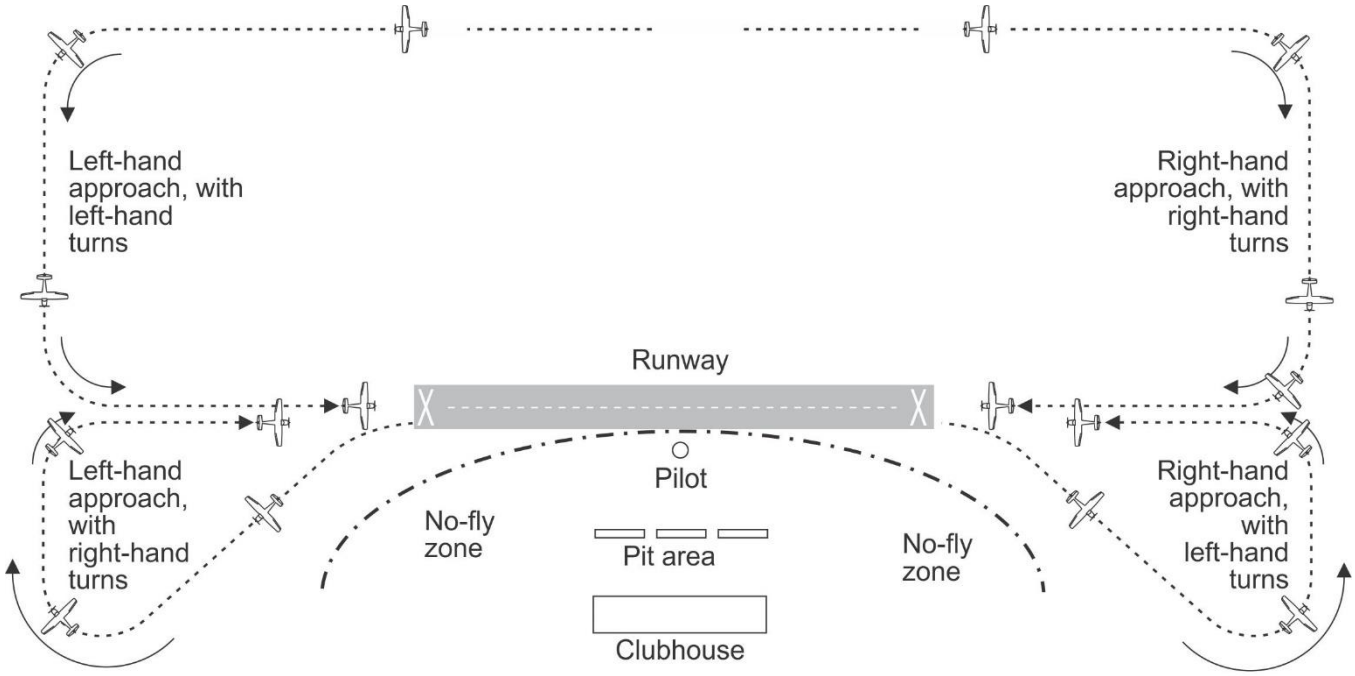
The model approaches in straight and level flight, and before reaching the centre line, performs a quarter circle turn away from the pilot, followed by a 360° turn in the opposite direction. This is then followed by a 270° turn in the original direction. The manoeuvre is complete after the model has passed the pilot in straight and level flight in the direction of the original entry into the manoeuvre, and approximately the same altitude as the entry.



7.2.5 **Landing approaches** from both sides and both bases.The pilot will demonstrate to the satisfaction of the judges, that he can make a satisfactory **approach** to within 3 metres of the runway centre, from either direction, and from both left and right base legs, on **both** attempts of the test. The sketches below will clarify how the approaches should be made to prevent the pilot flying **in the no-fly area**, and not above or behind the club house. The criteria for a pass in this test is whether the pilot can plan, execute the turns correctly, and land the aeroplane safely from any direction of approach, with any combination of turns.



