THE SCOTTISH AEROMODELLERS ASSOCIATION

SAA Members Handbook

ACHIEVEMENT SCHEME MANUAL

Change Record

Issue No.	Description of change	Amended by	Date
Issue 1.0	New document from original with safety section removed	Bob Lemm	24/06/22

Table of Content

SAA ACHIEVEMENT SCHEME

A. INTRODUCTION

1. The purpose of the Achievement Scheme is to provide a graded series of levels of piloting competence. It will give clubs a measure of the abilities of their members and also serve as a set of proficiency goals for the members. The manoeuvres at each stage are chosen to assess the ability of a pilot to control a model with confidence and safety rather than as a demonstration of aerobatic perfection.
2. The Bronze Standard provides a means for recording the attainment of solo piloting ability by the novice flyer to permit unsupervised flying to take place.
3. The Bronze Plus offers a stepping stone to Silver, whilst not conferring the ability to fly at Public Displays.
4. The Silver Standard provides a measure of piloting safety competence sufficient for the pilot to be considered suitable for performing at public displays or demonstrations.
5. The Gold Standard is provided for pilots wishing to demonstrate a very high level of control and safety in operation.
6. The aim is to achieve certification of all SAA members to a minimum of Bronze Standard.
7. The scheme provides a means for SAA Examiners to be rated and appointed so the scheme can be administered at club level.
8. As required normally an examination coordinator will be appointed by the Safety Committee Chairman for each discipline. Examination coordinators will be members of the Safety Committee.
9. The Achievement Scheme may also provide a standard of competence for establishing entry to National competitions and club events where a particular safety requirement exists.

B. FIXED WING POWER R/C

NOTE: It is assumed which all initial integrity checks have been carried out.

a. Airframe integrity, control linkages and operation to be checked as specified in Club or Group Flying Conduct.

b. Start engine as laid down in Section Power Unit Handling. It is strongly recommended that, where possible, assistance is used in the starting of I/C or turbo jet engines. In the case of a junior member, it is considered to be essential which they are assisted by an adult. Pilots must display they are ‘in control’ of the procedure and must tell the assistant those actions they are required to perform. The role of the assistant is to help minimise dangers such as, for example, placing parts of the body in the arc of the rotating propeller. They may also be required to perform those functions more safely carried out from behind the running engine when instructed to do so by the pilot.

c. Use of the SMART check on transmitter is recommended. S Switch on M Model selection correct & Meter reading normal. A Aerial Secure & extended fully. R Rate Switches in all correct positions T Trims all in correct positions

d. Controls should be checked at idle, then full power, BUT NOT ON THE RUNWAY. One cannot hear warnings, e.g. ‘Dead Stick’ when standing beside an aircraft with the engine running.

e. Remember the examiners are assessing the whole flight for anticipation, shown by a lack of unnecessary flying around between manoeuvres. Do not fly at an excessive height as this demonstrates a lack of confidence in one’s own ability. The examiners are looking for both competence and confidence, as both of these qualities are part of safe flying. At the same time remember OVER-confidence is usually allied to under-COMPETENCE and can be even more dangerous

POWER SOURCES FOR SAA ACHIEVEMENT TESTS

It is extremely unlikely a turbine powered model would be presented which was not capable of flying the schedule, and which was severely affected by the weather; this is because of the ancillaries which such a model has to carry, and thus its all-up-weight (and so size) is usually higher than a traditional club trainer/aerobatic model. On the other hand, an electric park flyer could be presented on a calm day and pass the bronze and possibly the silver test, as could a powered glider. However, this would not be in the spirit of the scheme as the scheme's aim is to show pilot proficiency in operating a model which can cope with reasonably adverse conditions. So, whilst electric power is a recognised power source for tests, the test is conducted on a representative model. To this end tests may be conducted with electric and turbine powered models which are similar, or larger, in size and weight to an i/c model that could be used for the test. It will be up to the examiner to refuse to conduct tests on unsuitable models; any examiner refusing to conduct a test when presented with an unsuitable aircraft can expect SAA backing.

POWER UNIT HANDLING section of the SAA booklet gives advice on the power unit handling for both i/c and electric engines, and this should be used as a basis for the questions. If the candidate is unsure of the safety aspects of the power source which is not being presented for the test then it is up to the examiner to make sure both sets of safety issues are covered. This is because once the test is passed there is no control over power source, and the candidate may well use both electric and i/c in the future. Candidates presenting turbine models will be tested on the safety guidelines for all types of power source.

Candidates for tests for the SAA Achievement Scheme may use i/c, electric or turbine power. The model presented must not be a park flyer or a powered glider, and must be capable of taking off and landing on its own undercarriage. The model must be robust enough to be flown in reasonable wind speeds (say over about 10 mph). The model must complete the schedule in one flight. The oral exam which is part of the test will include questions on both i/c and electric power safety. Candidates presenting turbine models will also be examined on turbine safety.

MODEL AIRCRAFT SAFETY

In general, we conduct our hobby with good safety. However, an area of concern is ground handling, and this is where the majority of accidents occur. In this context accidents are defined as damage to human tissue, either that of the operator or of a bystander, or to a vehicle or structure. In most cases human injuries are caused by a moment's inattention, and range from a painful cut to loss of fingers or damage to other limbs. Damage to vehicles and structures is less likely, but can be more costly in terms of insurance claims. The intention of the Power Unit Handling Guide is to try and minimise these incidents by educating all aero modelers and making them aware of the pitfalls. Each type of power source has its own unique dangers, and it behoves each one of us to be cognisant of the dangers of the power source being used. As part of the SAA Award scheme questions will be asked on the safe use of the power source chosen by the candidate, and questions will also be asked on the safety of the other power source. This is to cover the fact the test can be flown on one power source, and another source used subsequently without further checking. Candidates who present turbine powered models can expect questions on all three power sources.

ELECTRIC

To be read in addition to the advice given in section ELECTRIC POWER R/C

Electric powered models must be treated as if the motor is running as soon as the system has been made live. The candidate must brief the examiner on the arming of the ESC. If the batteries are connected in the pits then the model must be treated as if it were an i/c model being started – i.e. be pointed in a safe direction with people clear of the propeller and propeller plane before the batteries are connected.

REMEMBER Special care needs to be taken when using LIPO batteries

BRONZE

This test is conducted at club level, by 1 club examiner, and comprises the following:

1. Carry out pre-start-up checks.
2. Start engine.
3. Carry out pre-take-off checks.
4. Take off and complete a right (or left) hand circuit and then overfly the take-off area at a height of around 50 feet and then fly a procedure turn.
5. Fly a left (or right) hand circle beginning and ending over the take-off area and fly a procedure turn. Circle to be performed on the safe side of the strip with the pilot on the outside of the circle.
6. Fly a right (or left) hand circle beginning and ending over the take-off area. Circle to be performed on the safe side of the strip with the pilot on the outside of the circle.
7. Fly a rectangular circuit and landing approach.
8. Land, (wheels to touch within a pre-set area as designated by the examiner), preferably with engine running.
9. Provided the previous items have been completed satisfactorily, the candidate will be asked to carry out a further take-off and circuit, during which the examiner will ask for the throttle to be closed and the model landed safely on the runway without re-opening the throttle.
10. Remove model and equipment from take-off / landing area.
11. The applicant must answer satisfactorily two questions on the SAA Safety Code and Recommended Procedures.
12. The above schedule must be completed within one flight at which two attempts will be permitted at the same session.

requirements

a). Take-off and circuit: The take-off run should be smooth and straight. If the aircraft swings badly, the throttle should be closed and the aircraft brought back to start again. Rotation should be smooth and the climb-out at a gentle angle. The circuit may be rectangular or race-track.

b). Procedure turn: This consists of a 90° turn away from the flight line followed by a 270° turn in the opposite direction to bring the aircraft back downwind on the manoeuvring line. All parts should have the same radius and the aircraft should be continuously banked, rolling through to the opposite bank without hesitation and with no straight sections once the turn has started until lined up for the next manoeuvre.

c). Circles: Should be round, level, at the same height and the same size as each other.

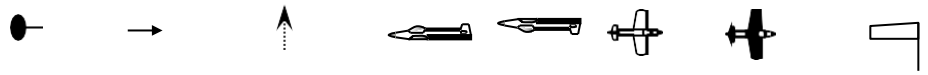
d). Rectangular Circuit: The aircraft should perform matching corners and straight legs at circuit height until lined up for final approach. Downwind legs should be well clear of objects and persons. When the letdown for final approach is commenced, loss of height should be progressive and without bumps.

e). Final Approach and Landing: Should be carried out in the full-size manner with the aircraft level or nose up. Wing drag must be used to reduce speed. A shallow dive which happens to coincide with the strip is not acceptable. If any uncertainty arises about the landing it should be aborted. A controlled go-around is preferable to an untidy arrival. The landing should be on the same part of the strip as the take-off

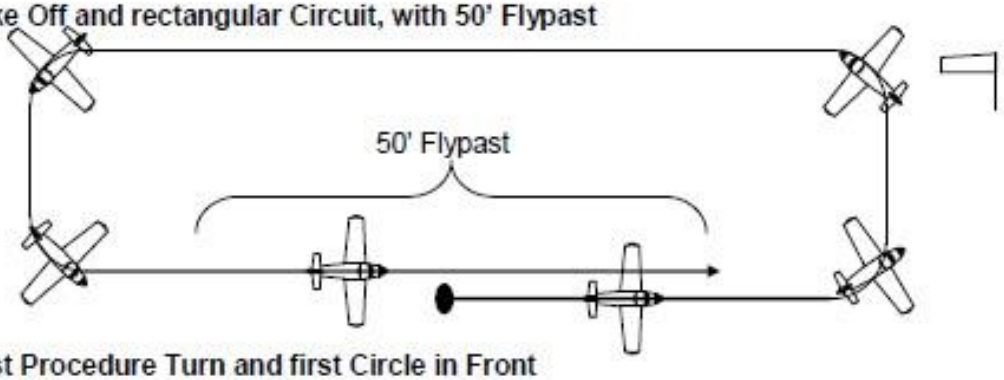
SAA Fixed Wing Power Bronze Schedule - Flight Components

Reverse Manoeuvres for opposite wind direction

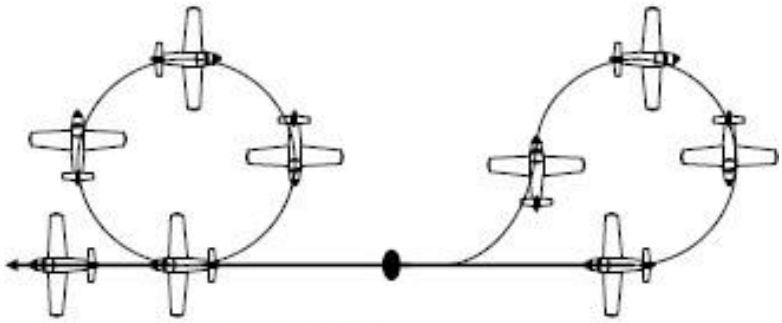
KEY **Start Point** **End Point** **Centre Line** **Upright** **Inverted** **Topside** **Underside** **Wind Direction:**



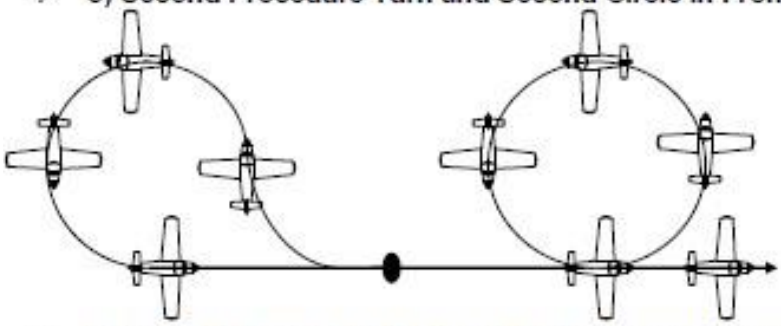
- 1) Take Off and rectangular Circuit, with 50' Flypast



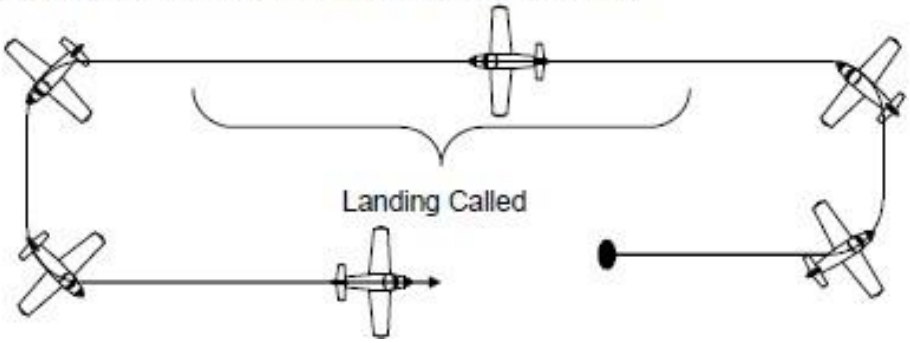
- 2) First Procedure Turn and first Circle in Front



- 3) Second Procedure Turn and Second Circle in Front



- 4) Rectangular Circuit, Landing Approach and Landing



BRONZE PLUS

This test is conducted at club level by 1 club examiner and comprises the following

1. Carry out pre-start-up checks.
2. Start engine
3. Carry out pre-take-off checks.
4. Take off and complete a right (or left) hand circuit and over fly the take-off area.
5. Fly a horizontal Figure of Eight course with crossover point aligned with the pilot. Height to be constant.
6. Fly into wind and complete one inside loop aligned with the pilot.
7. Fly downwind and complete a Split S or Reversal. One outside loop downwards from upright (i.e. a bunt) aligned with the pilot may be substituted at the candidates' request.
8. Fly two consecutive rolls upwind centred on the pilot.
9. Complete two consecutive rolls downwind using the opposite direction of roll rotation to that used in (7).
10. Complete a stall turn either left or right. (Model must turn away from pilot)
11. Fly into wind and carry out a three-turn spin aligned with the pilot.
12. Fly a rectangular landing approach and overshoot into wind.
13. Fly a rectangular circuit in the opposite direction to that in (11) at a constant height of not more than 40 feet (12 metres).
14. Carry out a rectangular circuit and landing approach.
15. Land, (wheels to touch within a pre-set area as designated by the examiner), preferably with the engine still running.
16. Remove model and equipment from take-off/landing area and return model and equipment to model pound on completion.

