NZMAA FLYING RULES
Section 7B: RC Scale

FLIGHT JUDGING GUIDE 1998

Preamble

All flying manoeuvres must be judged bearing in mind the performance of the full sized prototype. Judges must not confuse scale competitions with aerobatic contests.

The intention of this part of the flying competition is to judge the following:

a) The ability of the pilot to demonstrate his flying skill to the judges.
To this end , the pilot must to position his model favourably during the flight so the judges can score the chosen manoeuvre.

b) The ability of the pilot to present his model to the judges in a convincing manner.
The model should be well trimmed and show no signs of instability.
The model should be flown smoothly through the scoring manoeuvre and smoothly through the repositioning manoeuvre.

The pilot must attempt to demonstrate the Turn Rates, Angles of Bank, Speed and Attitude of the prototype to the models best advantage throughout the flight.

Any manoeuvre variation must be discussed with the Judges prior to flying.

It is the pilots responsibility to ensure the judges have a clear picture of the variation the pilot has in mind.

Should the judges query the suitability of a manoeuvre to be performed by the model, the Pilot must supply documentary evidence that this function was performed by his subject, eg. inverted flypast, crop-spraying, outside loop. etc.

Notes on Throttle Usage:

Use of throttle during aerobatics(full sized) Aircraft with constant speed props do not normally close the throttle during aerobatics. Low throttle settings give a situation of low boost and high revolutions which can cause detonation. They may reduce power down to 1/2 or 3/4 throttle as they descend (i.e as they point earthwards) to control speed build up.
Aircraft with fixed pitch propellers usually do close the throttle on the way down to control speed and propeller revolutions.
In both cases power is not normally reduced until the aircraft nose is pointing below the horizon.
Pilots should try to emulate the prototypes throttle control

TAXI

Model should taxi a minimum distance of 15m. in the manner of the prototype, prior to take-off.

Errors:

Model does not stand still unassisted before commencing to taxi.
Model does not taxi 15 m.
Model does not taxi in the manner of the prototype.
Model does not stop before taking off if prototype had brakes.
Model taxied to fast or too slow.

TAKE - OFF

The model should stand still on the ground, with the motor running without being held by the pilot or mechanic and must take - off in the direction specified by the Contest Director - or as the strip and local conditions dictate.

The take - off should be straight and the model should lift gently from the ground and climb at an angle consistent with that of the prototype. The take - off is completed when the model is turned 90 degrees away from the take - off direction.

If the prototype used flaps for take - off, then the model shall also, but this should be subject to the competitor's judgement, taking into account the wind strength. Flaps should be raised during the climb out after take - off. If applicable, the landing gear should be retracted during the climb out after take - off.

Errors:

Model is held by pilot or mechanic before commencing take - off run.
Model swing on take - off is not corrected
Model becomes airborne too soon.
The take - off run is too long.
Model with conventional landing gear does not lift the tail before the main wheels leave the ground.
Model with tricycle landing gear does not "rotate" (i.e. the nose-wheel does not lift off smoothly.)
Model climbs too steeply.
Flaps are not used where applicable.
Landing gear is not raised where applicable.
Model drops a wing badly during take - off.
Model does not complete a 90 degree turn away from the direction of take off.

STRAIGHT FLIGHT (This figure is for non-aerobatic prototypes only.)

Model should make a straight flight upwind of 100 metres length or of 10 seconds, whichever is of the least duration, with the line of flight to pass over the landing area. The figure starts approximately 5 seconds before reaching the landing area.

Errors:

Model does not fly a straight course (making allowances for the slower type of light aircraft which would be permitted slight corrections in windy conditions).
Model does not maintain constant altitude.
Model does not pass over the landing area

FLIGHT IN STRAIGHT LINE WITH ONE MOTOR THROTTLED.

Model approaches into wind in straight flight at a constant altitude with one motor throttled, for a minimum of 100 metres, after which the motor is opened up and the model resumes normal flight.

This option is, of course, for multi-engined models only.

Errors:

Model does not maintain straight flight.
Model is unstable.
Model loses undue altitude.
Motor is not opened up again after demonstration.

PROCEDURE TURN

Commencing from straight and level flight the model must turn through 90 degree passing through the centre of the landing area and then turn through 270 degrees in the opposite direction resuming straight and level flight on the opposite heading to that of the entry.