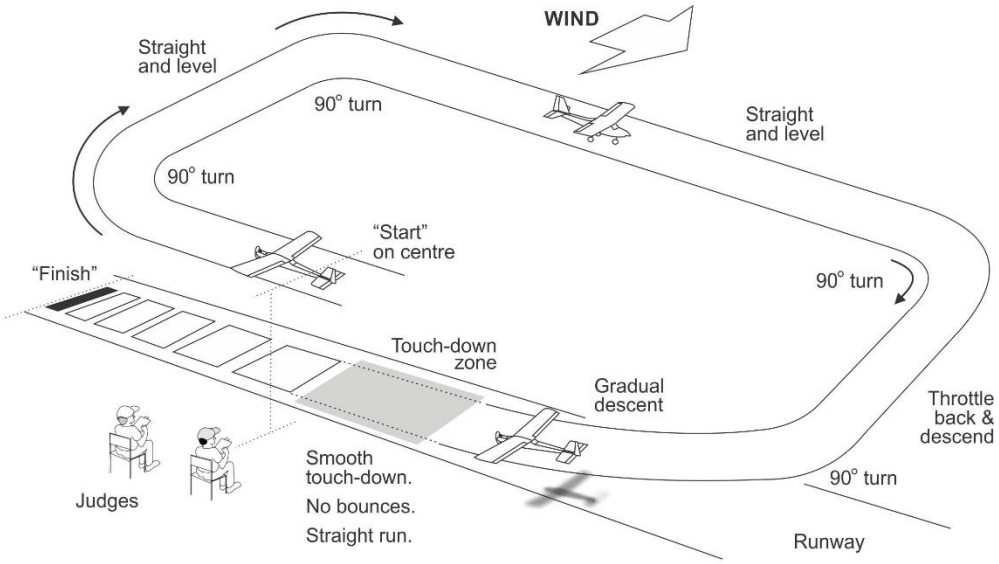
"Dogbone" landing approaches



Rectangular landing approaches

7.2.6 **The landing**

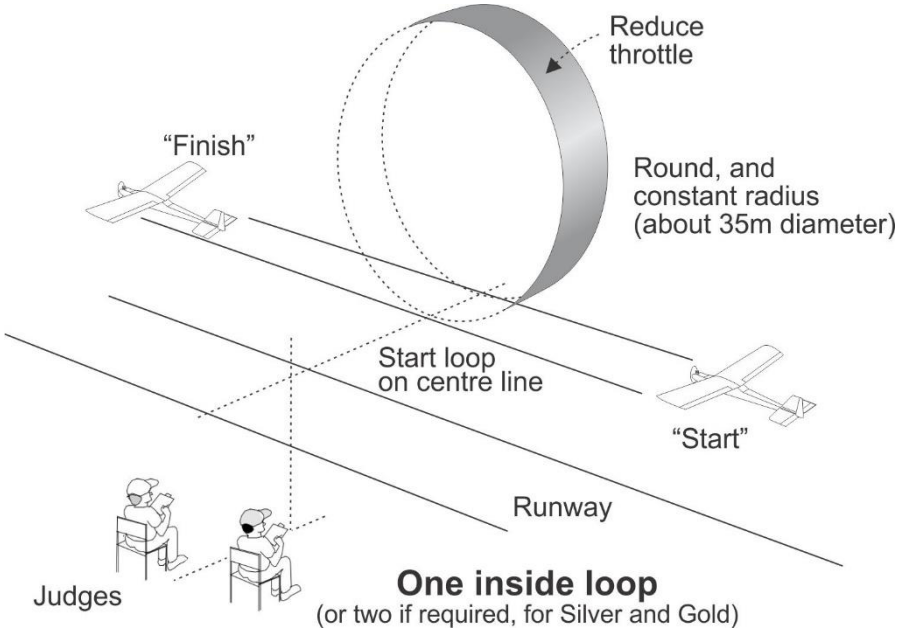
The landing must be straight into wind on the active runway, and the touch-down should be within the first one-third of the runway length. The model aircraft must run reasonably straight and come to a stop without running off the runway. A small bounce, particularly with a tail dragger will be tolerated.



Rectangular landing approach and landing

7.2.7 **One inside loop**

From straight and level flight, parallel to the runway of take-off, the model pulls up on the centre line, and completes a circular loop, and resumes straight and level flight on the same heading and altitude as the entry. The throttle may be reduced at the top of the loop as appropriate to the type of aircraft, and the loop completed, after which the throttle is opened and normal flight resumed.



One inside loop
(or two if required, for Silver and Gold)

7.2.8 **Slow low pass into wind**

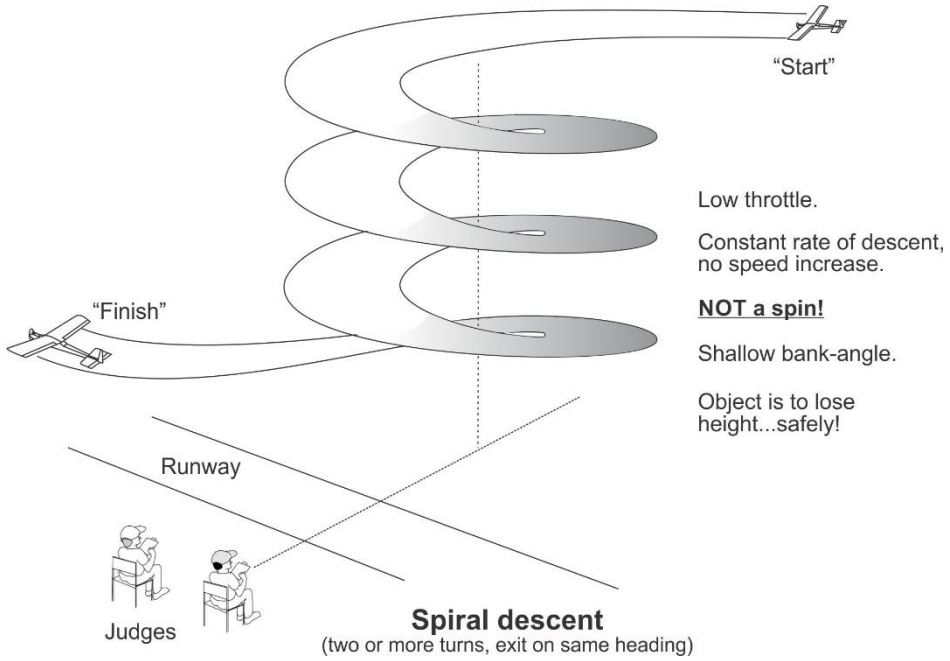
Straight and level 5 metres above the far side of the runway, throttle back to a safe low speed, for a low pass into wind, parallel to the runway, maintaining altitude and heading.