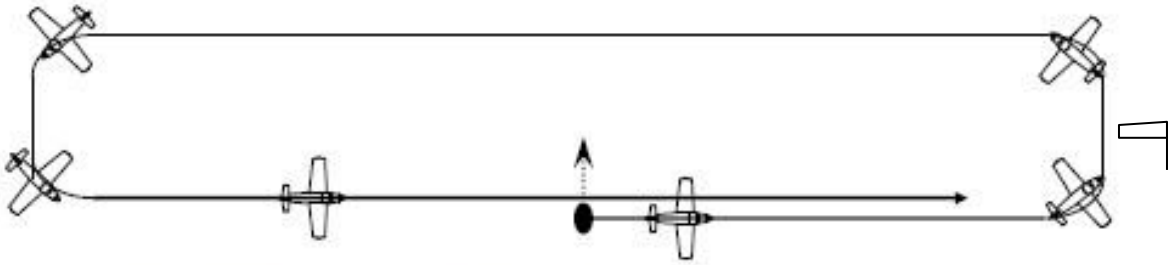
The above schedule must be completed within one flight at which two attempts will be permitted at the time. If tasks 1 to 10 have been satisfactorily completed and the engine cuts during the spin, the applicant will only be required to carry out the landing approach, overshoot and landing in the subsequent re-flight.

SAA Fixed Wing Power – Bronze Plus - Flight Components Reverse

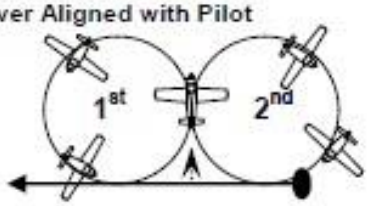
Manoeuvres for opposite wind direction

KEY **Start Point** **End Point** **Centre Line** **Upright** **Inverted** **Topside** **Underside** **Wind Direction**:

1. Take Off; complete a right hand circuit over the flying area.



2. Flat Figure Eight, Crossover Aligned with Pilot

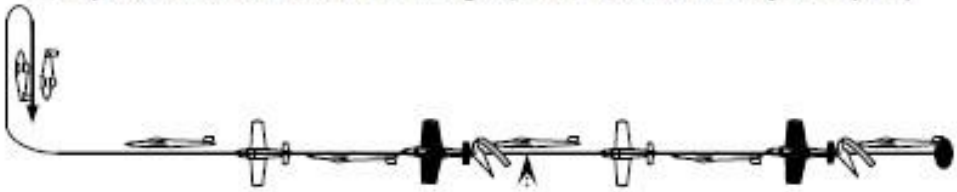


3. Fly upwind, complete one inside loop aligned with pilot *(Vertical Plane)*

4. Fly Downwind and complete one outside loop downwards from upright and aligned with Pilot

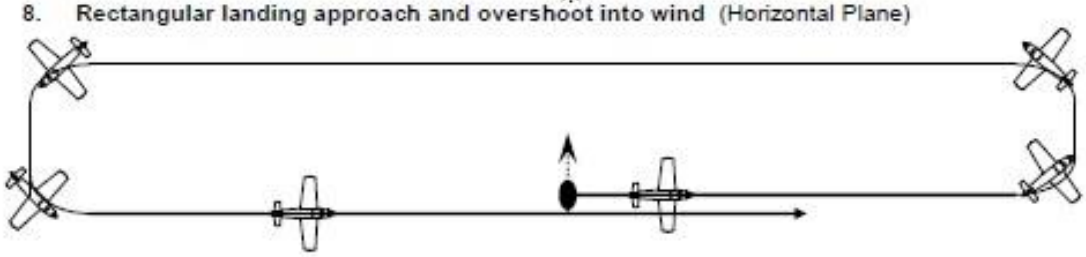
5. Two Consecutive Rolls Upwind Centred on the pilot

6. Complete two Consecutive Rolls downwind using opposite direction Centred on the pilot. Complete a stall turn either left or right (Model must turn away from pilot)

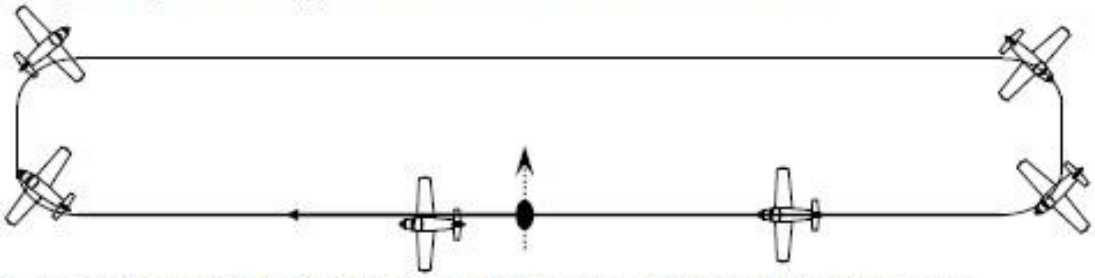


7. Fly Into wind and complete a three turn spin

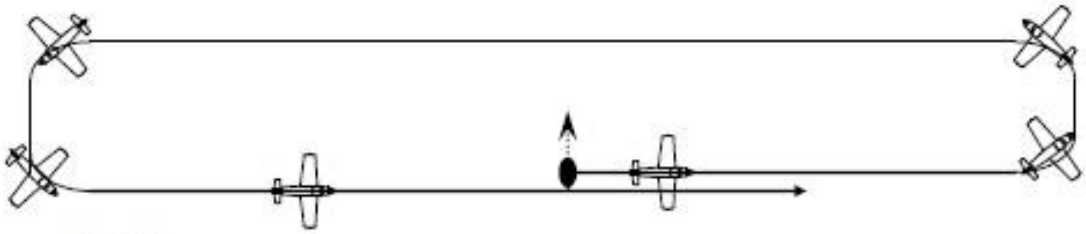
8. Rectangular landing approach and overshoot into wind (Horizontal Plane)



9. Fly rectangular circuit opposite to that above at no more that 40 feet



10. Carry out a rectangular Circuit and landing approach and Land in designated area.



Notes:

- *Illustration (6) shows stall turn being completed following roll component, Pilot may choose to turn around and complete stall turn at opposite end.*
- *The pilot can choose his/her choice of turnaround maneouvres.*

SILVER

This Certificate must be applied for at SAA Level. One of the examiners may be from the same club as the candidate i.e. both pay their dues to the SAA through the same club, but the other examiner must come from a different club i.e. not pay his dues to the SAA through the same club as the candidate. The test comprises the following:

1. Carry out pre-start-up checks.
2. Start engine.
3. Carry out pre-take-off checks.
4. Take off, and complete a procedure turn onto the downwind leg for the first manoeuvre.
5. Fly a flat Figure of Eight course with crossover point aligned with the pilot.

6. At downwind end of strip complete a half Cuban Eight.
7. Fly into wind and complete two inside loops aligned with the pilot.
8. At upwind end of strip complete an Immelman turn.
9. Fly downwind and complete one outside loop downwards from upright and aligned with the pilot.
10. At downwind end of strip complete a Split S (Half roll followed by a half inside loop.)
11. Fly two consecutive rolls upwind centred on the pilot.
12. At upwind end of strip carry out a stall turn.
13. Fly two consecutive rolls, of the opposite hand, downwind.
14. At downwind end of strip complete an Immelman turn.
15. Fly into wind and carry out a three-turn spin aligned with the pilot.
16. At upwind end of strip carry out a half loop.
17. Fly a downwind inverted pass before rolling upright.
18. Complete a procedure turn, continuing into an overshoot into wind.
19. Carry out a rectangular circuit and landing approach.
20. Land (wheels to touch within a pre-set area as designated by the examiner).
21. Remove model and equipment from take-off and landing area.

The above schedule must be completed within one flight at which two attempts will be permitted at the time. If tasks 1 to 13 have been satisfactorily completed and the engine cuts during the spin, the applicant will only be required to carry out the inverted pass, overshoot and landing in the subsequent re-flight.

In addition to the above flying schedule, the applicant must answer satisfactorily five questions on relevant safety matters on the SAA Safety Code and Recommended Procedures.

requirements

a. Take-off: The take-off run should be smooth and straight. If the aircraft swings badly, the throttle should be closed and the aircraft brought back to start again. Rotation should be smooth and the climb-out at a gentle angle. At Silver level, the pilot should be able to take-off without standing behind the aircraft.

b. Procedure turn: This consists of a 90° turn away from the flight line followed by a 270° turn in the opposite direction to bring the aircraft back downwind on the manoeuvring line. All parts should have the same radius and the aircraft should be continuously banked, rolling through to the opposite bank without hesitation and with no straight sections once the turn has started until lined up for the next manoeuvre.

c. Figure of Eight: The manoeuvre should commence on basic track, first turn is 90° onto a line directly away from and in line with the pilot, immediately followed by 360° in opposite direction, then 270° in direction of first turn back onto original track. Both halves should be the same size, at the same height and continuously banked. Crossovers should be aligned with the pilot, in the same place and with the same heading both times.

d. Half Cuban Eight: Pull up into a five-eighths loop to a descending 45° line. Half roll to upright. One eighth loop to horizontal.

e. Loops: Should be centralised in front of the pilot, reasonably round, entry and exit in the same place and on the same heading.

f. Immelman: Pull up into half loop, at top half roll to upright.

g. Outside Loop: Must be downwards from upright - otherwise the same criteria as the inside loop.

h. Split S: half roll to inverted, pull half loop downwards, recover upright.

j. Two Rolls: These rolls should be centralised on the pilot, parallel to the take- off path and be reasonably level, axial and on the same heading throughout. Roll direction should be away from the pilot and roll rate must be slow enough to require the use of up and down elevator during the rolls.

k. Stall Turn: Should be carried out at one end of the strip, flying away from the pilot. The throttle must be closed before rotating at the top where the aircraft should almost stop. A wingover is not acceptable. Ideally the downward track should be no more than half a wingspan from the upward track. The aircraft should fall in an area pre designated by the pilot. l. Two Rolls: This is to ensure the pilot can roll safely in either direction. The first roll should be completed before passing the pilot position. m. Immelman: Same as before.

n. Spin: Should be aligned with the pilot stance and be entered from a nose-up minimum speed stall. A snap falling through into a spin is not acceptable. Recovery heading should be roughly the same as the entry.

p. Half Loop: Pull up into half loop, exiting inverted.

q. Inverted Flight: Fly level inverted until past pilot stance then half roll to upright.

r. Overshoot: It should be possible to touch down on the strip if the engine stops during the descent phase. A low pass is definitely not acceptable and the aircraft must be set up for landing. This manoeuvre is to be handled as a landing which is aborted just before touch down. s. Rectangular Circuit: This carries on from the overshoot. The aircraft should climb to circuit height before turning crosswind, then perform matching corners and straight legs. Downwind legs should be well clear of objects and persons. When the letdown for final approach is commenced, loss of height should be progressive and without bumps.

t. Final Approach and Landing: Should be carried out in the full-size manner with the aircraft level or nose up. Wing drag must be used to reduce speed. A shallow dive which happens to coincide with the strip is not acceptable. If any uncertainty arises about the landing it should be aborted.

A controlled go-around is preferable to an untidy arrival. The landing should be on the same part of the strip as the take-off.