Errors:

Model changes altitude during manoeuvre.
Model does not resume straight and level flight on the correct heading.
Turns are not the prescribe shape.
Rate of turn not varied to compensate for weather conditions
Model does not complete a 90 degree turn when turning away from the Judges

FIGURE EIGHT

The model approaches in straight and level flight on a line parallel to the spectators, then a one-quarter circle turn is made in a direction away from the spectators, followed by a 360-degree turn in the opposite direction followed by a 270-degree turn in the first direction completing the manoeuvre on the original approach line.

The intersection (mid point) of the manoeuvre shall be on a line which is at right angles to the direction of entry & passes through the centre of the landing area.

Errors:

Model does not enter manoeuvre on a line at right angles to direction of entry and does not pass through the centre of the landing area.
Model does not maintain same altitude.
Rate of turn not varied to compensate for weather conditions
Both Circles of the Figure 8 should be the same size
Model does not complete a 90 degree turn when turning away from the Judges
Intersection not over the centre of the Landing area

DESCENDING CIRCLE (This figure is for non-aerobatic prototypes only.)

Commencing from straight and level flight, the model performs a 360 degree descending circle over the landing area, in a direction away from the judges, at a constant low throttle setting, resuming straight and level flight at a lower altitude on the same heading as that of the entry.

Errors:

Rate of turn not constant.
Rate of descent is not constant.
Throttle setting is not constant.
There is no marked loss of altitude.

Model does not exit on the same heading as the entry.

CHANDELLE (This figure is for non-aerobatic prototypes only.)
From a straight and level flight the model performs a 180 degree climbing turn in a direction away from the judges, resuming straight and level flight on the opposite heading. The rate of climb should commensurate with that of the prototype.

Errors:
Turn not smooth.
Final heading not 180 degree opposite heading at the beginning of the manoeuvre.

EXTEND AND RETRACT LANDING GEAR.
Model approaches the landing area in straight and level flight at a height not exceeding 10m and in full view of the judges, extends the landing gear. Model then executes a 360 degree turn in a direction away from the judges, and when again directly in front of the judges retracts the landing gear and climbs away in straight flight.

Errors:
Model approaches too high.
Landing gear is not extended and retracted in full view of the judges.
The speed of the operation of the landing gear is incorrect.
Model speed is not reduced before the landing gear is extended.

EXTEND AND RETRACT FLAPS.
Model approaches the landing area in straight and level flight at a height not exceeding 10m and in full view of the judges, extends flaps. Model then executes a 360 degree turn in a direction away from the judges, and when again directly in front of the judges, retracts flaps and climbs away in straight flight.

Errors:
Model approaches too high
Flaps are not extended and retracted in full view of the judges.
The speed of extension and retraction is incorrect.
Model is to be stable when flaps are extended.
Speed of Model is not reduced before flaps are extended.

STALL TURN
The model starts in level flight, noses up to the vertical attitude until it comes to a stop, at which point the model yaws through 180 degrees, then dives and finally recovers straight and level on a heading in the opposite direction to the entry. Entry and exit should be at the same altitude. The competitor should specify whether the turn shall be to the left or right . Power Reduction should be appropriate to prototype.

Errors:
Model does not assume the correct attitude.
Power Reduction not appropriate
Model does not perform a stall turn
Model does not perform a stall turn in the direction specified
Model does not exit from the manoeuvre on the correct heading and altitude.
Model does not assume the correct Vertical attitude
Model swings after turn
Model does not assume vertical descent

Wings not at 90 Degrees to flightline on vertical legs
Wings are not level throughout the pull up and pull out phases of the manoeuvre
Deviations in manoeuvre heading

DOUBLE STALL TURN

The model starts in level flight, noses up to the vertical attitude until it comes to a stop, at which point the model yaws through 180 degrees, then dives to commence a half inside loop, establishing a second near vertical attitude until it comes to a stop, completes a second 180 degree yaw, then dives to finally recover straight and level on a heading in the same direction as the manoeuvre was entered. Entry and exit should be at the same altitude. The competitor should specify whether the turn shall be to the left or right . Power Reduction should be appropriate to prototype.

