BRITISH MODEL FLYING ASSOCIATION

CONTEST RULES

SECTION 6

SCALE

FREE FLIGHT

CONTROL LINE RADIO CONTROL

To be read in conjunction with the General Rules, Sections 1 and 2, which are available free of charge from the BMFA

Effective January 2012 **Supersedes January 2011 Issue**

Price £3.00

SECTION 6

SCALE RULE BOOK 2012

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All rule changes are marked with a side bar, as are these paragraphs.

Gender

Throughout this rule book the pronoun ‘he’ is used for conciseness. ‘She’ should be substituted when appropriate.

Changes

There are changes to the initial definition of Scale Models and in the description of judges duties.

The declaration forms at the end of this book have been overhauled and the new forms are referred to at various points in the text.

R/C Scale Clubman has been deleted and replaced by R/C Stand-Off Scale and Judges Guide is included.

R/C Scale Flying Only has been defined.

In the Control Line Scale flying Judges Guide, the ‘realism in flight’ section has been revised.

In the Radio Control Scale flying Judges Guide, the ‘realism in flight’ section has been revised.

6.1 GENERAL

6.1.1 Definition of Scale Models

A scale model aircraft shall be a reproduction of a heavier than air, fixed-wing, man-carrying aircraft that has flown. The aim of scale contests is to recreate accurately the appearance and realism of the full-size aircraft both on the ground and in flight. Note: To indicate the full-size subject aircraft being scale modelled, the word "prototype" may be used.

With the exception of R/C Stand-Off Scale and Flying-Only competitions, the model must have been constructed and finished solely by the competitor.

The use of proprietary items available via normal trade channels, whether included in a kit or not, can be used in the construction of scale models, although this will result in a reduction of static marks awarded by the judges. Any components not manufactured by the competitor must be listed on the Competitors Declaration.

Whilst this rule does not preclude the use of commercial pre-formed major structural parts, static marks for side, front and plan views will be deducted accordingly. The marks deducted will depend upon the extent the pre-formed parts contribute to the outline of the model.

6.1.2 System of Rules

All rules in this rule book are Contest Rules as defined in the BMFA Contest Rule Books Part 2, General Section, Section 2.3, Class Rules.

6.1.3 Competition Programme.

The competition shall be divided into two parts, static and flying. The score shall be the total of both parts. In some cases the flight score part shall also be subject to a complexity bonus as defined later.

Class 6.11 is judged on flying only.

6.1.4 Judges

(a) The organiser shall appoint at least two flight judges (three for the Team Trial) and where appropriate at least two static judges (three for the Team Trial). All judges for BMFA ‘centralised events’ require prior approval from the STC.

(b) Flight Judges should have a good general knowledge of the typical performance limitations of different categories of full size aeroplanes. Clearly judges cannot be expected to possess detailed knowledge of the performance and limitations of all aeroplanes likely to be modelled however, judges should be aware of their generic differences.

(c) Static Judges must discount any prior or special knowledge of the prototype and the model must be assessed solely on the documentation submitted by the competitor.

(d) As soon as practicable after each flight or static judging (as applicable) the judges marks should be made available to the competitor. Competitors are not permitted to question their marks with judges or officials, unless submitting a formal protest (para. 6.1.13), until after the competition has finished and the results announced.

6.1.5 Coefficient

Where a coefficient (K) is noted, marking shall be between 0 and 10 using increments of half a mark. The mark shall then be multiplied by the coefficient (K).

6.1.6 Remarks

(a) All models shall become airborne in the manner of their prototype.

(b) Models of seaplanes, of all classes, are permitted to use wheels or wheeled dollies for take-off in the absence of suitable water surface conditions. Deviation from scale, through inclusion of permanently attached wheels, skids or similar non-prototype devices in the model structures shall, in this case, not be taken into consideration in scoring of `fidelity to scale' points.