7.2.9 **One horizontal axial roll**

Start from straight and level, fly the model aircraft into wind, or downwind if preferred, parallel to the runway. Model must roll axially to the left or right until a full roll is completed, with the wings level and with the aircraft at the same heading and at the same altitude as at the entry.

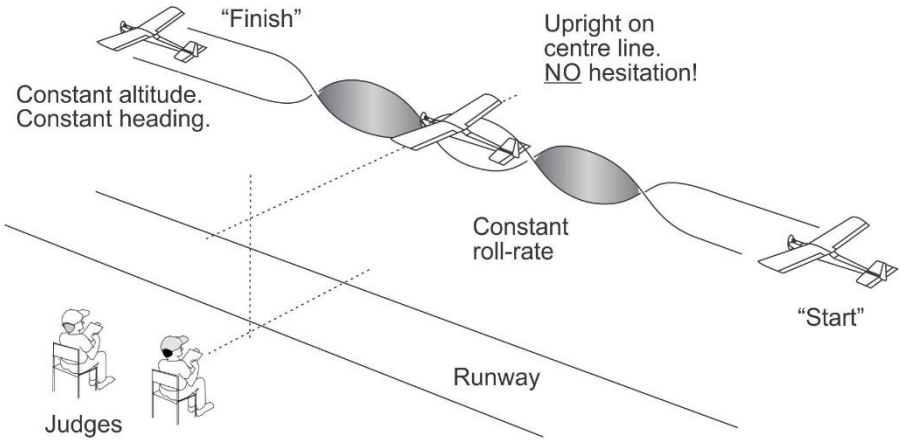
7.2.10 **Spiral descent**

This is not a flat spin; the motor/engine/nose of model aircraft must always be below the tail. Method for a spiral descent is as follows: obtain sufficient height, and from level flight, throttle back motor/engine, add some up elevator, apply rudder, and if required, some aileron. Allow model aircraft to spiral for 2 – 3 turns, in a 10-15 degree nose-down attitude, in a corkscrew-type descent. Recover in level flight. Again, this is **not a spin**, and the speed is reasonably constant, with the object being to safely reduce height.



7.2.11 **Two Consecutive horizontal rolls**

The manoeuvre starts from straight and level flight, flown into wind or downwind if preferred, parallel to the runway. Model aircraft rolls axially to left or right until two consecutive rolls are finished. The recovery must be at the same heading and altitude as the entry. Slight changes in altitude, depending on the aircraft type will be acceptable; heading to remain constant. Note that the two rolls must be consecutive, and any hesitation between the two rolls will be severely downgraded.



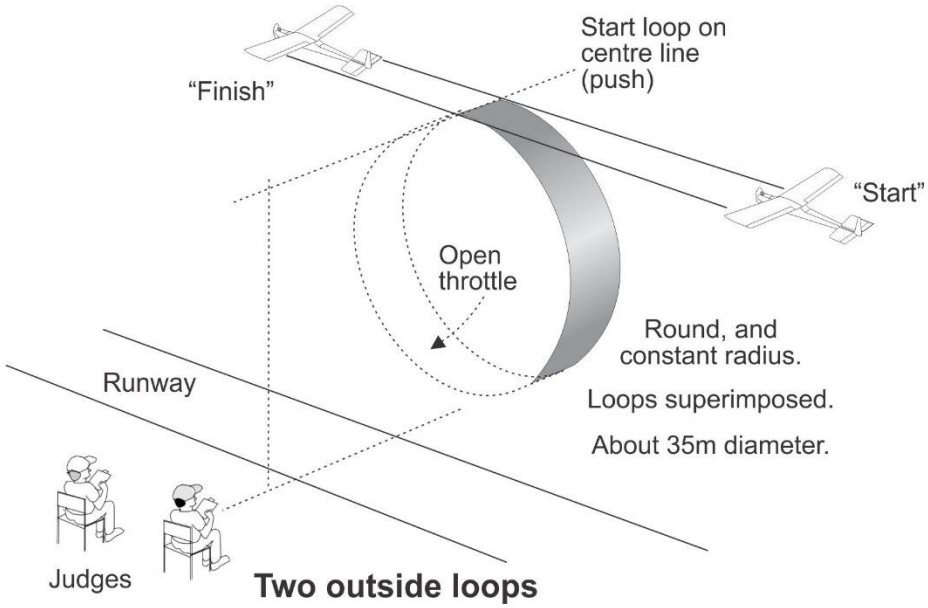
Two consecutive rolls

7.2.12 **Emergency landing**

For this manoeuvre, the pilot will be informed to cut throttle, in a safe and appropriate place and to then safely land. An idling motor or engine will be acceptable, and the pilot must land into the wind on the runway of take-off. The use of the throttle, or landing off the runway scores zero.

7.2.13 **Outside loops**

Pilot to obtain sufficient height flying downwind, parallel to the runway of take-off. From straight and level, reduce the throttle setting, apply down elevator to dive down and complete a circular outside/negative G loop. Open throttle at about the 4 o'clock position, with the model aircraft pushing back up to entry altitude to complete the loop. Wings to remain level during the outside loop.



Two outside loops

7.2.14 **Crosswind landing**

As per normal landing, but rudder and/or aileron should be applied to keep the aircraft flying down the runway before landing.