Errors:
As for the stall turn

FIGURE M WITH ½ ROLLS

From straight and level flight the model pulls up into a vertical climb. Half way through the climb the model preforms a half roll and then continues to climb. At the apex of the climb the model executes a stall turn and commences to dive. During this dive the model performs another half roll and pushes into a half outside loop to commence a second vertical climb.
The model again performs a half roll followed by a second stall turn, then performs the fourth half roll at which point the model recovers to straight and level flight on the same heading as the entry.
This manoeuvre would be performed by high power/weight aerobatic prototypes

Errors:
Wings are not level throughout the looping phase of the manoeuvre
Deviations in manoeuvre heading
Model does not perform a complete roll
Model does not perform a stall turn
Rolls not equally spaced on the vertical legs of the manoeuvre
Entry and exit heights not equal

HUMPTY BUMP

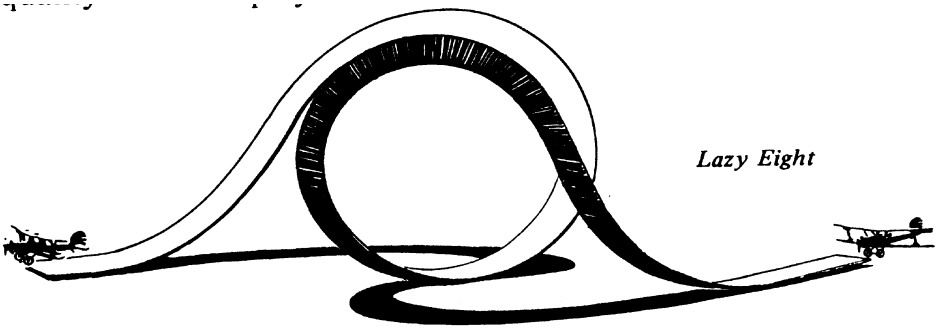
From level flight the model performs a vertical climb, during which the model rolls through a half roll .At the end of the climb the model either pushes or pulls through a tight half loop to establish a vertical descent .At the bottom of this dive the model pulls out to resume straight and level Flight. The throttle shall be used appropriately during the manoeuvre

Errors:
Model does not perform a vertical climb
Model does not perform a complete half roll
Model screws off line during push and/or pull components
Deviations in manoeuvre heading
Throttle not used appropriately

LAZY EIGHT (As per " Aerobatics - Neil Williams Page 239 - 240")

The Lazy Eight is a coordinated climbing turn followed by a coordinated descending turn followed by a repeat of the manoeuvre in the opposite direction.
From straight and level flight the model shall pull up into a steep climb (approximately 45 degrees climb, 45 degrees pitch) and execute a 180 degree turn,

then dive to pull out at the same level as the entry level. The model then proceeds to execute a second steep climb followed by a second 180 degree turn and dives in the other direction exiting from the manoeuvre in the same direction as the commencement of the first manoeuvre. When viewed from above the path of the model shall trace an "S".



Errors:
Turns not constant or the same size.
Transition from first turn to second turn not smooth.
Exit not at same height as commencement of manoeuvre.
Direction of exit not the same as commencement

LOOP.
From straight flight, the model pulls up into a loop and resumes straight and level flight on the same heading as the entry. Power Reduction should be appropriate to prototype. Depending on the prototype some aircraft types would be expected to execute a shallow dive at full throttle in order to pick up speed before commencing the loop
The Loop should be of the shape expected of the prototype
Errors:
Wings are not level throughout the manoeuvre.
Loop is not executed in a prototypical manner.
Throttle not used appropriately

SQUARE LOOP.
From straight flight, the model pulls up into a square loop and resumes straight and level flight on the same heading as the entry. The throttle should be managed along the top leg of the loop and the vertical descent leg of the loop and then opened when normal flight is resumed

Errors:
Wings are not level throughout the manoeuvre.
Loop is not executed in a prototypical manner.
Throttle not used appropriately
Loop is not square

AVALANCHE
From straight flight, the model pulls up into a loop. At the top of the loop the model performs a positive snap roll (or negative if specified prior by the pilot) recovering inverted, then completes the loop, resuming straight and level flight on the same heading as the entry. The throttle should be cut back at the top of the loop and opened when normal flight is resumed.
The Loop should be of the shape expected of the prototype.