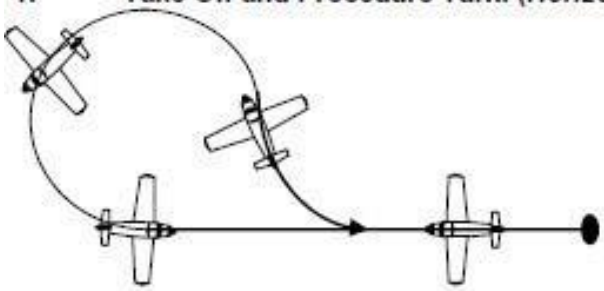
For LMA recognition, additional elements are required. See test schedule for large models

SAA Fixed Wing Power Silver Schedule - Flight Components

Reverse Manoeuvres for opposite wind direction

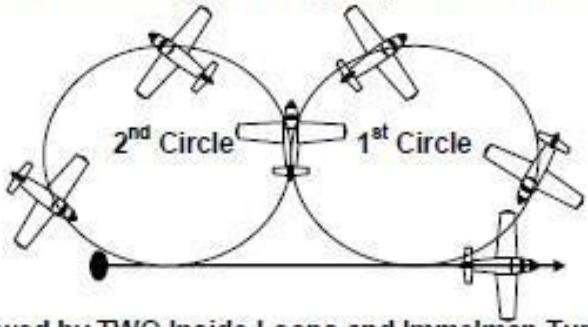
KEY Start Point End Point Centre Line Upright Inverted Topside Underside Wind Direction:

1. Take Off and Procedure Turn. (*Horizontal Plane*)

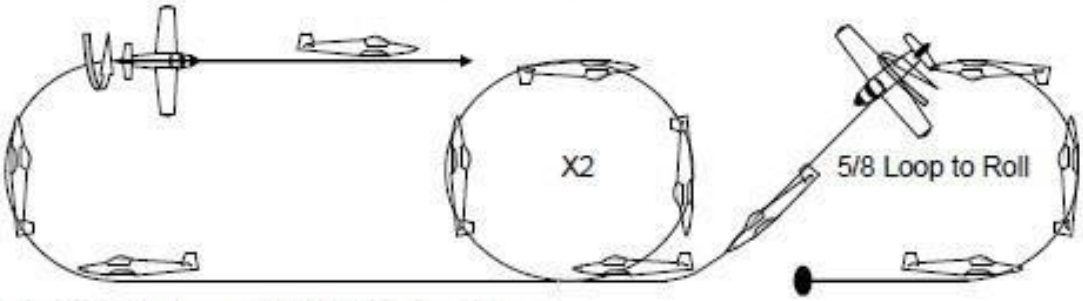


Pilots Stance

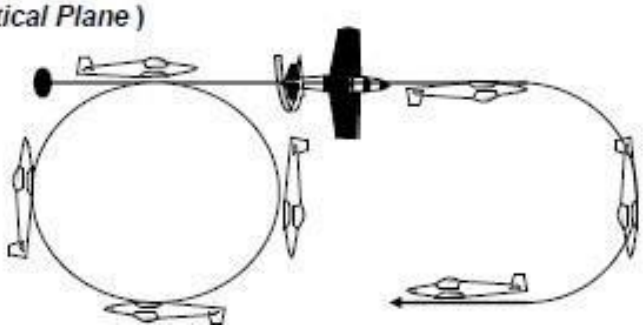
2. Figure Eight with crossover aligned with pilot (*Horizontal Plane*)



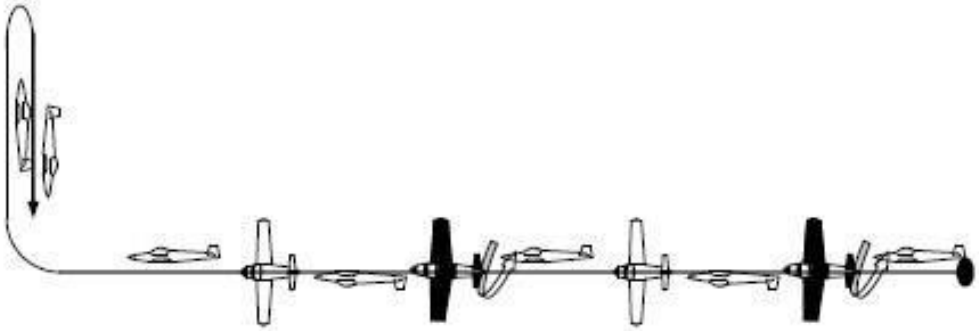
3. ½ Cuban 8 followed by TWO Inside Loops and Immelman Turn (*Vertical Plane*)



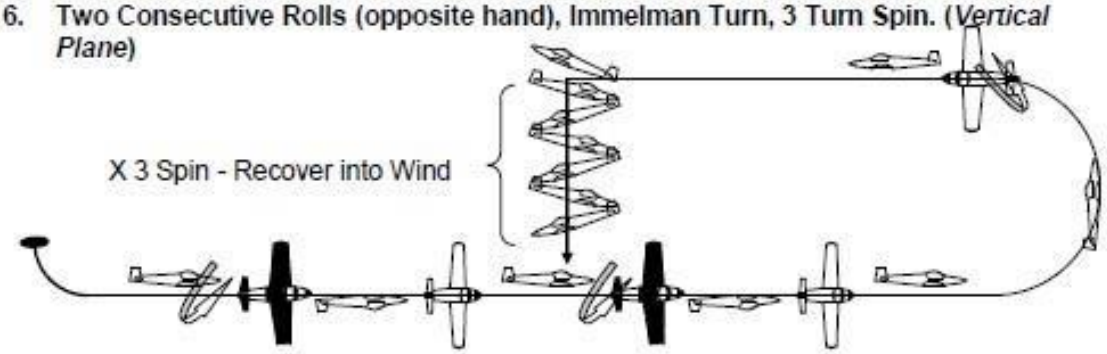
4. Outside Loop, Split S (*Vertical Plane*)



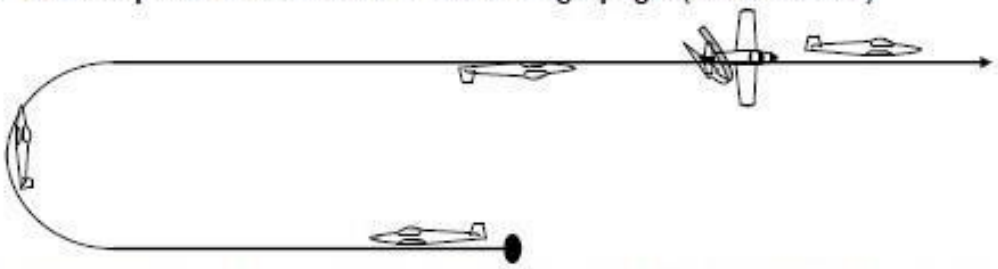
5. Two Consecutive Rolls, Stall Turn (*Vertical Plane*)



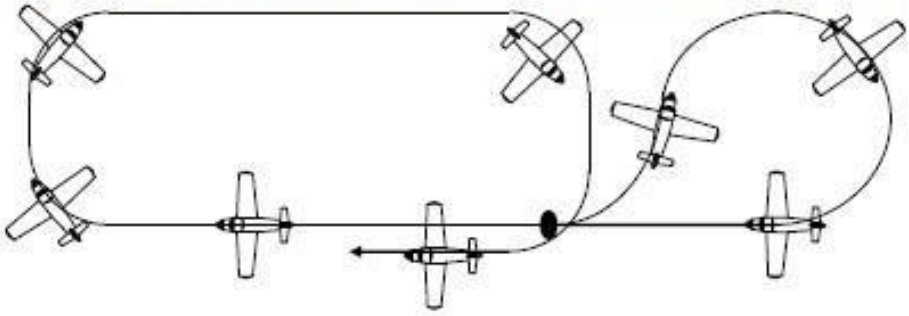
6. Two Consecutive Rolls (opposite hand), Immelman Turn, 3 Turn Spin. (*Vertical Plane*)



7. Half Loop and Inverted Pass before Rolling Upright (*Vertical Plane*)



8. Procedure Turn to Overshoot, Rectangular Circuit and Landing (*Horizontal Plane*)



GOLD

This Certificate must be applied for at SAA level. One of the examiners may be from the same club as the candidate i.e. both pay their dues to the SAA through the same club, but the other examiner must come from a different club i.e. not pay his dues to the SAA through the same club as the candidate. The examiners do not need to hold Gold awards Applicants must already have passed at Silver level but the flights may be consecutive. For this test, a much higher standard of manoeuvres is expected, with a very high standard of positioning. In Gold tests, all manoeuvres must be consecutive - one on each pass.

The test comprises the following:

1. Carry out pre-start-up checks.

2. Start engine.

3. Carry out pre-take-off checks.

4. Take-off, carry out a procedure turn to return downwind for the first manoeuvre.

5. Fly a reverse Cuban Eight with the crossover aligned with the pilot.

6 At the downwind end of the strip perform a half Cuban Eight.

7. Fly upwind and perform two consecutive loops aligned with the pilot.

8. At the upwind end of the strip perform a stall turn with a half roll in up and down legs.

9 Fly downwind and perform three consecutive rolls centred on the pilot.

10 At the downwind end of the strip carry out a Vertical Reversal with either a half roll in the up line or a quarter roll in both up and down lines. (Optional wind correction)

11. Fly upwind and perform a four-point roll.

12. At the upwind end of the strip perform a half Reverse Cuban Eight with two points of a four-point roll in the up line.

13. Fly downwind and perform two consecutive rolls, first in one direction, second in the opposite direction.

14. At the downwind end of the strip perform an Immelmann turn.

15. Fly upwind and perform two outside loops downwards.

16. Carry out a half outside loop at the upwind end of the strip.

17. Fly a downwind inverted pass.

18. At the downwind end of the strip perform a Vertical Pull through.

19. Fly upwind and perform a vertical eight starting at the middle.

20 At the upwind end perform a Split S.

21. Fly downwind and perform a slow roll.

22. At the downwind end perform a half square loop followed by a half roll.

23. Fly a minimum speed pass upwind ending in a stall, and one turn spin aligned with the pilot.

24 Land in the designated area following a rectangular approach

25. Return model and equipment to model pound on completion, and satisfactorily answer any questions related to Safety Code, Recommended Procedures or Instructing Practice as required

Requirements

a. Take-off and circuit: The take-off run should be smooth and straight. If the aircraft swings badly, the throttle should be closed and the aircraft brought back to start again. Rotation should be smooth and the climb-out at a gentle angle. At Gold level the pilot MUST stand at the side of the strip.

b. Procedure turn: This consists of a 90° turn away from the flight line followed by a 270° turn in the opposite direction to bring the aircraft back downwind on the manoeuvring line. All parts should have the same radius and the aircraft should be continuously banked, rolling through to the opposite bank without hesitation and with no straight sections once the turn has started until lined up for the next manoeuvre.

c. Reverse Cuban Eight: Pull up into a 45 °climb, half roll, pull through into a 45° climb in the opposite direction, half roll and pull through into level flight at the original height.

d. Half Cuban Eight: Pull up into a five-eighths loop to a descending 45° line. Half roll to upright. One eighth loop to horizontal.

e. Loops: Should be centralised in front of the pilot, superimposed and round, entry and exit in the same place and on the same heading.

f. Stall Turn: Should be carried out at one end of the strip, flying away from the pilot. The throttle must be closed before rotating at the top where the aircraft should almost stop. A wingover is not acceptable. Ideally the downward track should be no more than half a wingspan from the upward track. The aircraft should fall in an area pre designated by the pilot.
g. Consecutive Rolls: The direction of rotation must be away from the pilot. (Nearer wing travelling upward). Roll rate must be slow enough to require the use of up and down elevator during the rolls. In all cases rolls should be centralised on the pilot, parallel to the take-off path and be reasonably level, axial and on the same heading throughout.

h. Vertical Reversal: (Humpty Bump) Pull up into a vertical climb and perform a half roll (or a quarter roll if the manoeuvre is being used as a wind correction) pull over a half loop into a vertical dive and pull back into level flight at the original height. In the wind correction case, perform a quarter roll during the dive.

j. Four Point Roll: Model should be inverted as it passes the pilot.

k. Half Reverse Cuban Eight: Pull up into a 45° climb, perform two points of a four-point roll to inverted and pull through to recover upright.

l. Two Rolls opposite hand: After completing first roll, carry out second roll in opposite direction with no intervening pause.

m. Immelmann: Pull up into half loop, at top half roll to upright.

n. Outside Loops: Must be downwards from upright - otherwise the same criteria as for the inside loops.

p. Half Outside Loop: Round, with constant radius.

q. Downwind Inverted Pass: Smooth, straight and level.

r. Vertical Pull through: Push into a vertical climb then pull into an inside loop to recover on a line halfway between the upper and lower manoeuvring lines.

s. Vertical Eight: Opposite pilot stance, complete an inside loop then immediately push into an outside loop of the same size.

t. Split S: Half roll to inverted, pull half loop downwards, recovering upright.

u. Slow Roll: Should occupy about two-thirds of the manoeuvring line and be centred on the pilot.

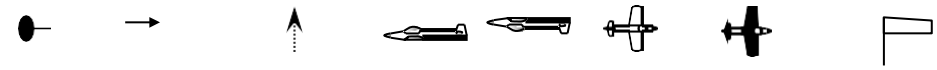
v. Half Square Loop, Half Roll: Corners should be reasonably tight and of the same radius, followed immediately by the half roll.

w. Spin: Should be entered at minimum flying speed, not initiated by a snap roll.

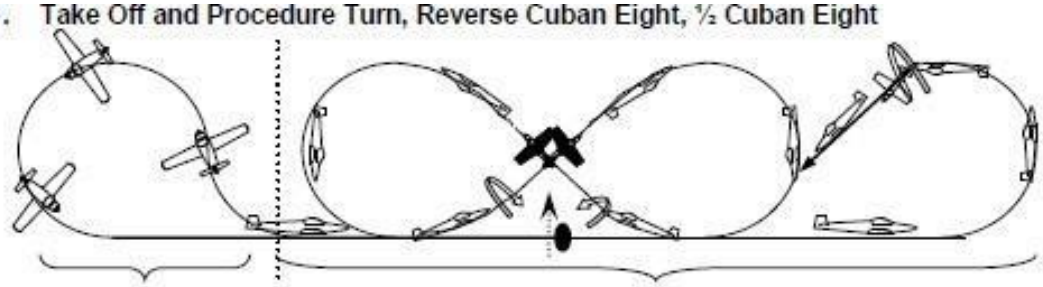
SAA Fixed Wing Power Gold Schedule - Flight Components

Reverse Manoeuvres for opposite wind direction

KEY Start Point End Point Centre Line Upright Inverted Topside Underside Wind Direction:

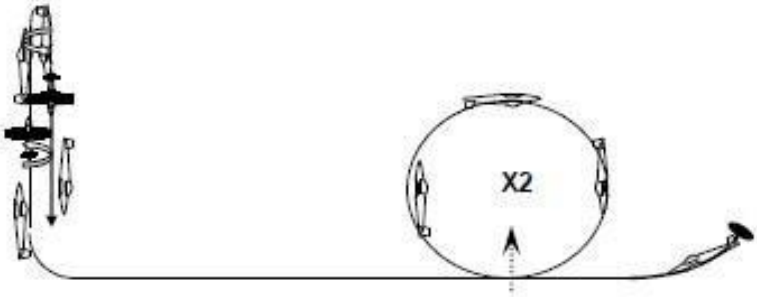


1. **Take Off and Procedure Turn, Reverse Cuban Eight, ½ Cuban Eight**

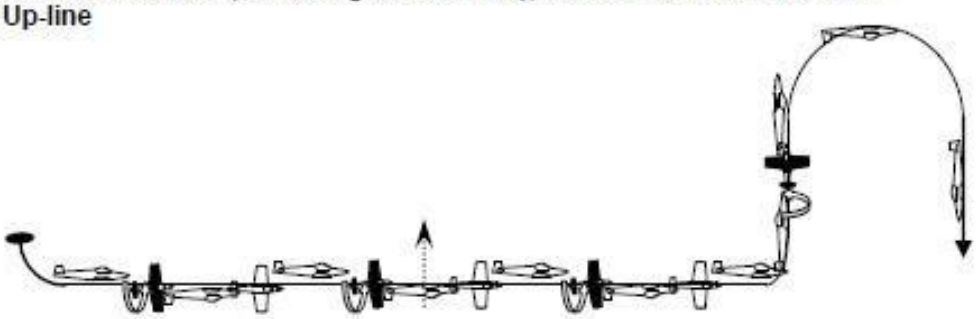


Horizontal Plane Vertical Plane (Note: Take Off Not Illustrated)