7.2.15 **Landing sequence**

See also 7.2.6. The landing sequence should be of the rectangular approach type and should demonstrate the ability to control the rate of descent and throttle setting. The final approach and touchdown must be smooth and demonstrate a consistent rate of descent and speed. All landings shall be on the runways. Where no runway exists, landings shall be within 3 metres of the assumed centre line of the runway. Acceptance will be at the discretion of the judges and their decision shall be final.

Recovery from unusual attitudes.

The judges will, while the pilot is under test, and sometimes with his hands off the Tx, place the aircraft in an unusual flight attitude on two separate occasions during the flight, and the pilot will demonstrate his ability to recover from the unusual attitude, the first reaction being to close the throttle. (This may be dependent on the circumstances at the time). The more-preferred method, is to blank off the pilot's view to his aircraft with a clip board, and to ask him to push the Tx sticks into the upper left or right corners, so that the model aircraft ends up in an unusual attitude, from which the pilot is required to recover safely.

7.2.16 **Fast low pass downwind**

Pilot to fly his model aircraft straight and level, downwind, at a high throttle setting, at about 5 metres above the ground, on the far side and parallel to the runway in use.

7.2.18 **Inverted horizontal figures of eight**

See also 7.2.4, but inverted. Pilot to fly two inverted figures of eight, one into the wind the other downwind, with longitudinal axes parallel to the runway. Altitude will be maintained within reasonable limits and consistency of the figure eight will be judged, considering wind strength. The model approaches in straight and level flight, rolls inverted, and before reaching the centre line, performs a quarter circle turn away from the pilot, followed by a 360° turn in the opposite direction. This is then followed by a 270° turn in the first direction. The manoeuvre finishes with a roll to upright, back into straight and level flight, on its original heading and altitude.

SECTION 8

8. MISCELLANEOUS INFORMATION ON PROFICIENCIES

8.1 Proficiency status

Obtaining a proficiency rating has several advantages:

(i) It improves a pilot's flying skills

(ii) It defines where and when pilots may fly certain models within the SAMAA system with specific proficiencies. These are detailed below:

For fixed-wing proficiency levels:

Solo: Allows a pilot to fly at his club without a competent person in attendance.

SAMAA Bronze: Same rights as a solo qualification. Some clubs use the Bronze level as their lowest level of qualification.

SAMAA Silver: This is the minimum level that pilots should try to achieve as it gives them several advantages:

(a) Most clubs will allow a pilot with a silver proficiency, to teach a pupil pilot to fly, although there is usually a 6-month probationary period between the pilot achieving his silver merit, and the time he is allowed to teach others to fly, but this period is not prescriptive.

(b) With a silver proficiency, a pilot will be allowed to participate in, and fly a model aircraft at an airshow at his own club.

(c) A silver proficiency will qualify a pilot to test a pupil pilot for a Solo or Bronze rating, with another examiner, with the proviso that he may not test the pupil if he taught him to fly.

(d) The silver qualification is generally accepted as the entry qualification to fly in competitions. It qualifies a pilot to fly large models over 12kg but less than 35kg, twin-engined models, and pylon racing aircraft if additional tests are taken and the required SAMAA or SIG "Permit to Fly" certification has been obtained.

(e) A Silver proficiency will allow a pilot to participate in many special events like float flying, cross country etc. where although the event is at a non-registered site, the public are not present and the risks are low.

(f) A Silver proficiency allows a pilot to fly a turbine-powered model aircraft, usually a jet. This qualification is equivalent to a Turbine Jet Proficiency, where the pilot has been tested on the operation of a turbine engine.

SAMAA Gold: A Gold proficiency will:

(a) Allow a pilot to fly at any airshow, display, or event at a SAMAA-registered or non-registered (but temporary-approved) field or site in the presence of spectators. It qualifies you to fly large models of over 12kg but less than 35kg.

(b) Allow a pilot to judge proficiencies for Solo, Bronze, Silver, and Gold with another qualified examiner.

SAMAA Instructor:

This proficiency rating allows:

(a) An Instructor to fly a fixed-wing aircraft in any event, airshow, demonstration, exhibition, etc.

(b) A SAMAA instructor may judge proficiency tests for SAMAA Solo, Bronze, Silver, Gold, and Instructor proficiency (the latter subject to having an instructor judge present when testing an instructor).

(c) A SAMAA Instructor is qualified to fly at a full-size airshow when invited.

SAMAA Instructor Judge:

This allows a SAMAA-appointed member to test pilots (with another SAMAA Gold-rated judge present) for any SAMAA proficiency status, up to Gold, and with another SAMAA Instructor, up to SAMAA Instructor.

It should be noted that the appointed position of a SAMAA Instructor Judge is subject to review by the SAMAA management committee. If it is found that an instructor judge is not committed to performing the duties expected from him, then he will be informed by SAMAA that his appointment is revoked.

8.2 Type of aircraft

What type of aircraft may be used to fly a proficiency test? Any model aircraft type that can do the maneuvers listed, to satisfaction of the judges. The model aircraft used must be able to fly the maneuvers correctly, i.e. a loop for instance must be approximately 35 metres diameter and the aircraft must fly around this loop, not flop over at the top.