Errors(Avalanche):
Wings are not level throughout the looping phase of the manoeuvre.
Loop is not executed in a prototypical manner.
Throttle is not cut back at the top of the loop.
Snap Roll is not completed
Model is not stalled during the snap
Deviations in manoeuvre heading
Throttle not used appropriately

ROLLING LOOP
From straight flight, the model pulls up to commence a normal loop. During the top 180 degrees of the loop the model performs a complete roll (looping whilst rolling). The roll is completed just before end of the 270 degree quadrant after which the model completes the loop, resuming straight and level flight on the same heading as the entry.
Errors:
Wings are not level throughout the looping phase of the manoeuvre
Deviations in manoeuvre heading
Model does not perform a complete roll

SPLIT "S" (Reversal)
From a straight flight, the model performs a half roll and when inverted performs half of an inside loop and resumes straight and level flight on a heading opposite to that of the entry. Power Reduction should be appropriate to prototype.
Errors:
Model changes heading during half roll.
Wings are not level during half loop.
Model does not exit from manoeuvre on the exact opposite heading to entry.
Throttle not used appropriately

IMMELMANN TURN.
From a straight and level flight the model performs the first half of a loop and when inverted performs a half roll and resumes straight and level flight on the opposite

heading. Depending on the prototype some aircraft types would be expected to commence the manoeuvre by executing a shallow dive at full throttle in order to pick up the necessary speed.

Errors:

Wings are not level during half loop.
Model does not resume straight and level flight on the correct heading.

CUBAN EIGHT.

Model pulls up into an inside loop and continues heading downwards at 45 degrees, does a half roll followed by another inside loop to 45 degrees, does a half roll followed by straight and level recovery at same altitude as entry. Some aircraft type would be expected to execute a shallow dive at full throttle in order to pick up speed before commencing the manoeuvre. Throttle usage should be appropriate to the prototype during all phases of the manoeuvre.

Errors(Cuban Eight):

Manoeuvre is not performed in a constant vertical plane or is executed endwise.
Loops are of unequal diameter.
Half rolls are not executed at the correct point in the last manoeuvre.
Model not at 45 degrees before and after half rolls.
Model does not exit from the manoeuvre at the same height as entry.
Wings not level through out loop

HALF CUBAN EIGHT

Model pulls up and commences a part inside loop, when at 45 degrees inverted the model does a half roll, continues to dive then pulls out to recover in level flight. Throttle usage should be appropriate to the prototype during all phases of the manoeuvre.

Errors:

Model not at 45 degrees before and after half roll.
Model does not exit from the manoeuvre at the same height as entry.
Wings not level through out loop phase

REVERSE CUBAN EIGHT

Model pulls up into a 45 degree climb and continues line and heading if appropriate to the prototype, does a half roll, then executes an inside loop until heading upwards at an angle of 45 degrees , half rolls again, then executes an inside loop back followed by straight and level recovery at same altitude as entry. Throttle usage should be appropriate to the prototype during all phases of the manoeuvre.

Errors:

As for Cuban Eight

HALF REVERSE CUBAN EIGHT

Model pulls up into a 45 degree climb and continues line and heading if appropriate to the prototype, does a half roll, then executes an inside loop back to level flight.

Errors:

As for Half Cuban Eight

SPIN - THREE TURNS.

From straight and level flight, the model pulls up into a stall and commences the spin through three turns and recovers to level flight on the same heading as the initial flight direction.

Errors:

For optimum marks, exit from manoeuvre must be in the same direction as entry.
Motor should be throttled back at the point of the stall.
It must be a true spin and not merely a spiral dive, which should be marked zero.

INVERTED SPIN - THREE TURNS.

From straight and level inverted flight, the model pushes up into a stall and commences the spin through three turns and recovers to level inverted flight on the same heading as the initial flight direction.

Errors:

For optimum marks, exit from manoeuvre must be in the same direction as entry.
Motor should be throttled back at the point of the stall.
It must be a true spin and not merely a spiral dive, which should be marked zero.