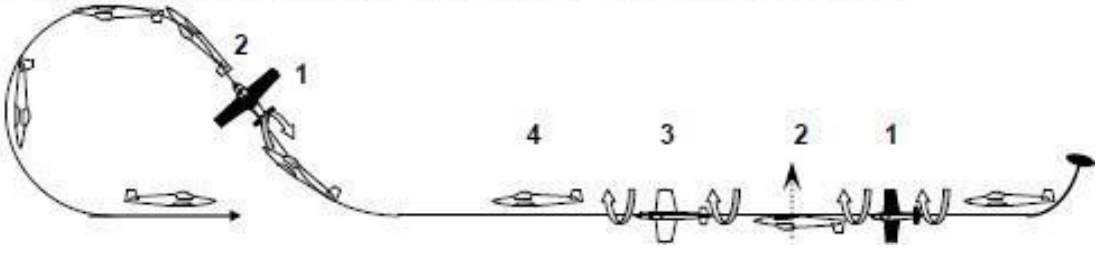
2. **Two Consecutive Loops, Stall turn with Half Roll in Up & Down Legs**



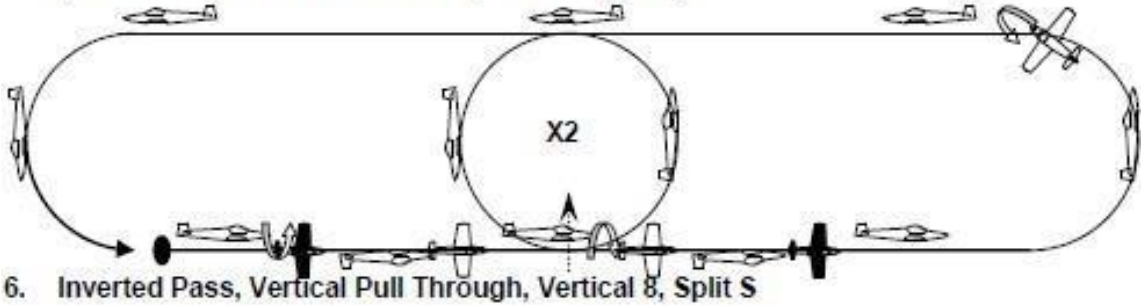
3. **Three Consecutive Rolls** (Centre aligned with Pilot), **Vertical Reversal with Half Roll in Up-line**



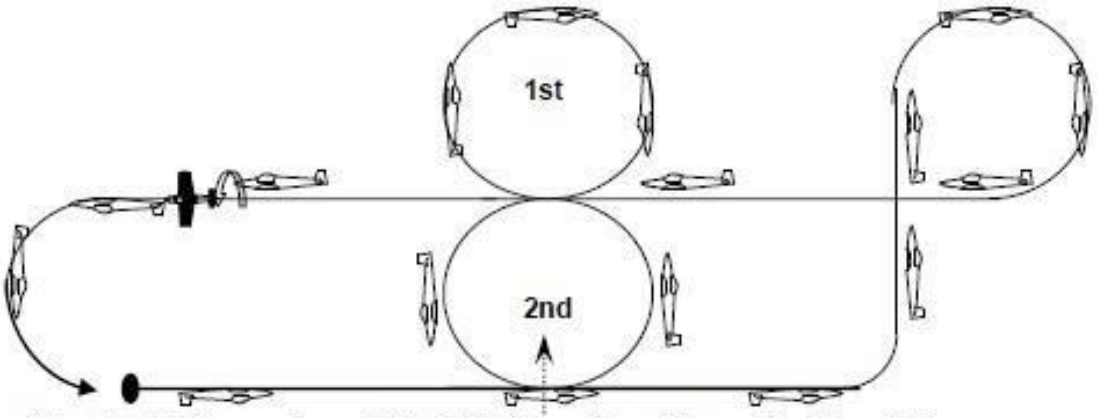
4. **Four Point Roll, ½ Reversal Cuban 8** (2 points of a 4 Point Roll in Up-line)



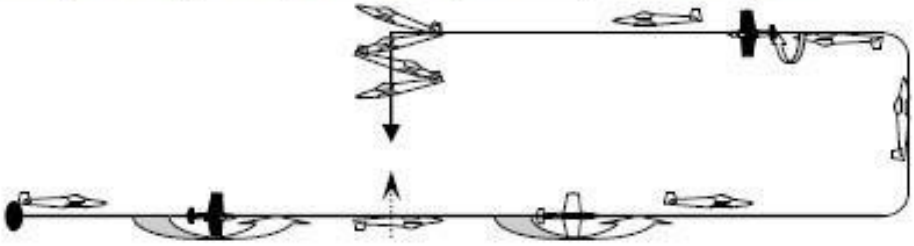
5. **Two Consecutive Rolls** (Opposite Direction), **Immelman Turn, Two Outside Loops** (*NOTE: bottom of O.ls. not shown*), **½ Outside Loop**



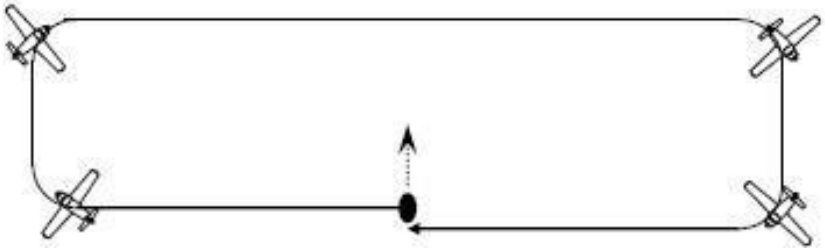
6. **Inverted Pass, Vertical Pull Through, Vertical 8, Split S**



7. **Slow Roll, ½ Square loop, ½ Roll, Minimum Speed Pass, One Turn Spin**



8. **Rectangular Circuit and Landing** (Horizontal Plane)



C. LARGE MODEL R/C *test schedules, recommended procedures and guidance notes*

To obtain LMA recognition, a candidate will require to pass the standard SAA R/C Power Fixed Wing Silver test and then the following additional elements required by the LMA.

GENERAL

Tests may be conducted while other models are being flown, to simulate normal flying conditions.

The pilot should call tasks which will be conducted in the sequence and directions indicated without circuits being inserted between tasks. The pilot should be relaxed enough to chat to the

examiner during tasks. Recognition of one poor attempt and a retry to be accepted if the second attempt is good.

1. Pre-flight checks to the structural integrity of the model, including propeller, should be carried out prior to commencing flying and after any heavy landing. Demonstrate the fail-safe device to the satisfaction of the examiners. Discuss intended flight pattern with particular reference to imaginary crowds, pits etc., taking off and landing procedures and contingency for engine failure.

2. Start-up engine, with clear instructions to helper and with due regard for spectators. Out of pits.

3. Demonstrate ability to take off without having to stand behind model, having fully extended transmitter aerial and giving others flying due warning of his intentions and having received acknowledgement consent. Demonstrate ability to take off and land out of wind, i.e. crosswind or even downwind as the examiners see fit, taking into account the limitations of the aircraft being used. Wind direction cannot be controlled at public displays so the pilot must be able to cope with this.

4. Demonstrate your ability to display the model to the crowd at different heights and speeds without encroaching over the imaginary 50mtr display line and, as far as possible, without making turns towards the crowd line. Demonstrate relatively tight turns without losing height and horizontal figure-of-eight, centred on the candidate, without significant loss or gain of altitude.

5. The candidate should be able to discuss possible situations and give his response whilst flying. An emergency should be simulated and the reaction of the pilot checked (The emergency is not to be called in such a manner as to put model, pilot or spectators in danger).

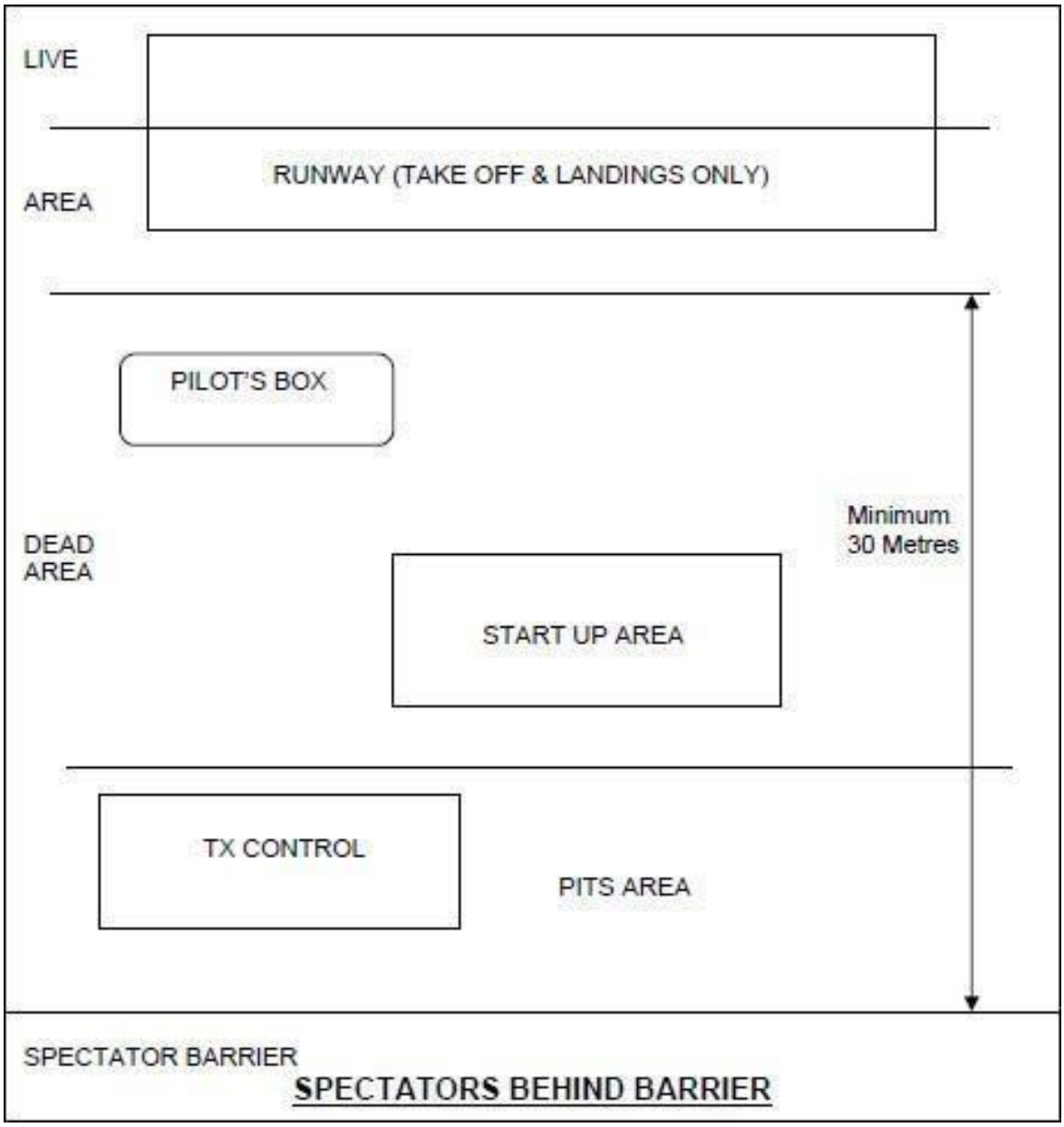
6. The candidate is to check the strip is clear for landing, with the aid of his helper if necessary, indicate intentions to others flying, use sinking speed of model to land. Demonstrate ability to approach landing strip from both ends by overshooting. Clear strip and stop engine well away from pits.

7. Generally, the candidate should have the ability to carry out a safe flight from the pre-flight checks to parking in the pits after flight with due regard to recommended practices and airmanship, show the ability to recover from emergencies and to know where there is potential for such is all important and more so than the capability of carrying out aerobatics.

8. If the candidate successfully completes the S.A.A. Silver test and the additional tasks above, the LMA will accept this as a standard equal to their own. If he then enters any event under the auspices of the LMA, his entry will be accepted without a further test on production of his S.A.A.
membership card, suitably endorsed

SITE LAYOUT

The layout shown is a standard type which may have to be modified slightly depending upon site conditions and the number of spectators expected. Safety should always be the prime consideration. Indeed, if the site requires significant deviation from this, great care should be exercised in the acceptance the site is suitable for a display event. If in doubt consult the SAA Safety Officer



NOTE: As large models are normally powered by petrol engines, a fire extinguisher should be in the immediate vicinity at all times. This should be of the CO2 gas type (brick red or black bottle). Its contents should be checked and refilled on a routine basis. One person should be delegated as fireman, and should ensure no naked lights etc and be responsible for nothing else but fire prevention and extinguishing.

First aid facilities should also be available. This applies to normal club activities as well as public displays and competitions.

D. GLIDER R/C *test schedules, recommended procedures, thermal (inc. electric) and slope soaring*

GENERAL REQUIREMENTS

These tests are primarily aimed at promoting safe flying practices. The tasks may well be flown as described but if they are not flown in a safe manner the candidate will not pass. The examiners will be watching to ensure the pilot goes through his pre-flight checks before every flight.