So, choosing an electric flat wing foamy may penalise a pilot's scores, especially in windy weather unless he is a good flier. The final proof of the suitability of the model aircraft, will be the two judges scoring the tests, and their scoring will decide if the candidate passes. Whether the model is electric, glow, or otherwise is not important, the thing that matters is: Can it fly the sequence to the satisfaction of the judges and clearly demonstrate that the pilot is proficient?

8.3 Use of gyros

No electronic gyroscopic devices may be used that will help in auto-stabilisation of flight conditions of the model aircraft. Pilot skill is being tested, not management of electronic devices.

8.4 Validity of proficiency status

Pilots with SAMAA proficiency qualifications should be aware that a lapse of three years in SAMAA membership will automatically cancel any proficiency rating and will be relegated to NOVICE/STUDENT. To acquire the relevant proficiency, the pilot must fly the proficiency he would like to obtain.

8.5 Central register for proficiency and badges

8.5.1 The SAMAA office shall keep a database of all proficiency tests passed. It is expected that clubs will organise the proficiency tests and the judges will sign off the proficiency tests and send a copy to the SAMAA office to be recorded.

The club should, for safety sake, keep a copy in their records. The SAMAA will in due course issue the relevant certificates and badge and print the latest and highest qualification or qualifications obtained on the SAMAA pilot's membership card.

8.5.2 Should a proficiency test/s not be accepted by the SAMAA office for whatever reason, a message must be sent to the club for follow-up/clarification.

8.6 Proficiency qualification through a SIG (Special Interest Group)

It has been agreed that pilots who have, and are competing in competitions, and who regularly obtain high scores in these competitions, could earn or qualify for a proficiency level. The SIGS have discussed and agreed the scores required to qualify for a proficiency level, and these have been accepted by the SAMAA.

8.7 Reinstating previous proficiency

Since the introduction of the new proficiency tests, there have been numerous requests from holders of the old SAMAA qualification to have these converted to the new system. The SAMAA management committee considers a proficiency rating as a pilot's licence, and it demonstrates to the Civil Aviation Authority that place a high priority on quality assurance. In very rare cases may there be consideration for reinstatement of a historical proficiency.

8.8 Club instructors and judges

To assist SAMAA and the regions in conducting and approving proficiency tests, it is requested that **all clubs** doing their own proficiency tests should submit to the SAMAA office, lists of their

appointed instructors, together with their SAMAA numbers as well as the names of the proficiency authorising committee members of the club.

9. SAMAA PROFICIENCY SCORE SHEETS

Included in this booklet are score sheets for:
(a) SAMAA Solo proficiency
(b) SAMAA Bronze proficiency
(c) SAMAA Silver proficiency
(d) SAMAA Gold proficiency
(e) SAMAA Instructor proficiency

The score sheets must be completed in full with all relevant information, signatures must be legible, and if information is missing, it may cause a delay in processing, since the SAMAA office staff might have to lodge a query, or the sheets may have to be returned to the club for completion.

Proficiency Scoresheets (pages 31 – 35)

Proficiency test score sheet *(October 2019)*

BRONZE

NB. Please check SAMAA membership card, to validate membership

No.	Description/name of manoeuvre	Only one flight: Judge 1	Only one flight: Judge 2
	Pre-flight check of aircraft/radio done and six questions answered to satisfaction of judges (tick only✓)		
1	Take-off into wind		
2	Slow low pass into wind		
3	Two horizontal figure eights *(one upwind and one downwind)*		
4	One inside loop		
5	Straight and level flight for 5 seconds		
6	Landing approach - right hand turns, from left-hand side of field		
7	Landing approach - left-hand turns, from right-hand side of field		
8	Landing approach - left-hand turns, from left-hand side of field		
9	Landing approach - right-hand turns, from right-hand side of field		
10	Landing into wind		
	Minimum score per manoeuvre	**3**	**3**
	Score sub-total for Judge 1	*a*	
	Score sub-total for Judge 2		*b*
	FINAL PERCENTAGE SCORE (a + b ÷ 2.0 = %)		
	Passing percentage is... **50%**	50%	
	If less than minimum score of 3 is achieved for any manoeuvre, the attempt is deemed a failure.		

Please complete the following information, to be captured/verified on the SAMAA database.

PILOT NAME ..... Test location .....

Date of test ..... Pilot's home club .....

Pilot's SAMAA no. ..... Expiry date of membership .....

Pilot's cellphone no. ..... e-mail address .....

Pilot's signature .....

Judge 1 name ..... Signature ..... Rating .....

Judge 2 name ..... Signature ..... Rating .....

Comments .....

.....

Proficiency test score sheet *(October 2019)*

SILVER

NB. Please check SAMAA membership card, to validate membership

		Only one flight	
No.	*Description/name of manoeuvre*	*Judge 1*	*Judge 2*
Pre-flight check of aircraft and radio, and six questions answered to satisfaction of judges (tick only ✓)			
1	Take-off into wind		
2	Straight and level flight for 5 seconds		
3	Two horizontal figure eights *(one upwind and one downwind)*		
4	One roll		
5	Two consecutive inside loops		
6	Landing approach - right hand turns, from left-hand side of field		
7	Landing approach - left-hand turns, from right-hand side of field		
8	Landing approach - left-hand turns, from left-hand side of field		
9	Landing approach - right-hand turns, from right-hand side of field		
10	Landing into wind		
	Minimum score per manoeuvre	**3**	**3**
	Score sub-total for Judge 1	*a*	
	Score sub-total for judge 2		*b*
	FINAL PERCENTAGE SCORE (a + b ÷ 2.0 = %)		
	Passing percentage is... **50%**		50%
	Less than minimum score of 3 for any manoeuvre, the attempt fails.		