ROLLS (Slow, 2 Rolls in opposite Directions, Continuous 3 Rolls)

From straight and level flight, the model rolls at a constant rate through the nominated rotation(s) and resumes straight and level flight on the same heading. Some aircraft types would be expected to execute a shallow dive at full throttle before the manoeuvre. Competitors should nominate the number and type of roll he will perform, ie., Slow Roll, 2 Rolls in Opposite Directions, Continuous 3 Rolls prior to commencing the manoeuvre.

Errors:

Rate of roll is not constant.
Deviation in heading during and after the roll.
Excessive Loss of height
Deviation in heading on completion
Excessive deviation in heading during manoeuvre
Roll Rate inconsistent with Prototype

VERTICAL ROLLS (Number and type to be specified by the pilot)

Manoeuvre can be commenced either into wind or down wind. At the centre the model pulls up to the vertical, hesitates briefly, and then performs a specified number of rotations or part rotations about the axis of the model.

At the completion of the rolling phase the model either pushes or pulls over the top to regain level flight.

Errors:

Model does not maintain track during pull up or push over.
Roll does not finish on specified heading.
Wings are not level at the commencement and completion of the manoeuvre.

MILITARY or AILERON ROLL .

From straight and level flight the model, the model lifts its nose above the horizon just prior to commencing the roll (ie the model is climbing). As the model rolls through the inverted position it is flying horizontal and as the model rolls level the nose of the model is let drop down below the horizon. The model in effect is allowed to fly a gentle arc during the roll. This keeps the model in positive "G" through out the manoeuvre. Also known as a Stick Roll - only Elevator and Aileron are used, no Rudder inputs.

Errors:
Rate of roll is not constant.
Deviation in heading during and after the roll.
Wings not level before and after the manoeuvre
Positive "G" does not appear to have been maintained.
Roll too barrelled
Entry and exit angles not equal
Excessive Loss of Altitude

HESITATION ROLLS (Type to be specified by the pilot)
From straight and level flight, the model rolls at a constant rate to each of the hesitation points of the roll, hesitates briefly, then continues to the next hesitation point. This sequence is continued until straight and level flight on the same heading is achieved. Light aircraft types would be expected to execute a shallow dive at full throttle before the manoeuvre.
Competitor should nominate what type of roll he will perform,
ie. 2 point , 3 point , 4 point , 2 hesitation rolls in opposite directions.

Errors(Hesitation Rolls):
Excessive Loss of height.
Deviation in heading on completion
Excessive deviation in heading during manoeuvre
Roll Rate consistent with Prototype

BARREL ROLL
The aim is to describe a helix or corkscrew while rolling the model through 360 degrees in the Sky. It may be performed, as instructed in the military, by turning the nose of the model away from the axis so that the model performs the manoeuvre around the centre line of the helix. Or ,as in competition aerobatics, the manoeuvre is started and finished aligned with the axis of the helix and has a displaced centre line off the roll (ie. the manoeuvre is off to one side of the entry and exit of the manoeuvre.)
Any other variations of this manoeuvre should be indicated to the Judges prior to starting the flight
Errors:
Model does not start and finish on the same heading
Model does not complete a full 360 degree roll
Rate of Roll is not constant

COBRA ROLL
The model enters a 45 degree climb from level flight, at the half way point of the climb the model performs a half roll to inverted and continues to climb inverted to the apex of the manoeuvre. At this point the model pulls through 90 degrees to establish a 45 degree downward descent inverted. Half way down this leg the model performs a second half roll and continues downward on the 45 degree line until the entry level is reached at which point the model is levelled off to re-establish level flight.
Errors:
Manoeuvre angles are not performed as described
Deviation of heading through the manoeuvre.

Climbing and descending legs are not of equal lengths
Half rolls are not executed at the correct points in the manoeuvre.
Model does not exit from the manoeuvre at the same height as entry.
Manoeuvre not performed central to the Judges or is executed endwise.

TOUCH AND GO.

The model commences by preforming a final crosswind leg and landing approach, then lands normally and takes off again without coming to a halt. The main wheels must roll on the ground for a minimum of three metres. Flaps will be used if applicable.

Errors:
Model does not commence with a correct landing approach.
Model merely bounces and does not run along the ground.
Model does not climb away smoothly.
Model does not use flaps (if applicable)
The landing is not within the landing area.

GO AROUND or OVERSHOOT.