As with the tests for powered aircraft, pilots will benefit from practising the requirements before asking to be examined. The landing, especially where a landing into a small circle is required, is one section where practice is very beneficial.

The Bronze tests are not difficult and should be within the capability of relatively inexperienced pilots.

The Silver test is much more difficult than the Bronze and requires a higher level of proficiency. It requires the pilot to be able to manage both height and time, and to be able to fly and position the aircraft accurately.

The Gold tests are considerably more difficult than the Silver. These tests require a high degree of smoothness of control from the pilot plus an increased level of accuracy.

THERMAL BRONZE

1 Launch - by Hand tow, Bungee or Winch.

2. Perform three consecutive thermal turns to the left or right, followed by three consecutive thermal turns in the opposite direction.

3. Perform a straight stall into wind, up-wind of the pilot stance, at an appropriate height, followed by a safe recovery with minimum height loss. Should there be inadequate height to safely stall and recover, an additional flight will be granted at the end of the session in which to display the ability to perform this manoeuvre, provided the examiner is satisfied the lack of altitude was caused by external circumstances and not by any lack of ability.

4. Land within a 50-metre diameter pre-designated landing area. (Landing should be conducted with the pilot standing at the side of, or at the upwind edge of, the landing area).

5. Successfully complete tasks 1, 2, 3 and 4 twice. Tasks to be conducted in the one session with a maximum of three attempts permitted. 6. Answer satisfactorily two questions on the Safety Code and Recommended Procedures.

requirements

a. The launch, whether by power winch, bungee or hand tow should be kept as straight as possible. Slight veering on the tow line is acceptable provided it is corrected promptly and accurately. A stall when coming off the line at the top of the launch should be avoided, but may still occur when using a bungee in stronger winds.

Any stalls from this position should also be dealt with promptly. As this is a safety test and not a competition there is no requirement for a “ping” style launch, which can lead to unnecessary stalling problems for the less experienced pilot.

b. The left- and right-hand thermal turns should be performed upwind of the launch point, to the left and right and be of approximately the same size. Care should be taken not to overfly pits, spectators, etc. whilst performing these circuits.

Please note a 30-foot diameter thermal turn does not constitute a circuit, no matter how well it is performed.

c. The stall and recovery should be performed up-wind, into wind and directly in front of the pilot stance. The nose of the model should be raised between 30° and 60° above the horizontal and held there until the stall develops. The aircraft should stall straight into wind with little or no deviation from its course. The nose of the aircraft should be allowed to drop well through the horizontal before making a smooth recovery to normal flight with minimum height loss.

Note: Should there be insufficient height to perform this manoeuvre during the flight an additional flight will be allowed at the end of the session in order to perform this task, provided the examiner is satisfied the lack of height during the initial flights was not due to lack of ability on the part of the pilot.

d. For the landing, the pilot should be positioned to one side of the landing area. The landing approach should be commenced with the downwind leg of a circuit, flown well to one side of the launch point and avoiding the pits, spectators, etc. The turn on to the base leg of the circuit

should be approximately 20 - 50 metres down wind of the centre of the landing area, depending on the wind strength and available height.

e. If the aircraft still has excessive height when in position downwind of the landing circle it is permissible to burn off some of this height. A safe method of losing this excess height is to perform a zigzag pattern across the width of the field whilst approaching no closer to the landing area. If fitted, airbrakes may also be used to reduce height. It is inadvisable to turn away from the landing circle at low altitudes.

f. For the final approach the airspeed should be increased slightly to improve control response and the landing made straight into wind using airbrakes as necessary. If the aircraft is slewed round on touch down due to a wing catching a tuft of grass, etc., this will be acceptable provided the rest of the approach and landing is good.

THERMAL SILVER

1. Launch, by Hand tow, Bungee or Winch. There should be no deviation whilst under tow and the launch should culminate in a clean release from the line.

2. Carry out a duration flight of 4 minutes +/- 10 seconds with a landing within a pre-designated 20 metre diameter landing area. During this flight the candidate should demonstrate the ability to perform consecutive thermal turns to the right and to the left.

3. Landing should be conducted with the pilot standing at the side of, or at the upwind edge of, the landing area.

4. Successfully carry out tasks 1,2 and 3 twice. Tasks to be conducted in the one session with a maximum of three attempts permitted.

5. After completing two successful flights, undertake a further flight during which a number of continuous thermal turns are performed, both to the right and to the left until the aircraft is positioned approximately 100 metres downwind of the pilot stance. From there demonstrate the ability to make the aircraft penetrate smoothly into wind to a position approximately 100 metres upwind of the pilot stance. Should altitude allow, and with the agreement of the examiner, this manoeuvre may be inserted into one or both of the initial flights. 6. Answer satisfactorily five questions on the Safety Code and Recommended Procedures.

requirements

a. The launch should be smooth and straight with no deviation in direction. The transition from towed to gliding flight should be smooth. If a “ping” launch is attempted there should be no stall and the direction should remain constant.

b. The 4-minute duration flight should be timed from the moment of release from the line to the moment of touchdown. A helper should be employed to keep the pilot informed of the passage of time. In light wind conditions the 4-minute duration may be possible without having to seek lift. In windier conditions lift may be required to fly out the period and this should be considered before attempting the test.

There is no set flight pattern required during this test, however during the flight the pilot must perform a number of consecutive thermal turns both to the right and to the left (a minimum of three turns in either direction will be acceptable).

c. After completing two successful flights, undertake a further flight during which a number of continuous thermal turns are performed, both to the right and the left until the aircraft is positioned approximately 100 metres down-wind of the pilot stance. The turns should be carried out in lift if possible, demonstrating the pilot’s ability to climb in thermal lift. There should certainly be no excessive loss of height during these turns. From approximately 100 metres down-wind demonstrate the ability to make the aircraft penetrate smoothly into wind to a position approximately 100 metres up-wind of the pilot stance. During this part of the test the aircraft should not be allowed to dive excessively but should proceed at two to three times its normal flying speed without undulating or losing heading. Care should also be taken not to

overfly the pilot stance. If altitude and time allow, and with the agreement of the examiners, this manoeuvre may be inserted into one or both of the initial flights.

d. The examiners will be watching for a proper approach and landing similar to that of the Bronze test. The approach to, and landing in, the circle should be smooth and controlled. Excessive height should be properly controlled by a safe height -reduction flight pattern or the use of airbrakes. Should the approach be too fast and the aircraft is slammed into the landing area, this will be considered unacceptable. Haste is not required, there is a 20 second window in which to land the aircraft in the circle.

THERMAL GOLD

1. Launch with no deviation on the line to a minimum height of 150 metres and immediately perform a safe emergency descent to a landing within a pre- designated 25 metre diameter landing area. The descent and landing must be carried out in a maximum time of 60 seconds. This task must be carried out in a safe manner as well as having regard to the type and structure of the aircraft.

2. Carry out a duration flight of 6 minutes ±10 seconds, with a landing within a pre-designated 10 metre diameter landing area. (Landing should be conducted with the pilot standing at the side of, or at the upwind edge of, the landing area).

3. Conduct a low pass at a maximum height of 20 feet (6 metres) and a minimum height of 10 feet (3 metres) with a minimum of one-minute duration flight thereafter, finally landing within a pre-designated 15 metre diameter landing area.

Only one attempt will be permitted at these tasks at any one testing session.

4. Answer satisfactorily questions on the Safety Code, Recommended Procedures and Instructing practice as required.

requirements

a. All launches should be kept smooth and straight, similar to the Silver test. As soon as the aircraft has left the line at the top of a 150 metre launch an emergency landing should be declared and the aircraft brought down to a safe landing in a maximum of 60 seconds. The descent should be performed in a safe manner and in a safe location. The type of descent employed should be consistent with the structure and strength of the airframe. The landing into the 25-metre diameter circle should be performed into wind and carried out in a safe manner.

b. The duration task is similar to that of the Silver test but soaring flight is likely to be needed to achieve the 6-minute time requirement. Once again, a helper should be used to keep the pilot informed of the passage of time.

c. The low pass should be performed to one side of the field, away from pits, launch points, etc. The twenty-foot level has to be judged by eye and experience and should be agreed with the examiner beforehand, perhaps using a landmark on the horizon for reference. The low pass should be approached from a shallow dive. The round out and climb following the low pass should be made as smooth as possible. The 1-minute time period will be judged from the moment of pull-up from the low pass to the moment of touchdown. There is no set flight pattern required during this test, however the examiners will be watching for a proper approach and landing into the 15-metre diameter circle and for safe flying in general.

SLOPE BRONZE

1. Launch and perform a Figure of Eight flight pattern at about ridge height for eight passes along the slope.

2. Perform a straight stall into wind, upwind of the pilot stance, at an appropriate height and distance from the edge of the slope followed by a safe recovery with minimum height loss.

3. Land within a pre-designated 50 metre diameter landing area.

4. Successfully complete tasks 1, 2 and 3 twice. Tasks to be conducted in the one session with a maximum of three attempts permitted. 5. Answer satisfactorily two questions on the Safety Code and Recommended Procedures.

requirements

This test should be performed with the pilot standing fairly central on the slope, with the manoeuvres laid out to each side.

a. The figure of eight pattern does not require to be performed as large round circles as used in the power test. This would be impractical on some slopes and in many wind conditions. An elongated eight is preferable so long as both legs of the eight are more or less equal. The aircraft should neither lose nor gain height during the figures of eight, but remain between ridge height and 5 to 10 metres above the slope.

b. The stall and recovery should be performed up-wind, into wind and directly in front of the pilot stance. The nose of the model should be raised between 30° and 60° above the horizontal and held there until the stall develops. The aircraft should stall straight into wind with little or no deviation from its course. The nose of the aircraft should be allowed to drop well through the horizontal before making a smooth recovery to normal flight with minimum height loss. Note: Should there be insufficient height to perform this manoeuvre during the flight an additional flight will be allowed at the end of the session in order to perform this task, provided the examiner is satisfied the lack of height during the initial flights was not due to lack of ability on the part of the pilot.

c. The approach and landing may be flown either as a square or a racetrack circuit. For the landing, the pilot should ideally be positioned to one side of the landing area. The landing should be commenced with the downwind leg of the circuit well to one side of the pilot's stance. The turn on to the base leg of the circuit should be approximately 5 - 25 metres down wind of the centre of the landing area, depending on the wind strength and available height.

d. If the aircraft still has excessive height when in position downwind of the landing circle it is permissible to burn off some of this height. A safe method of losing this excess height is to perform a zig zag pattern across the rear of the hill whilst approaching no closer to the landing area. Airbrakes may also be used to reduce height if fitted. It is inadvisable to turn away from the landing circle at low altitudes.

e. For the final approach the airspeed should be increased slightly to improve control response and the landing made straight into wind using airbrakes as necessary. If the aircraft is slewed round on touch down due to a wing catching a tuft of grass, etc., this will be acceptable provided the rest of the approach and landing is good

SLOPE SILVER

1. Launch and perform a Figure of Eight flight pattern at ridge height for eight passes along the slope.
2. Complete one inside loop crosswind, centred on the pilot stance.
3. Complete one outside loop crosswind, centred on the pilot stance.
4. Complete a stall turn at one end of the slope. This may be performed in either direction but must be with the aircraft turning away from the slope.
5. Complete two consecutive rolls crosswind, along the slope and centred on the pilot stance.

6 Complete one inverted straight and level pass crosswind (minimum 5 second duration).

7. Fly an appropriate landing circuit, rectangular where possible, ending in an overshoot into wind. Continue into a final landing circuit.

8. Land within a pre-designated 20 metre diameter landing area. 9 Answer satisfactorily

five questions on the Safety Code and Recommended Procedures

Requirements

a. The figure eight should be performed in a similar manner to the Bronze test but the pilot will be expected to be able to keep the aircraft at slope height without climbing above, or diving below slope level, preferably keeping the aircraft in line with the horizon.

b. The inside loop should be performed crosswind and in front of the pilot stance. The loop should be quite large and round and without any hint of stalling or screwing out at the inverted position. It should not be allowed to drift back over the slope.

c. The outside loop should also be performed crosswind and in front of the pilot stance. It should be started from the upright position and performed in a downwards direction. The loop should be quite large and round. There should be no hint of stalling or screwing out as the aircraft returns to upright flight at the completion of the manoeuvre. It should not be allowed to drift back over the slope.

d. The stall turn should be performed at one end of a pass along the face of the slope. The aircraft should be pulled up to the vertical, and should continue in the vertical for some distance. The aircraft should stall at the top of the climb and turn outwards, away from the slope. The downwards track should be within one wingspan of the upwards track. The pull-out should be at the same level as the entry. The aircraft may be yawed slightly sideways on the upward leg to assist the turn.

e. The rolls should be performed into wind directly in front of the pilot stance. They may be either barrel or axial rolls, so long as the examiners are informed which it is intended to perform before they are attempted. The direction and height of the rolls should be constant. They may be performed in either direction but they must be done as one continuous rolling manoeuvre.

f. The inverted pass may be commenced from either a roll or half loop. The flight path should be along the face of the slope, in front of the pilot stance. The wings should be kept level and the height constant.

g. The pilot should enter a standard landing circuit. The final approach should be made slightly high for a comfortable landing and as the model approaches the landing area the pilot should declare his intention to overshoot by announcing loudly to other slope users "OVERSHOOT"•
"OVERSHOOT"•. The pilot should then fly on through the landing area and out over the edge of the slope. At no point must the pilot overfly, or come close to, the pilot stance, pits or spectators during this manoeuvre.

h. The landing procedure should be similar to that of the Bronze test. The approach and landing in the circle should be smooth and controlled. Excessive height should be properly controlled by a safe height reduction flight pattern or the use of airbrakes if fitted. Should the approach be too fast and the aircraft is slammed into the landing area, this will be considered unacceptable.