Please complete the following information, to be captured/verified on the SAMAA database.

PILOT NAME ..... Test location .....

Date of test ..... Pilot's home club .....

Pilot's SAMAA no. ..... Expiry date of membership .....

Pilot's cellphone no. ..... e-mail address .....

Pilot's signature .....

Judge 1 name ..... Signature ..... Rating .....

Judge 2 name ..... Signature ..... Rating .....

Comments .....

.....

Proficiency test score sheet *(October 2019)*

GOLD

NB. Please check SAMAA membership card, to validate membership

		Judge 1		Judge 2	
No.	*Description/name of manoeuvre*	*Flight 1*	*Flight 2*	*Flight 1*	*Flight 2*
Pre-flight check of model aircraft, and radio, and five questions answered.(tick only ✓)					
1	Take-off into wind				
2	Straight and level flight - 5 seconds				
3	Two horizontal figure eights (one upwind, and one downwind)				
4	Two consecutive rolls				
5	Two inside loops				
6	One inverted horizontal figure eight				
7	Slow low pass into wind				
8	Spiral descent (minimum two turns, objective to lose height)				
9	Emergency landing (called anytime during flight)				
10	Landing approach - right hand turns, from left-hand side of field				
11	Landing approach - left-hand turns, from right-hand side of field				
12	Landing approach - left-hand turns, from left-hand side of field				
13	Landing approach - right-hand turns, from right-hand side of field				
14	Landing into wind				
Minimum score per manoeuvre		**4**	**4**	**4**	**4**
Score sub-totals for Judge 1		*a*	*b*		
Score sub-totals for judge 2				*c*	*d*
FINAL PERCENTAGE SCORE (a + b + c + d ÷ 5.6 = %)					
Passing percentage is... **60%**				60%	
Less than minimum score of 4 for any manoeuvre, attempt fails.					

Please complete the following information, to be captured/verified on the SAMAA database.

PILOT NAME ..... Test location .....

Date of test ..... Pilot's home club .....

Pilot's SAMAA no. ..... Expiry date of membership .....

Pilot's cellphone no. ..... e-mail address .....

Pilot's signature .....

Judge 1 name ..... Signature ..... Rating .....

Judge 2 name ..... Signature ..... Rating .....

Comments .....

Proficiency test score sheet *(October 2019)*

INSTRUCTOR

NB. Please check SAMAA membership card, to validate membership

		Judge 1		Judge 2	
No.	*Description/name of manoeuvre*	*Flight 1*	*Flight 2*	*Flight 1*	*Flight 2*
Pre-flight check done to satisfaction of judges (tick only ✓)					
1	Take-off into wind				
2	Take-off crosswind				
3	Straight and level flight - minimum of 5 seconds				
4	Two horizontal figure eights (one upwind, and one downwind)				
5	Two outside loops from top (or with half rolls from bottom)				
6	Spiral descent (minimum two turns, objective to lose height)				
7	Two consecutive rolls				
8	Two inverted horizontal figure eights (one upwind, one downwind)				
9	Unusual attitude recovery 1				
10	Unusual attitude recovery 2				
11	Emergency landing (called anytime during flight)				
12	Fast low pass, downwind				
13	Slow low pass, into wind				
14	Landing approach - right hand turns, from left-hand side of field				
15	Landing approach - left-hand turns, from right-hand side of field				
16	Landing approach - left-hand turns, from left-hand side of field				
17	Landing approach - right-hand turns, from right-hand side of field				
18	Landing into wind				
19	Landing crosswind				
Instructor's training procedures in place...YES or NO?					
Minimum score per manoeuvre		**5**	**5**	**5**	**5**
Score sub-totals for Judge 1		*a*	*b*		
Score sub-totals for Judge 2				*c*	*d*
FINAL PERCENTAGE SCORE (a + b + c + d ÷ 6.8 = %)					
Passing percentage is... **60%**		60%			
Less than minimum score of 5 for any manoeuvre, attempt fails.					

Please complete the following information, to be captured/verified on the SAMAA database.

PILOT NAME ..... Test location .....

Date of test ..... Pilot's home club .....

Pilot's SAMAA no. ..... Expiry date of membership .....

Pilot's cellphone no. ..... e-mail address .....

Pilot's signature .....

Judge 1 name ..... Signature ..... Rating .....

Judge 2 name ..... Signature ..... Rating .....

Comments .....

.....

Gold and Instructor proficiency test application

The South African Model Aircraft Association
PO Box 7116, Bonaero Park 1622. Tel 010-824-8343
E-mail: admin@samaa.org.za

a) The SAMAA Office Administrator will source Judges from surrounding clubs to judge proficiencies.
b) Testing to be done at a club other than the candidate's regular club, if at all possible.
c) Preferably three (3) dates to be selected for proficiency flying.
d) The applicant will be advised of who the judges will be, and at which club for testing, and the judges' contact details will be forwarded to the applicant to arrange a time with the judges.
e) Applicant to make sure that a spotter/caller is present and that score sheets are available when flying the proficiency.
f) Candidates to at least practice the schedules before actual tests, to familiarise themselves with the manoeuvres, the execution, and the correct placement
g) Gold and Instructor proficiency may be flown on the same day.
h) **NB!** No pilot will be allowed to do an Instructor proficiency test without having first passed the Gold proficiency test.