Model commences by flying a final crosswind leg and normal landing approach on low throttle, using flaps if applicable, reaches the centre of the landing area at a height of approximately 2 metres, and at that point full throttle is applied and the model climbs straight ahead. Go Around can be commenced any time after the model has crossed the threshold.

Errors:
Model does not commence with correct landing approach.
Model must be descending until full throttle is applied, and particular attention should be paid to the timing and altitude when throttle is applied.
Model does not use flaps (if applicable).
Model does not climb away smoothly.
Landing gear is not retracted on climb out where applicable.
Flaps are not retracted on climb out where applicable.

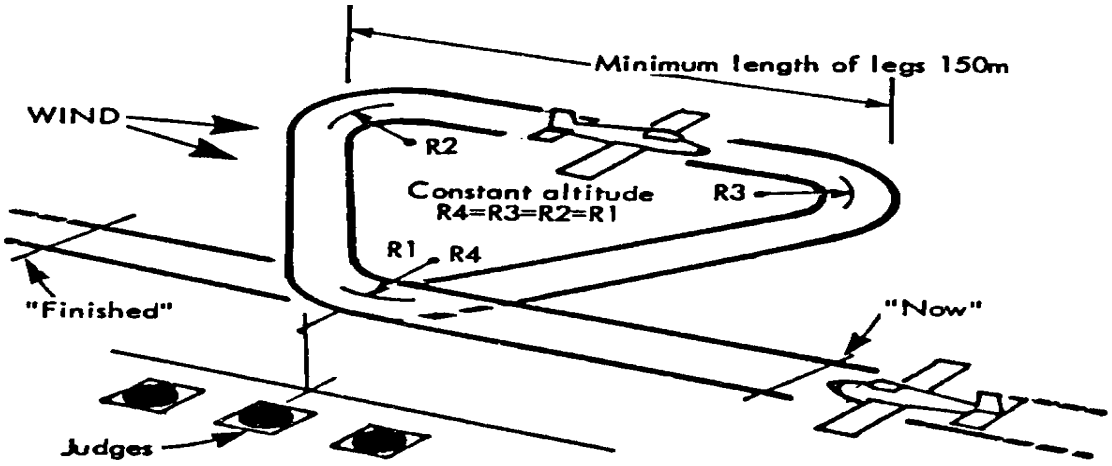
SIDE SLIP TO LEFT AND RIGHT.

The model maintains heading with one wing dropped whilst yawed in the opposite direction at least 20 degrees. If preformed on the landing approach a marked loss of height should be apparent. Contestant must call whether the side slip is to be to the left or right.

FLIGHT IN TRIANGULAR CIRCUIT.

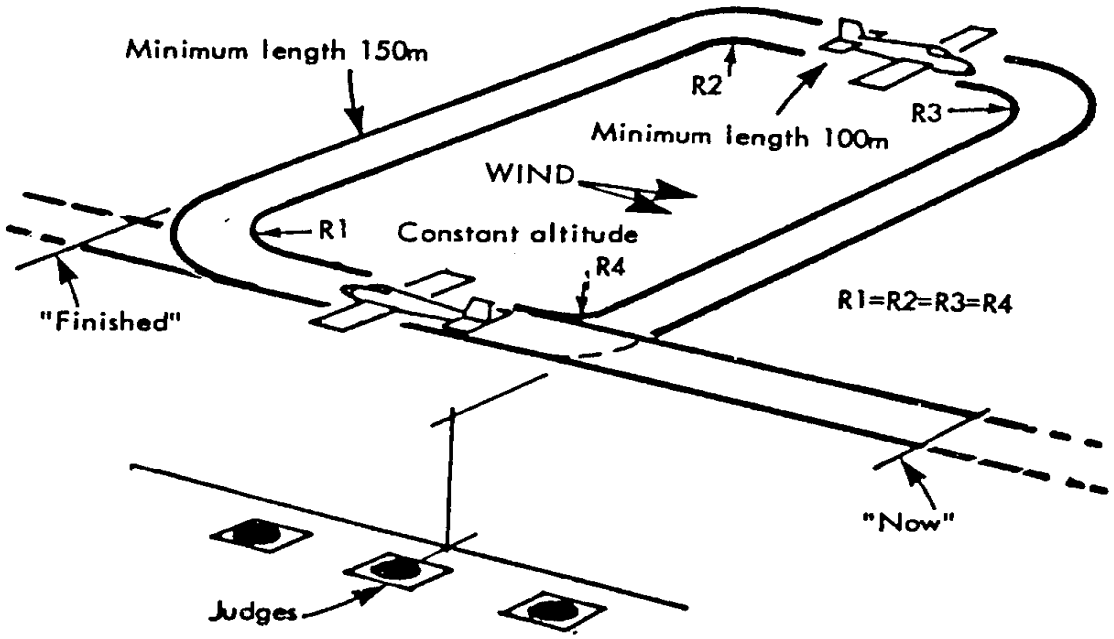
(This figure is for non-aerobatic prototypes only**)**