SLOPE GOLD

1. Complete two consecutive loops crosswind, centred on the pilot stance.
2. Complete one outside loop crosswind, centred on the pilot stance.
3. Complete two stall turns, one at each end of the slope, one Left Hand and the other Right Hand, with the aircraft turning away from the slope.
4. Complete three consecutive rolls crosswind, Left Hand rotation.
5. Complete three consecutive rolls crosswind, Right Hand rotation.
6. Roll to inverted and then perform a Figure-of-Eight flight pattern at ridge height for two passes along the slope.
7. Complete a three-turn spin, starting and recovering heading into wind.

8. Fly an appropriate landing circuit, rectangular where possible, ending in an overshoot into wind. Continue into a final rectangular landing circuit.
9. Land within a pre-designated 20 metre diameter landing area.
10. Answer satisfactorily questions on Safety Code, Recommended Procedures and Instructing Practice as required.

requirements

a. The loops should be performed crosswind and in front of the pilot stance. They should be quite large and round with the second loop superimposed on the first. There should be no hint of stalling or screwing out at the inverted position. They should not be allowed to drift back over the slope.

b. The outside loop should also be performed crosswind and in front of the pilot stance. It should be started from the upright position and performed in a downwards direction. The loop should be quite large and round. There should be no hint of stalling or screwing out as the aircraft returns to upright flight at the completion of the manoeuvre. It should not be allowed to drift back over the slope.

c. The stall turns should be performed in a similar manner to the Silver test but performed one after the other at opposite ends of the slope. The turns should always be made in a direction away from the slope.

d. The three consecutive rolls should be performed crosswind along the slope, in front of the pilot stance. They may be either barrel or axial rolls, so long as the examiners are informed which it is intended to perform before they are attempted. The direction and height of the rolls should be constant. All three rolls must be performed as one continuous rolling manoeuvre.

e. The aircraft should be rolled to inverted before performing a figure of eight pattern similar to that described for the Silver test but with the aircraft remaining inverted throughout. The aircraft may enter the pass either from the right or left. It should fly along the length of the slope before performing a smooth 180° turn and then return to its point of entry where it will perform a second smooth 180° turn before rolling back to upright in front of the pilot stance.

f. The spin should be performed in front of the pilot stance. It should be entered from a straight stall into wind and should be terminated after 3 full turns. Slight deviation from heading on the recovery can be accepted.

g. The approach and overshoot should be performed in a similar manner to the Silver test.

h. The approach and landing should be performed in a similar manner to the Silver test. In the Gold test it is possible to link some of the manoeuvres together so they flow as a continuous pattern and where the hill and wind conditions allow, the manoeuvres should be linked. However, in some conditions and on some hills, it is not possible to do this and examiners will take this into account when testing.

ELECTRIC LAUNCH - THERMAL BRONZE

Note: The following tests are for electric motor launched gliders and sailplanes only. Electric powered sport aerobatic, scale and vintage models will be expected to perform the Fixed Wing Power tests.

1. Carry out pre-flight checks as required by the SAA Safety Code and test the function of the motor.

2. Launch and climb to an altitude of approximately 150 metres before shutting off the motor. (The motor will not be re-activated during any individual flight).

3. Perform three consecutive thermal turns to the left or right, followed by three consecutive thermal turns in the opposite direction.

4. Perform a straight stall into wind, up-wind of the pilot stance, at an appropriate height, followed by a safe recovery with minimum height loss. Should there be inadequate height to safely stall and recover an additional flight will be granted at the end of the session in which to display the ability to perform this manoeuvre, provided the examiner is satisfied the lack of altitude was caused by external circumstances and not by any lack of ability.

5. Land within a 50-metre diameter pre-designated landing area. (Landing should be conducted with the pilot standing at the side of, or at the upwind edge of the landing area).

6. Successfully complete tasks 1, 2, 3 and 4 twice. Tasks to be conducted in the one session with a maximum of three attempts permitted.

requirements

Note: This test is only for gliders and sailplanes which are launched by the use of electric motors. Pilots wishing to fly electric powered sport aerobatic, scale and vintage models would be expected to perform the Fixed Wing Power tests to which they are more suited.

a. The pilot should carry out the pre-flight checks as required by the SAA Safety Code having particular regard to the specific recommendations for electric flight.

b. The model should be launched from a safe position on the flight line before the pilot retires to the designated pilot stance. The model should be climbed at an angle appropriate to its power until a height of approximately 150 metres has been reached. The climb may be terminated below this height if the pilot considers he will be able to perform the test without resort to a further powered climb. It is not permissible to climb to a height greatly exceeding 150 metres and the pilot must agree with the examiner the height reached before power is shut off is not excessive. Once altitude has been reached the pilot must announce to the examiner the motor has been stopped, and once stopped the rest of the test must be flown without resorting to further use of the motor.

c. The pilot should fly the requirements laid down in the Thermal Soaring Bronze Test.

ELECTRIC LAUNCH - THERMAL SILVER

1. Carry out pre-flight checks as required by the SAA Safety Code and test the function of the motor.

2. Launch and climb to an altitude of no greater than 150 metres before shutting off the motor. The motor will be re-activated once more during the flight in order to demonstrate the candidate's ability to do so safely and also to gain additional altitude to complete the duration requirement should that be required, but this must not occur once the landing approach has commenced.

3. Perform a duration flight of 4 minutes ± 10 seconds, with a landing within a pre-designated 20 metre diameter landing area. During this flight the candidate should demonstrate the ability to perform consecutive thermal turns, both to the right and to the left. Landing should be conducted with the pilot standing at the side of, or at the upwind edge of, the landing area.

4. Successfully complete tasks 1, 2 and 3 twice. Tasks to be conducted in the one session with a maximum of three attempts permitted.

5. After completing two successful flights, undertake a further flight during which a number of continuous thermal turns is performed, both to the right and to the left until the aircraft is positioned approximately 100 metres down-wind of the pilot stance. From there demonstrate the ability to make the aircraft penetrate smoothly into wind to a position approximately 100 metres up-wind of the pilot stance. Should altitude allow, and with the agreement of the examiners, this manoeuvre may be inserted into one or both of the initial flights. 6. Answer satisfactorily five questions on the Safety Code and Recommended Procedures.

requirements

a. The pilot should carry out the pre-flight checks as required by the SAA Safety Code having particular regard to the specific recommendations for electric flight.

b. The model should be launched from a safe position on the flight line before the pilot retires to the designated pilot stance. The model should be climbed at an angle appropriate to its power until a height of no greater than 150 metres has been reached. Once altitude has been reached the pilot must announce to the examiner the motor has been stopped.

The pilot will be required to make one further climb to altitude during the flight. This climb may be made at any point during the flight (other than the landing approach) but it should commence with the model pointed into wind, no lower than 5 metres from the ground and not likely to overfly the pits, pilot box or spectators.

c. The pilot should fly the requirements laid down in the Thermal Soaring Silver Test.

d. Landing - It will not be permissible to start the motor on the landing approach in order to power the model into the landing area. This will result in an automatic failure of that flight.

E. CONTROL LINE SCHEDULES

BRONZE

1. Prepare model, lines etc. to Safety Code standards, start engine as laid down in Power Unit Handling section and take-off.
2. Perform 5 laps at 5 metres height.
3. Perform 5 laps at 2 metres height.
4. Climb to 45° in half lap, perform 3 laps at 45° level, descend to 2 metres in half lap and complete half lap level.
5. Perform simple wingover.
6. Operate motor shut-off (if fitted) and land.
7. Answer satisfactorily two questions on the Safety Code.

SILVER

1. Prepare model, lines etc. to Safety Code standards, start engine as laid down in Power Unit Handling section and take-off.
2. Perform 5 laps inverted.
3. Perform 3 inside and 3 outside loops consecutively.
4. Operate motor shut-off (if fitted) and land.
5. For Team Race and FAI Combat Silver Certificate, perform a minimum of ten laps at a lap speed of under 2.6 seconds with at least one other similar model in the circle.
6. Answer satisfactorily five questions on the Safety Code.

GOLD

1. Prepare model, lines etc. to Safety Code standards, start engine as laid down in Power Unit Handling section and take-off.
2. Fly two laps level.
3. Complete one wing-over coming out inverted.
4. Fly two laps inverted.
5. Complete another wing-over, coming out upright.
6. Fly three consecutives inside loops.

7. Fly three consecutive outside loops.
8. Fly two consecutive square inside loops.
9. Fly two consecutive square outside loops.
10. Fly two consecutive horizontal eights.
11. Fly two consecutive vertical eights.
12. Land.
13. Answer satisfactorily questions on the Safety Code.

F. HELICOPTER R/C TEST SCHEDULES

Hovering Competency	Bronze	Silver	Gold
Pre-flight Procedure	Pre-flight Procedure	Pre-flight Procedure	Pre-flight Procedure
Stationary Hover (10 sec. Tail in)	Stationary Hover (20 sec. Tail in)	Stationary Hover (10 sec. Nose in)	Inverted Triangle - 4 Point Pirouette
Left Side (5 sec hover)	Hovering Triangle (Tail in)	Hovering M (Side on)	Triangle - 360° pirouette
Right Side (5 sec hover)	Hovering Rectangle (Tail in)	Top Hat (Side on)	Cuban Eight (Down Wind/Up wind)
Landing (Tail in)	Figure Eight	Double Stall Turn (1 x Down wind, 1 x Up wind)	Rolling Stall Turn (Up wind)
Postflight Procedure	Landing (Tail in)	Single Loop (Up wind)	Single 2 Point Roll (Downwind)
SAA Safety Code Questions	Postflight Procedure	Single Roll (Downwind)	Cobra roll (Up wind)
	SAA Safety Code Questions	45° Degree Approach & land	Straight 45° Degree Auto
		Postflight Procedure	Postflight Procedure
		SAA Safety Code Questions	No Questions (Not a safety award)

An examiner will observe the candidate's behaviour throughout the day to ensure the candidate is aware of and follows safe practice and procedure.

In this document the abbreviation MA refers to Model Aircraft.

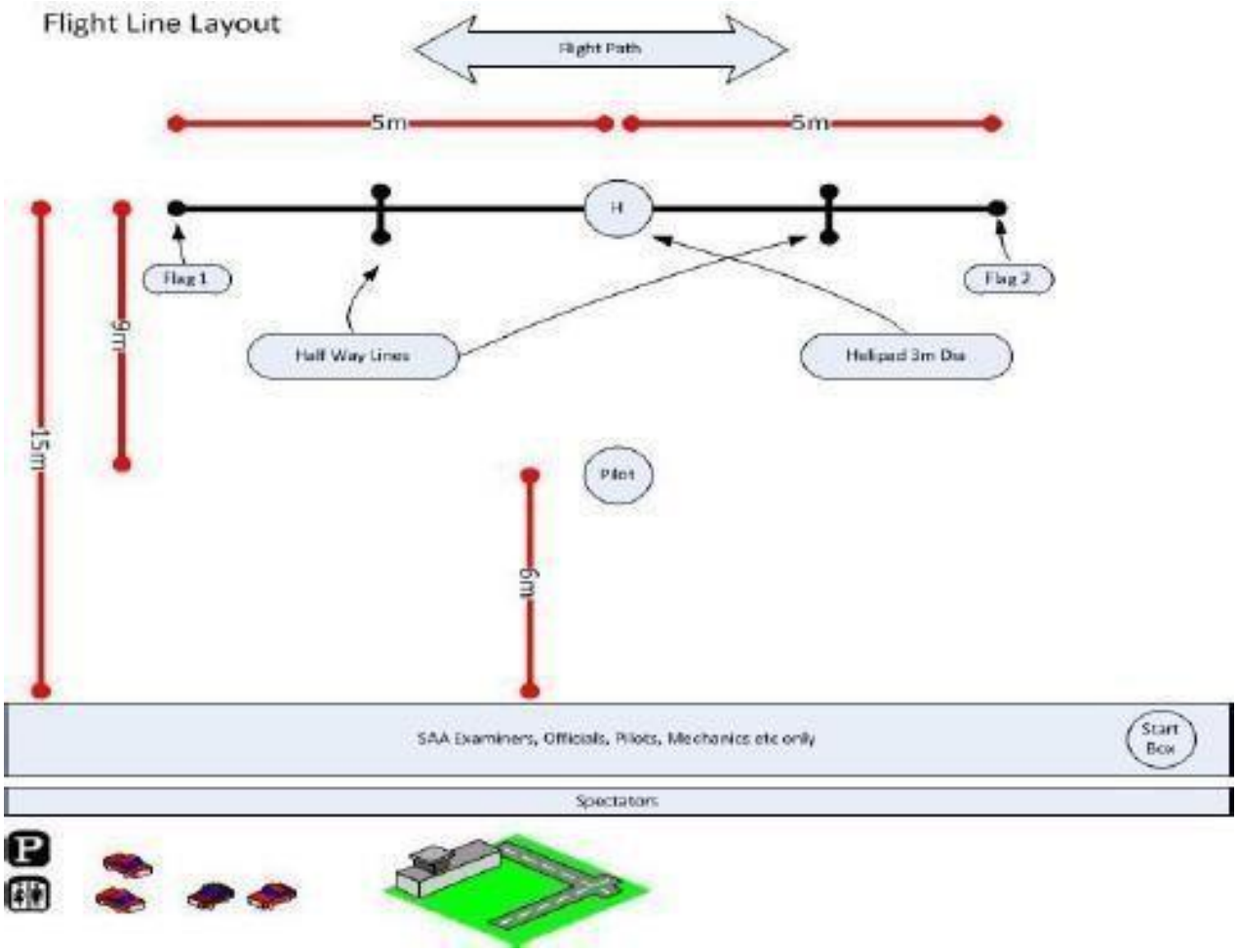
MA pauses or stops are typically 2 seconds duration unless otherwise stated.

Hovering height should be with helicopter skids just above pilot head height.