Print legibly, or fill in fields directly. Incomplete information causes delay in processing.

Personal particulars

Name and Surname .....

SAMAA No. ☐ Expiry Date ☐

Current SAMAA proficiency ☐

E-mail address .....

Proficiency applied for

Gold ☐

Instructor ☐

Club affiliation (mandatory)

Name of primary club that you belong to .....

Preferred dates for proficiency tests

1. Date ☐
2. Date ☐
3. Date ☐

Contact details

Home/physical address .....
City/Town .....

Postal address ..... Work telephone no. .....
City/Town ..... Fax number .....
Postal Code ..... Cellphone number .....

Date ..... Signature of applicant (Manual/electronic) ..... Signature of guardian (If under-age) .....

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10. GENERAL

10.1 Airshows, events, displays, exhibitions

- Pilots who fly at airshows or displays at their own SAMAA-registered club fields, shall hold a minimum of a current **SILVER** rating.

  Pilots participating at full-size airshows shall hold an **INSTRUCTOR** rating**.** It is the club or airshow organiser's responsibility to apply to the SAMAA office in writing, requesting confirmation of the proficiency ratings of the participants. The organisers of the full-size airshow provide insurance for the activities of the SAMAA members who are invited.

10.2 Queries

All queries on proficiency must be addressed to the SAMAA office. Should the office staff be unable to answer a query directly, it will be referred to the SAMAA Development/Proficiency sub-committee, or the SAMAA management committee if necessary.

11. NOTES

12. TYPICAL QUESTIONS AND ANSWERS FOR ALL PROFICIENCY RATINGS.

1) Q. Where do you find the rules or operational procedures applicable to model aircraft flying, and have you read them?
   A. The SAMAA Manual of Procedures on the SAMAA website.

2) Q. Who manages the use of airspace; are model fliers answerable to this body?
   A. The SA Civil Aviation Authority. Yes, model fliers are answerable, and through the SAMAA.

3) Q. To which national body is SAMAA and its members affiliated?
   A. The Aero Club of South Africa.

4) Q. Do you need to be a member of any organisation or club to fly?
   A. Yes, and no. Non-members are operating illegally and contrary to CAA Regulations and are not covered by insurance. SAMAA membership provides insurance.

5) Q. Where can you legally fly?
   A. At any SAMAA-approved club, and at a site or event that has been approved for purposes of a fly in, airshow, demonstration, exhibition, etc.

6) Q. Do you need a permit to fly?
   A. No. Unless you request exemption for a specific event, or type of aircraft. SAMAA membership is equal to a "permit".

7) Q. What is your standard procedure when you arrive at the club?
   A. *Impound transmitter. Check who else is already at the club/site.*

8) Q. What do you do if you are a visitor at a club and wish to fly?
   A. Look for a club committee member, or the safety officer. Produce SAMAA membership card, and request permission to fly.

9) Q. What checks have you done before you go out to fly?
   A. At the field, a pre-flight check, range check, battery check, wind strength and direction.

10) Q. Why must you secure the frequency spot and place your peg on it before switching on your transmitter? What do you do if there is a peg on your frequency spot?
    A. To avoid shoot-downs. Wait for flier to land, or meanwhile identify flier on my spot.

11) Q. What do you do if you want to fly and your frequency spot is not on the board?
    A. Enquire from a club committee member, or safety officer.

12) Q. What would you do if you want to fly but left your frequency peg at home?
    A. Ask safety officer for a replacement peg.

13) Q. 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?
    A. I won't fly, until the battery can be fully charged.

14) Q. How do you know that your receiver battery is okay to fly, for the first flight, and then for subsequent flights?
    A. Test battery with a battery checker or volt meter.

15) Q. How often do you do a radio range check?
    A. Before the first flight of the day.

16) Q. Which areas of your club field are you not allowed to overfly (no-fly zone) and why?
A. Pit area, spectator area, clubhouse, buildings, power lines, parking area, public roads, and directly overactive runway. For safety reasons.

17) Q. When you fly, should you have a person/spotter with you on the flight line?
A. Yes, it is recommended but not compulsory.

18) Q. What is the legal height at which you may fly your model aircraft?
A. 400ft, unless at a park flying site, in which case it is 150ft.

19) Q. What would you do if you see a full-size aircraft or helicopter flying near or over your flying field?
A. Land safely as soon as possible.

20) Q. Why is it dangerous to lean over the engine to adjust the needle valve when the engine is running or at full throttle?
A. Loose clothing or the Tx neck strap may contact prop or entangle.

21) Q. Why do club safety rules state that you should not taxi your aircraft in the pit area?
A. Safety. It could collide with other models and people and cause damage or injury.

22) Q. What would you do if your engine stalls on the threshold or runway prior to take-off, and other pilots are waiting to take-off?
A. I will remove my model from the runway to give them preference.

23) Q. What would you do if on take-off, just after becoming airborne, your aircraft turns towards the pit/spectator area?
A. I will close throttle and try to steer clear of danger. In the worst case, I will dump the model aircraft.