The model approaches upwind in a straight and level flight to a point above the centre of the landing area, and turns left through 60 degrees, flies straight and level for approximately 150 metres, turns left through 120 degrees, flies a further 150 metres, turns left through 120 degrees and flies a further 150 metres, to a position above the centre of the landing area which completes an equilateral triangle. The model then leaves the manoeuvre through a final turn to the left of 60 degrees resuming straight and level flight at the same heading as the entry. The direction of the manoeuvre may be reversed in accordance with safety regulations.



Errors:
Manoeuvre is not commenced and terminated at the correct point.
Model changes altitude.
Legs are too long or too short.
Legs are not straight.
Correction for drift is not properly made.
Rate of turn at corners is not constant.

FLIGHT IN RECTANGULAR CIRCUIT.
(This figure is for non-aerobatic prototypes only)
Model approaches upwind in straight level flight to a point above the centre of the landing area continues for 75m, turns left through 90 degrees, flies straight and level for 150m., turns left through 90 degrees, flies a further 75m., turns left at 90 degrees and flies a further 150m., to a point back over the centre of the landing area. The direction of the manoeuvre may be reversed in accordance with safety regulations.



Errors:
As for Triangular circuit.

LOW PASS
Model approaches in straight flight over the landing area at a constant altitude not exceeding 3 metres for a minimum distance of 100m, then climbs away.
Errors:
Height not constant.
Flight not straight.
Insufficient duration.
Not positioned accurately in front of judges.

Model does not pass over the landing area
Model not below 3 metres

INVERTED LOW PASS

Shall be flown along the landing area at a height not more than 3 metres, and shall be at least 50 metres long.

Errors:

Flight path not steady or of the same height from the start to the finish.
Model does not fly a straight course
Model does not maintain constant altitude.
Model does not pass over the landing area.

High Speed LOW LEVEL 360 DEGREE TURN

From Straight and Level flight the model commences a 360 Degree turn in front of the Judges maintaining a constant rate of turn through out the manoeuvre at a maximum height of 6 metres.

Errors:

Model climbs above 6 metres
Rate of turn not constant
Model does not cross its previous flight path in front of Judges
Model does not maintain altitude
Model does not resume straight and level flight on the correct heading
Manoeuvre performed at reduced power settings

AGRICULTURAL SPREADING OR SPRAYING

Model shall approach spray/spreading area as if having to cross a belt of trees, descending to spreading height (max height 3m or less) and at the end of spread, model shall execute a wing over returning to spreading height for another drop.
At the completion of the second run model shall execute a steep climb as if to clear a stand of trees.

Errors:

The two drops not at the same height.
The spread overlap too much or no overlap at all.
Drop not on landing strip in front of flight judges.

ROLLING CIRCLE

The intention of this manoeuvre is to perform 360 degree horizontal roll(s) - number to be nominated by the pilot prior to performing the manoeuvre - while completing a 360 degree level horizontal turn.

Errors:

Model does not maintain constant altitude.
Model does not complete the required number of rolls
Model does not complete a full 360 degree turn
Model does not start and finish at the same entry and exit point
Roll Rate not constant through the entire manoeuvre

DERRY TURN

The Model performs two horizontal high G turns, switching from a step bank in one turn to a steep bank in the other turn by half rolling through the inverted position. Pilot to designate types of turns (ie. 90 Degree turn followed by a 270 degree turn or 180 degree turn followed by a 180 degree turn .... etc)

Errors:

Model does not roll from steep bank to steep bank
Loss of height during the manoeuvre
Model does not appear to perform high G turns
Model does not roll " under"

STRAFING RUN

Option must be defined by the contestant as:

(a) Low level; or
(b) Diving manoeuvre

For (a): The model should be set up to allow the manoeuvre to be carried out up wind or down wind. The height of the model should not exceed three metres at any point during the "attack". The "target" should be a point opposite the judges. The exit from the manoeuvre is most likely to be a tight low level or climbing turn.