The MA must have a minimum overall rotor diameter of 710mm (e.g. 450 size Helicopter)

FLIGHTLINE LAYOUT

The flight area layout is based on a 10-metre straight line running through the centre helipad and parallel to the flight path. In all cases the pilot position is located in line with the centre helipad. The distance between the pilot and the centre helipad is 9m. The upwind and downwind markers are positioned 5m from the centre helipad parallel to the flight line. At no point during the test should the MA be between the pilot and the pits area or public viewing area.



HOVERING COMPETENCY

This Certificate indicates a pilot is safe to fly in a designated hovering only area, unattended by an instructor.

1. Pre-flight Procedure 2.

Stationery Hover

3. Left Side Box Hover

4. Right Side Box Hover

5. Landing
6. Postflight Procedure
7. SAA Safety Code Questions x3

1 PRE-FLIGHT PROCEDURE

On arriving at the field make sure you are aware of any flying restriction and that you understand and comply with the frequency control system in operation. A range check should be carried out before your first flight of the day (if a pilot is using 35mhz this should be completed with the transmitter aerial retracted) at a distance of 20-30 metres

Before starting the MA, the canopy should be removed and an inspection of all gears, nuts, bolts and ball-links should be carried out to ensure the model is safe to fly. Receiver packs, electric motor packs and fuel levels should also be checked prior to each flight. All controls should be checked at full rate to ensure operation without binding and that directions are correct. FBL units should be checked to ensure the gyros compensate in the correct direction. Rates should be returned to hovering settings. Check the gyro or FBL unit is switched on. Ensure that all transmitter switches are in the correct position to prevent the possibility of the engine being started on idle-up. If an electronic safety switch is fitted to the model ensure that it is in the correct position.

Ensure the rotor head of the model is held firmly during the starting procedure. Once the engine is running all controls should be checked again. DO NOT alter the pitch unless you have an active throttle hold selected. The model can now be carried to the centre of the box and must sit at idle without the rotor blades engaging.

2 STATIONARY HOVER (TAIL IN)

The MA is positioned in the centre circle with the tail facing towards the pilot. The MA lifts off from the centre helipad until the skids are above head height. This hovering position is maintained for 10 seconds. The MA then descends vertically to its original position in the centre helipad.

3 LEFT HAND HOVER (TAIL-IN)

The MA is positioned in the centre helipad with the tail facing towards the pilot. The MA lifts off vertically until skids are above head height and hovers for 2 seconds. The MA then hovers sideways to the left for 5 metres until it is above the left-hand marker. MA stops and hovers for 5 seconds. MA then returns to hover over above the helipad, pauses then descends to land in the centre helipad.

4 RIGHT HAND HOVER (TAIL-IN)

The MA is positioned in the centre helipad with the tail facing towards the pilot. The MA lifts off vertically until the skids are above head height and hovers for 2 seconds. The MA then hovers sideways to the right for 5 metres until it is above the right-hand marker. MA stops and hovers for 5 seconds. MA then returns to hover over centre helipad.

5 LANDING MA descends smoothly from above head height to land in the

centre helipad.

6 POSTFLIGHT PROCEDURE

MA engine or motor should be cut before approaching the model. Extendable transmitter aerials should be retracted and the model returned to the pit area. The radio should be switched off and frequency control regulations follower. On electric helicopters Lipo batteries which power the motor should be made safe.

7 SAA SAFETY CODE QUESTIONS

The pilot is asked to satisfactorily answer a minimum of 3 questions on the SAA Safety Code.

BRONZE

This Certificate indicates a pilot is safe to fly without supervision by an instructor.

1. Pre-flight Procedure
2. Stationary Hover (20secs)
3. Hovering Triangle
4. Hovering Rectangle
5. Figure Eight
6. Landing
7. Postflight Procedure
8. SAA Safety Code questions

1 PRE-FLIGHT PROCEDURE

On arriving at the field make sure you are aware of any flying restriction and that you understand and comply with the frequency control system in operation. A range check should be carried out before your first flight of the day (if a pilot is using 35mhz this should be completed with the transmitter aerial retracted) at a distance of 20-30 metres

Before starting the MA, the canopy should be removed and an inspection of all gears, nuts, bolts and ball-links should be carried out to ensure the model is safe to fly. Receiver packs, electric motor packs and fuel levels should also be checked prior to each flight. All controls should be checked at full rate to ensure operation without binding and that directions are correct. FBL units should be checked to ensure the gyros compensate in the correct direction. Rates should be returned to hovering settings. Check the gyro or FBL unit is switched on. Ensure that all transmitter switches are in the correct position to prevent the possibility of the engine being started on idle-up. If an electronic safety switch is fitted to the model ensure that it is in the correct position.

Ensure the rotor head of the model is held firmly during the starting procedure. Once the engine is running all controls should be checked again. DO NOT alter the pitch unless you have an active throttle hold selected. The model can now be carried to the centre of the box and must sit at idle without the rotor blades engaging. Stationary Hover (Tail In)

The MA is positioned in the centre helipad with the tail facing towards the pilot. The MA lifts off vertically until the skids are at eye level. The MA position is maintained for 20 seconds. The MA then descends smoothly and vertically to its original position in the centre helipad.

2 HOVERING TRIANGLE (TAIL IN)

The MA is positioned in the centre helipad with the tail facing towards the pilot. The MA lifts off vertically until skids are above head height. The MA then slowly hovers sideways to position over the right-hand marker. The model hovers for 2 seconds then ascends in a straight line at 45 degrees to stop over the centre circle for 2 seconds. The model then descends in a straight line at 45 degrees to stop over the left marker for 2 seconds. The model then hovers back to stop over the centre circle and descend to land smoothly on the centre of the helipad.

3 HOVERING RECTANGLE (TAIL IN)

The MA is positioned in the centre helipad with the tail facing towards the pilot. The MA lifts off vertically until skids are above head height, hovers for 2 seconds then slowly hovers sideways to the left for 5 metres until it is above the left marker. The MA pauses then ascends for 4 metres and pauses for 2 seconds. The MA then travels horizontally across the box for 10 metres stopping 4 metres above the right marker. The MA then descends for 4 metres and

pauses before hovering back sideways to the centre helipad. The MA then stops before descending to land on the centre helipad.

4 FIGURE 8

The MA is positioned in the centre circle with the tail facing towards the pilot. The MA lifts off vertically until the skids are above head height, pauses and then rotates 90 degrees before starting the lazy eight (The pilot may choose which way to turn the model). The MA should fly steadily and smoothly with turns making use of both tail and cyclic controls correctly. The MA flies slowly forward for a distance of approximately 20 metres, then makes a turn of approximately 200 degrees away from the pilot and flies for approximately 40 metres in the opposite direction. The MA once again turns through approximately 200 degrees away from the pilot and flies approximately 20 metres to the centre of the box. Rotates 90 degrees and hovers with skids above head height over the centre helipad.

5 LANDING (TAIL IN) The MA descends from above head height to land smoothly on the centre helipad.

6 POSTFLIGHT PROCEDURE

MA engine or motor should be cut before approaching the model. Extendable transmitter aerials should be retracted and the model returned to the pit area. The radio should be switched off and frequency control regulations follower. On electric helicopters Lipo batteries which power the motor should be made safe.

7 SAA SAFETY CODE QUESTIONS

The pilot is asked to satisfactorily answer a minimum of 3 questions on the SAA Safety Code.

SILVER

This certificate indicates a pilot is safe to fly at public displays.

The pilot must demonstrate they have good control of the MA during hovering and be able to confidently execute manoeuvres whilst the MA is travelling at speed.

1. Pre-flight Procedure
2. Stationary Nose in Hover
3. Hovering M
4. Top Hat
5. Double Stall Turn
6. Single Loop
7. Single Roll
8. 45 Degree Approach and Land
9. Postflight Procedure
10. SAA Safety Code Questions

1 PREFLIGHT PROCEDURE

On arriving at the field make sure you are aware of any flying restrictions and that you understand and comply with the frequency control system in operation. A range check should be carried out before your first flight of the day (if a pilot is using 35mhz this should be completed with the transmitter aerial retracted) at a distance of 20-30 metres.

Before starting the MA, the canopy should be removed and an inspection of all gear's nuts, bolts and ball-links should be carried out to ensure the model is safe to fly. Receiver packs, electric motor packs and fuel levels should also be checked prior to each flight. All controls

should be checked at full rate to ensure operation without binding and that directions are correct. FBL units should be checked to ensure the gyros compensate in the correct direction. Rates should be returned to hovering settings. Check the gyro or FBL unit is switched on. Ensure that all transmitter switches are in the correct position to prevent the possibility of the engine being started on idle-up. If an electronic safety switch is fitted to the model ensure that it is in the correct position.

Ensure the rotor head of the model is held firmly during the starting procedure. Once the engine is running all controls should be checked again. DO NOT alter the pitch unless you have an active throttle hold selected. The model can now be carried to the centre of the box and must sit at idle without the rotor blades engaging.

2 STATIONARY HOVER (NOSE IN)

The pilot may move the MA to a nose in position before take-off or it can be rotated to a nose in position once airborne. The MA lifts off vertically until the skids are above head height. The pilot rotates the MA to a nose in position if necessary. The pilot hovers with the nose of the MA facing towards him for 10 seconds. The model then descends smoothly to land in the centre circle. The pilot may choose to rotate the MA to a tail in position prior to commencing the descent to land.

3 HOVERING M (INTO WIND)

The MA is positioned side on in the hovering circle. The MA takes off vertically from the centre of the helipad until the skids are above head height and pauses. The MA hovers backwards to the downwind marker on the centre line and pauses. The MA then ascends vertically for 4m and pauses. The MA descends in a straight line at 45 degrees to pause at above head height over the centre circle. The MA then ascends in a straight line at 45 degrees to stop over the marker at the upwind end of the square. The MA then descends 4m vertically to pause at above head height over the upwind marker. The MA then hovers backwards to stop over the centre helipad. The MA then descends vertically to land on the centre helipad.

4 TOP HAT (INTO WIND)

The pilot should position the MA to begin this manoeuvre 10m outside of the 10m marker. The MA hovers with skids are above head height before moving forward 10m to the downwind marker and pausing. The MA then ascends 4m to give a total height from the ground of 6m, where it pauses. The MA then flies forward 10m maintaining a height of 6m. The MA pauses then descends 4m and pauses MA flies forward 10m. The MA transitions to idle up to commence high speed manoeuvres.

5 DOUBLE STALL TURN (1 X DOWN WIND & 1 X UP WIND)

The MA is positioned to approach this manoeuvre in fast forward flight travelling down wind. The MA should fly past the pilot for approximately 50m at a height of at least 20m. The MA is pulled up into a vertical climb. At the stall point the MA is rotated through 180 degrees into a vertical dive to pull out at the same height as the manoeuvre was started. The MA then flies 50m past the pilot in the opposite direction and is pulled up in a vertical climb. At the stall point the MA is rotated 180 degrees into a vertical dive pulls out at the same height as the manoeuvre was started. The manoeuvre is complete when the MA passes the centre point in line with the pilot position.

6 SINGLE LOOP (UP WIND)

The MA flies straight and level for 10m minimum entry. The MA performs an inside loop with minimum duration of approximately 3 seconds. The manoeuvre is completed with 10m straight and level flight.

7 SINGLE ROLL (DOWN WIND)

The MA flies straight and level for a minimum of 10m and performs a smooth and axial 360degree roll. The roll should take approximately 2 seconds and should not be a snap roll. The manoeuvre is completed with a 10m straight and level flight after the roll.

8 45 DEGREE APPROACH AND LANDING

At an altitude of no less than 20m and on a heading parallel to the centre helipad, the model begins a constant rate and 45-degree angle descent to land on the centre helipad.

9 POSTFLIGHT PROCEDURES

The MA engine or motor should be cut before approaching the model. Extendable transmitter aerials should be retracted and the model returned to the pit area. The radio should be switched off and frequency control regulations followed. On electric helicopters Lipo batteries which power the motor should be made safe.

10 SAA SAFETY CODE QUESTIONS

The pilot is asked to satisfactorily answer a minimum of 3 questions on the SAA Safety Code.

GOLD

This certificate indicates a competent and skilled pilot. The entire flight should be smooth and controlled. All flying manoeuvres must be consecutive (one on each pass). The pilot must demonstrate good control of the MA during hovering manoeuvres and be confident in the execution of manoeuvres whilst the MA is travelling at speed.

1. Pre-flight checks
2. Inverted Triangle with 4 Point Pirouette
3. Triangle with 360-degree Pirouette
4. Cuban Eight
5. Rolling Stall Turn
6. Single 2 Point Roll
7. Cobra Roll
8. 45-degree Autorotation
9. Postflight Procedure

1 PREFLIGHT PROCEDURE

On arriving at the field make sure you are aware of any flying restrictions and that you understand and comply with the frequency control system in operation. A range check should be carried out before your first flight of the day (if a pilot is using 35mhz this should be completed with the transmitter aerial retracted) at a distance of 20-30 metres.

Before starting the MA, the canopy should be removed and an inspection of all gear's nuts, bolts and ball-links should be carried out to ensure the model is safe to fly. Receiver packs, electric motor packs and fuel levels should also be checked prior to each flight. All controls should be checked at full rate to ensure operation without binding and that directions are correct. FBL units should be checked to ensure the gyros compensate in the correct direction. Rates should be returned to hovering settings. Check the gyro or FBL unit is switched on. Ensure that all transmitter switches are in the correct position to prevent the possibility of the engine being started on idle-up. If an electronic safety switch is fitted to the model ensure that it is in the correct position.

Ensure the rotor head of the model is held firmly during the starting procedure. Once the engine is running all controls should be checked again. DO NOT alter the pitch unless you

have an active throttle hold selected. The model can now be carried to the centre of the box and must sit at idle without the rotor blades engaging.