24) Q. How do you know what direction the circuit is to be flown?
A. Usually judging by the wind direction, watching aircraft already flying, and safety officer instruction.

25) Q. Which runway do you use for take-off and landing?
A. Nearest into wind direction, on assigned runway.

26) Q. If there are pilots standing, say three metres from and halfway down the runway, and you needed the full runway for take-off, what would you do?
A. I would advise them and request them and their spotters to be vigilant.

27) Q. Where do you stand when flying?
A. In the designated pilots box.

28) Q. If you were going to land, and you see someone on the runway trying to retrieve an aircraft, what would you do?
A. I shall abort the landing and go around until the runway is clear.

29) Q. If you were lined up ready for take-off, and during your final check you notice:
- A servo glitching
- That the tailplane is loose
- That the aircraft is vibrating badly
- That the wing is skew
- That the undercarriage is skew or loose
- That some covering is loose – what would you do?

A. I will remove my aircraft from the runway and inspect the faults. I will fix the faults if it is possible to do so at the flying site.

30) Q. What would you do if you were a pilot on the flight line and heard:
- Someone shouting “DEADSTICK” – when you were about to take-off?
- Someone shouting “LANDING” – when you were about to take-off?
- Someone shouting “crossing runway”?

A. I will vacate the runway soonest
- *I am already on the runway. The other flier would have to do a go-around.*
- *I will ask my caller to inform me about the situation, and if it requires action from me.*

31) Q. If you are the most senior person at the field and the duty officer is not present, what would your duty be?
A. I will assume the role of safety officer.

32) Q. If you see a child running in the pit area, what would you do?
A. I would identify the parents and bring it to their attention.

33) Q. If you are the duty officer for the day, what would you do:
- If someone is flying recklessly and ignoring the safety rules?

A. I would advise the safety officer.

- If after a verbal warning they persist in ignoring the rules?

A. I would advise the safety officer, and request action. I will refrain from flying, and retreat to a safe area.

34) Q. What are your duties if you are the safety officer of the day?
A. I would ensure safe flying practices. Advise a change of runway, or change of circuit if there is a wind direction change. I would warn pilots of approaching full-size traffic, or any other matter which would jeopardise safety at the club, or the safety of persons and property.

35) Q. What is a “fail safe” receiver setting, and how do you set it up?
A. Automatic setting to low throttle, and servo’s to neutral, should there be interference, a glitch, or a brown-out. Set up the failsafe mode on the transmitter; switch off and observe the servo movements.

36) Q. Why are lithium polymer batteries more dangerous than ordinary batteries?
A. They may be susceptible to spontaneous combustion if damaged, or if improperly charged and maintained.

37) Q. Why are electric motor-driven models dangerous?
A. Accidental contact with the propeller does not arrest the stroke, as it would with an internal combustion engine, and may cause serious injury.

38) Q. When and where may you safely power up an electrically driven model aircraft?
A. Arm the circuit only on the runway, prior to checks and taking-off.

39) Q. What could happen if you turn off your transmitter without first disconnecting the power to the electric motor of your model?
A. The receiver may receive a stray signal and power up the motor.

40) Q. How do you know the state/condition of your flight and transmitter battery packs?
A. By checking with a battery checker, or by observing the power/voltmeter on the Tx.

41) Q. What would you do if you notice that you forgot to switch off your transmitter an hour or so ago, and want to fly again?
A. I would do a battery check and charge the batteries if necessary.

42) Q. What would you do if it starts to rain while you are flying?
A. I would land as soon as possible and remove my equipment to shelter.

43) Q. What would you do if there is lightning while you are flying?
A. I will land immediately and seek shelter. But I would firstly have checked atmospheric conditions before taking-off.

44) Q. Where do you launch, fly, and land a glider, either electric, or bungee, or winch-launched?
A. At the designated launch and land area for glider activity. I will fly out of the circuit if shared with power flying.

45) Q. Where do you fly a helicopter at your field, and if on the main field how may you fly
A. At the designated helicopter flying area. I will hover at the designated heli pad, and if permitted, I will fly in the circuit with fixed-wing aircraft, without causing obstruction or inconvenience.

46) Q. What would you do if you are flying, and a cell phone on you rings?
A. I should not have a cellphone on me while flying and on the flight line.

47) Q. What would you do if you feel ill or faint while you are flying?
A. I will immediately ask my caller to take over and land the aircraft.

48) Q. What would you do if you lose sight of your aircraft while flying?
A. I will ask my caller to help spot the aircraft and advise others on the flight line. I will pull into a tight loop to hopefully see more than a silhouette, or a glint off a wing. I will close the throttle.

49) Q. What would you do if you are in a thermal going up and want to get down?
A. I will initiate a spiral descent to lose height safely.

50) Q. What would you do if the throttle on your aircraft sticks at full throttle whilst flying?
A. I will jiggle the throttle stick to see if the servo arm or pushrod can be dislodged. If this fails, I will try to fly into tall grass on the far side of flying field. I will not attempt to fly until the fuel runs out, as the Rx battery may be drained if the servo is jammed, pulling too much power.

51) Q. Why does an aircraft pull to the left on take-off?
A. Due to the torque effect of the counter-clockwise rotation of the propeller.

52) Q. What precautions should be taken when circumstances require landing downwind?
A. I will approach the runway with caution, and with adequate airspeed to prevent a stall. I will announce my intentions to other pilots on the flight line.