Errors *for (a).*

Model is too high.
Model is not set up sufficiently far out to allow the pilot to get a "bead" on the target.
The model does not aim at the "target".
No avoiding action is taken after the "attack"

For (b): Model should descend from altitude at a steep angle(greater than 45 degrees), aimed at the "target", from up wind or down wind. Target area should be a point opposite the judges. When the attack has been completed the model should exit in a tight low level or climbing turn.

Errors *for (b).*

Rate of descent is too shallow and / or too slow.
The model does not aim at the "target".
Evasive action is not taken after the attack is completed.

DIVE BOMB ATTACK

Commencing from straight and level flight the model should push forward or roll into a dive toward the target area. The dive should be a minimum angle of 45 degrees depending on the prototype. The bomb(s) should be released while the aircraft is in the diving attitude. The exit manoeuvre should include some evasive action. (see Strafing Run) Dive brakes should be deployed if used by the prototype.

Errors

The model does not dive at an appropriate angle.
The model does not dive at the "target" area.
Dive brakes are not extended, if appropriate.
Bombs do not release.
No evasive action taken at the conclusion of the attack.

DROPPING OF BOMBS OR FUEL TANKS

If bombs are carried internally, bomb-bay doors must be open and be reclosed after the drop. If bombs or fuel tanks are carried externally, they must be fitted in the correct positions and in the correct manner. Dropping should be within clear view of the judges.

PARACHUTE.

The drop or ejection should be in the manner of the prototype. For example, cargo should be dropped from a hatch or bomb-bays. Man via doors, hatch or by inverting the aircraft. The model should reduce speed before commencing drop, possibly by using flaps and lowering the landing gear, except in the case of an ejection. If the prototype used a parachute in landing, the competitor may demonstrate this.

APPROACH (Type to be nominated by the pilot)

The direction of the circuit, right-hand or left-hand, will be determined before each round in accordance with the safety regulations. The approach is commenced with the model flying into wind above the landing area. The manoeuvre is considered finished when the model commences its round out prior to landing. If applicable, the landing gear should be lowered within the circuit, and flaps extended at the appropriate stage of the landing approach.

Errors:

Any erratic changes of altitude during the various legs of the manoeuvre.
Deviation from the nominated flight path during the various parts of the approach.
Excessive use of throttle on final approach.
Flaps not used (if applicable)

LANDING

The model rounds out smoothly, adopting the three point attitude applicable to the specific type and touches down with no bouncing and rolls to a stop. An aircraft with conventional landing gear will normally make a three point landing, whilst an aircraft with tricycle landing gear will land on the main wheels first and then gently lower the nose wheel.

Errors:

Model does not round out smoothly.
Model bounces.
Model drops a wing during landing.
Model touches wingtip on the ground.
Model does not stop after landing.
Model does not make a three-point landing, or if tricycle landing gear, does not land on main wheels first.
Model noses over.
Model runs erratically after landing.
Model stops too quickly.

Note: A crash landing will score zero points, but if the model makes a good landing and then noses over towards the end of the landing run, the landing marks which would otherwise have been awarded should be reduced by 20%.

REALISM OF FLIGHT

These items are to be discussed by all Judges after the completion of the flight, who shall then arrive at a unanimous agreed score, which will then be multiplied by the number of Judges present . The Chief Judge then will record the score on his judging card.

STYLE

Collins Dictionary defines style as " the way in which something is done" and " the manner in which something is expressed or performed"

This is to be Judged assessing the following criteria:

1) *Did the overall flight including turn arounds appear consistent with the prototype?*

2) *Did the pilot position the model so one manoeuvre flowed through to the next?*

3) *Were the turn rates, angles of bank and sizes of manoeuvres consistent with the prototype?*

SPEED

1) *Was the speed of the model throughout the flight appropriate and consistent with the speed envelope of the prototype ?*

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