2 INVERTED TRIANGLE WITH 4 POINT PIROUETTE

The MA is positioned side on in the helipad. The MA lifts off from the helipad and hovers with skids above head height. The MA ascends at 45 degrees and stops and hovers over the downwind flag. The MA then flies horizontally to upwind flag while performing a 4-point pirouette in either direction. (The stops between the points of the pirouette are approximately 1 second duration). The MA descends at 45 degrees and stops with skids above head height over the helipad. The MA then descends and lands on the helipad.

3 TRIANGLE WITH 360 PIROUETTE

The MA lifts off from the central helipad and ascends vertically until skids are above head height and stops. The MA then flies backwards maintaining a constant altitude, heading and speed to the downwind flag and stops. The MA then ascends diagonally at a 45-degree angle to a height of 7m above the helipad and stops. The MA then performs a stationary 360 pirouette in either direction and stops. The MA then descends at a 45-degree angle to the upwind flag and stops. The MA then flies backwards to the centre circle and stops. Finally, the MA descends vertically and lands on the central helipad.

4 CUBAN EIGHT (DOWN WIND).

The MA flies straight and level for a minimum of 10m and performs a 5/8 inside loop. When the MA is in 45-degree descent and inverted it performs a half roll in either direction to upright and enters a 3/4 inside loop. When the MA is again in 45-degree descent and inverted it performs a second half in either direction and finishes the first partial loop in upright altitude. Manoeuvre is completed by flying straight and level for a minimum of 10m.

5 ROLLING STALL TURN (INTO WIND).

The MA is positioned to approach this manoeuvre in fast forward flight travelling upwind. The MA enters with a 10m minimum straight and level segment. Performs a 1/4 loop to vertical. Performs a 1/2 roll, then a 180-degree stall turn nose down. The MA descends vertically and performs a 1/4 loop with the bottom at entry altitude. The manoeuvre ends after a minimum of 10m straight and level flight.

6 SINGLE 2 POINT ROLL (DOWN WIND).

The MA flies straight and level downwind for a minimum of 10m. The MA executes a half axial roll in either direction while maintaining longitudinal axis in the direction of flight. The MA then pauses whilst inverted so that it is inverted as it crosses the centre line. The model then performs another half roll in the same direction as the first. The manoeuvre ends after a minimum of 10m straight and level flight.

7 COBRA ROLL (INTO WIND).

The MA flies straight and level for 10m and enters the manoeuvre by pulling a 45-degree climb. After a minimum of 5m straight segment the MA performs a half roll in either direction to the inverted position and continues to climb at 45 degrees for a minimum of 5m. The MA then performs a 1/4 inside loop centred on the centre line before it enters a 45-degree dive and after a minimum of 5m straight segment, performs another half roll in either direction. Manoeuvre is completed by flying straight and level for a minimum of 10m.

8 STRAIGHT 45 DEGREE AUTOROTATION (INTO WIND).

At an altitude of no less than 20m and on a heading parallel to the centre helipad, with the engine at its idling state or off, the model begins a constant rate and 45-degree angle of descent to land in the central area of the helipad.

9 POSTFLIGHT PROCEDURES

The MA engine or motor should be cut before approaching the model. Extendable transmitter aerials should be retracted and the model returned to the pit area. The radio should be switched off and frequency control regulations followed. On electric helicopters Lipo batteries which power the motor should be made safe.

G. MULTIROTOR R/C TEST SCHEDULES

COMPETENCY TEST

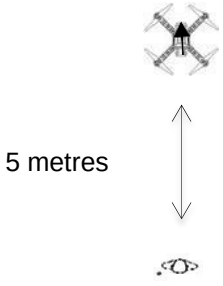
PRE-FLIGHT PROCEDURE

On arriving at the field make sure you are aware of any flying restrictions and that you understand and comply with the frequency control system in operation. If the equipment has the facility, a range check should be carried out before your first flight of the day (if a pilot is using 35 MHz this should be completed with the transmitter aerial retracted) at a distance of 20-30 metres.

Before starting the Multi Rotor an inspection of moving parts and linkages should be carried out to ensure the model is safe to fly. Electric motor packs and Receiver packs (If fitted) should be checked prior to each flight. Ensure that all transmitter switches are in the correct position to prevent the possibility of the engine being started on idle-up. If an electronic safety switch is fitted to the model ensure that it is in the correct position. All manoeuvres are carried out in manual or ATTI mode. (No GPS or auto pilot) The Multi Rotor should be placed in the centre of the testing area and the pilot return 5 metres to the pilot stance before the motors are started.

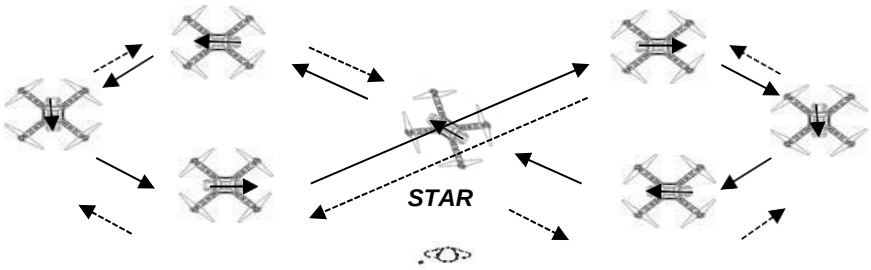
STATIONARY HOVER (TAIL IN)

With the Multi Rotor positioned in the centre with the tail facing towards the pilot the Multi Rotor should lift off vertically until the skids are at eye level. The Multi Rotor position is maintained for 20 seconds. The Multi Rotor then descends smoothly and vertically to its original position in the centre.



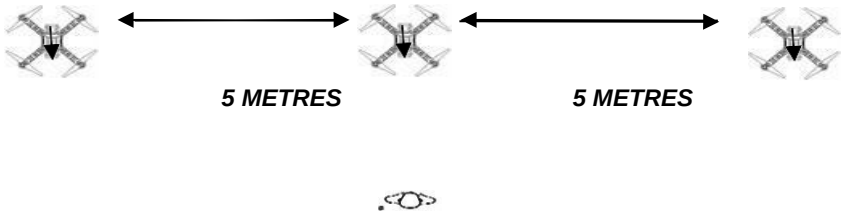
LAZY 8 'S

The Multi rotor is positioned in the centre circle facing away from the pilot. The Multi rotor lifts off vertically until the skids are at eye level, pauses and then rotates 90 degrees before starting the lazy eight (The pilot may choose which way to turn for the first manoeuvre). The Multi rotor should fly steadily and smoothly with turns making use of yaw (direction), pitch (speed) and roll (position) controls correctly. The Multi rotor flies slowly forward for a distance of approximately 20 metres, then makes a turn of approximately 200 degrees away from the pilot and flies for approximately 40 metres in the opposite direction. The Multi rotor once again turns through approximately 200 degrees away from the pilot and flies approximately 20 metres to the centre of the box. Rotate180 degrees and executes the same manoeuvre in the opposite direction ending with a hover at eye level above the centre of the circle.



NOSE-IN HOVERING

The Multi rotor is positioned in the centre with the Multi rotor facing the pilot. The Multi rotor lifts off vertically until the skids are at eye-level hovers for 2 seconds then slowly hovers sideways to the left for 5 metres until it is above the left marker then hovers for 5 seconds. The Multi rotor pauses then travels horizontally across the box for 10 metres stopping above the right marker then hovers for 5 seconds. Then the Multi rotor hovers back to the centre before descending to land on the centre point.



SAA SAFETY CODE QUESTIONS

The pilot is asked to satisfactorily answer a minimum of 3 questions on the SAA Safety Code.

H. EXAMINATION NOTES

CONDUCT OF TESTS

The overall thinking behind the tests is the examiners present themselves at a club field prepared to observe the flying tests and pass judgment accordingly. The club is expected to ensure their own local club rules of conduct like flying area, pits area, transmitter and frequency control are being observed. All applicants must pass at Bronze level before going on to Silver and then Gold, but the flights may be consecutive.

The examiner/examiners will not cancel tests due to adverse weather conditions. It is not part of an examiner's brief to prejudge the ability of an applicant. It is seen as part of the test that each individual pilot should be able to determine when conditions are unsuitable for their current level of experience.

The applicant is expected to use a suitable aircraft for the test being flown. An inability to perform certain manoeuvres can only be construed by the examiners as being due to the pilot.

Sometimes an examiner will advise the applicant during testing, but strictly speaking this should not be necessary and should not be expected as a matter of course.

PILOTING REQUIREMENTS

The most important single requirement is the positioning of the aircraft before and after manoeuvres, and the positioning of the manoeuvres themselves. The pilot must show the model can be put quite precisely where it is supposed to be. The quality of the actual manoeuvre is not of paramount importance. The test is not an aerobatic competition, only a

test of the pilot's command of the overall flight of the aircraft. Indeed, erratic wandering and poor height control are of more significance to the examiners than the accuracy of the manoeuvres.

The basic manoeuvre track for fixed wing is parallel to the take-off path and about 50 to 100 feet (15 to 30 metres) out from the far side of the runway at about 50 feet (15 metres) altitude.

Models containing a wing levelling or attitude controlling device will not be allowed to participate in any SAA Achievement Scheme tests.

ARRANGING TEST SESSIONS

1 Tests will be carried out only by SAA Approved Examiners. An examiners own club is defined as the affiliated club where his SAA dues are paid through. All examiners are identified by having an E on their SAA membership cards next to the discipline(s) in which they may examine.

2 When testing beyond the Bronze plus level is required, the club secretary contacts the SAA Safety Officer with a request to arrange a suitable date. The Safety Officer then contacts the appropriate examination coordinator, who then makes personal contact to sort out a mutually acceptable date for the club and the examiners who will be carrying out the tests.

3 To assist lone flyers, country members, those not attached to an SAA club, and members of remote clubs Testing and Training Weekends will be arranged during the year. Exceptionally individual tests may be arranged by contacting the Safety Officer.

4 Bronze and Bronze Plus Tests are conducted at club level by one examiner, who may be the club's own examiner or a visiting examiner.

5 Two examiners are required for Silver and Gold tests, one of the examiners may be from the same club as the candidate i.e. both pay their dues to the SAA through the same club, but the other examiner must come from a different club i.e. not pay his dues to the SAA through the same club as the candidate

6 Both examiners must agree to pass the candidate - i.e. if one examiner is in any doubt about the candidate's competence, the candidate will not be awarded a pass.

7 Bronze level must first be attained before attempting Silver (it is not necessary to obtain a Bronze Plus first). Silver level must first be attained before attempting Gold. Attempts at all levels may be consecutive flights.

EXAMINER TESTING.

Names of prospective examiners must be put forward in writing by the club committee to the Safety Committee Chairman. Whenever possible two or more names should be put forward, since the obvious candidate, usually the best pilot, may not be considered the best examiner. The Safety Committee Chairman will contact an appropriate examiner(s) who will arrange a suitable date and venue for the test. Since an examiner often has to demonstrate in the air the flight pattern required, his flying capabilities must be either Gold standard or above average at Silver level. The candidate will require to demonstrate he is indeed above average in his discipline by flying the appropriate level schedule. This test will be conducted by two experienced examiners neither of who can be members of the same club as the candidate and who must both be completely satisfied the candidate possesses all the necessary attributes to be an SAA examiner. If either examiner is in the slightest doubt as to his ability the candidate should not be allowed to become an examiner. Remember, this person will now be permitted to carry out SAA tests at any club in Scotland and if great care is not exercised during the selection process the integrity of the scheme is called into question.

Becoming an examiner should not be seen in any way as an ego trip, but rather as displaying a willingness to serve the aims of the SAA Safety Committee by assisting it in every way possible to promote safety as a positive and desirable feature. Those members wishing to become examiners in a discipline will also require to take part in a test as a third examiner to ensure their suitability as examiners, as well as the flying test in that discipline at minimum

Silver level. This test will take the form of a flight test examination session with a real test being carried out. The potential examiner evaluates the flight according to the Safety Code test guidelines at the same time as the other Examiners. Results of the test are compared and an examiner's certificate awarded if their opinions coincide, and if the candidate is considered suitable.

A register of SAA examiners will be maintained by the SAA Safety Officer.

Examiners are appointed as agents of the SAA and so, although they need to be sponsored by a club. When several examiners get together at Training and Testing weekends this further helps with the standardising of tests.

Examiners will lapse after 3 years of inaction. After 2 years the Safety Officer will write to see if the examiner is still interested in carrying on as it may be that all tests conducted have been failed!! If they cannot be contacted then they will be removed from the SAA list of Examiners after 3 years. Exceptionally, reinstatement can take place if agreed by the SAA Committee. Please note that Examiner is not an award or status, rather it is a task carried out for the SAA.

CERTIFICATES AND BADGES

It is the responsibility of the candidate to register the award with the Association as per the instructions on the pass certificate. Once the slip has been received a certificate and badge will be issued free of charge.

Safety Certificate attainment will be recorded in the SAA membership records. The Safety Certificate achievement of each member will be recorded on the Annual Membership Card at the start of the next membership year. This will permit verification of the members Safety Certificate achievement, should it be required for any reason.

SAFETY CODE UPDATING

This booklet will periodically be updated in light of any changes, such as the arrival of new equipment etc.

If it is felt there is any area in the booklet which could be improved please pass suggestions to the SAA Safety Officer.

CONSTRUCTIVE SUGGESTIONS ARE ALWAYS WELCOME.

USEFUL ADDRESSES AND CONTACTS

Scottish Aeromodellers Association (SAA)	www.saaweb.uk
Large Model Association (LMA)	www.largemodelassociation.com
LMA Secretary	secretary@largemodelassociation.com
Civil Aviation Authority (CAA)	www.caa.co.uk

SAA

Chairman	chair@saaweb.uk
Vice Chairman	vchair@saaweb.uk
Safety Officer	safety@saaweb.uk
Secretary	sec@saaweb.uk
Membership Secretary	memsec@saaweb.uk

A Guide to safe model Flight

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The national body for Aeromodelling In Scotland