(c) No parts of a model, except propeller and spinner may be removed, nor may anything other than a dummy pilot and antenna be added externally to the model between scale judging and flying. Stores that are to be released from the model in flight must be presented for static judging but may be replaced before flying by simpler examples of the same size and colour. Any infringement will result in disqualification. Additional air entries are permitted, provided they are covered by movable hatches for static judging; these hatches may be opened manually prior to flight, or if in flight by means of radio control. Necessary repairs due to flight damage are permitted, but the maximum weight still applies. The appearance of the model in flight may not be unduly affected.

(d) A flying propeller of any form or diameter may be substituted for a scale propeller. The size, shape and colour of the spinner may not be changed.

Note: This relates only to powered propellers that were intended to propel the subject aircraft. If a model of a multi-engined aircraft uses non-powered (windmilling) propellers, these may not be changed between static and flying. Features such as, for example, the small generator propeller on the nose of an aircraft such as a Me163, may likewise not be changed for flying propellers.

(e) Metal -bladed flying propellers are forbidden.

(f) The use of electronic motion stabilising devices is forbidden.

N.B. The 2011 FAI F4C rules no longer ban the use of these devices, therefore in order not to disadvantage our international team, the FAI rules will apply to the Scale Team Trials

(g) Explosives may not be dropped.

(h) If the pilot of a prototype is visible from the front or from the side during flight, a dummy pilot of scale size and shape shall be equally visible during flight in the model.

If such a pilot is not fitted, in R/C and C/L classes the total flight score shall be reduced by 10%. In the F/F classes any reduction is left to the discretion of the judges. The dummy pilot may be present during scale judging but will not be taken into account.

(i) Where appropriate the engines of scale models must be effectively silenced. Specific noise measuring procedures are laid down in 6.2.1. and 6.3.1.

6.1.7 Number of Models, Qualification and Eligibility

Each competitor may compete with one model only in each category. Additional restrictions may apply, see qualification and/or eligibility rules where appropriate.

6.1.8 Number of Helpers

Each competitor is permitted one helper during a flight. In the case of multi-engined models, one additional helper is permitted to assist in the starting of engines. An additional helper may assist with engine starting and pre-flight preparation should the competitor require this. All but one helper must retire clear of the flying area before the flight is called.

For radio control events no helper may touch the transmitter except for assisting in starting engine(s). The timekeeper is responsible for watching that helpers do not touch the transmitter during flight. If this occurs the flight is scored zero.

6.1.9 Proof of Scale

6.1.9.1 Responsibility

Proof of scale is the responsibility of the competitor.

6.1.9.2 Name of Model

The exact name and model designation of the subject aircraft shall be indicated on the entry form and in `proof of scale' documentation. The documentation submitted by the contestant must state if the original prototype is non-aerobatic. The judges will discuss this information before the first flight commences in F4C. The judges shall make the final decision before any flight is made.

6.1.9.3 Scale of Model

The scale to which the model is built is optional, but must be stated in `proof of scale' documentation.

6.1.9.4 Documentation

To be eligible for fidelity to scale (static) points, the following is the minimum documentation must be submitted to the judges. (See 6.1.12.1. for recommended presentation of documentation)

(a) Photographic evidence:

At least three photographs or printed reproductions of the prototype, including at least one of the actual subject aircraft being modelled. Each of these photographs or printed reproductions must show the complete aircraft, preferably from different aspects. The photographic evidence is the prime means of judging scale accuracy against the prototype.

(b) Scale Drawings:

Accurate scale drawing(s) of the full-size aircraft that show at least the 3 main aspects of Side View, Upper Plan View and Front End View. These drawings must be to a common scale giving a minimum wing span of 250 mm (150 mm minimum for Indoor and Free Flight classes), and a maximum wing span of 500 mm. If the fuselage is longer than the wingspan, these measurements will be made on the fuselage. Unpublished drawings by the competitor or other draftsman are not acceptable unless certified accurate in advance of the contest by an authoritative source such as the BMFA Scale Technical Committee, the builder of the original aircraft, or other competent authority.

(c) Proof of Colour:

Correct colour may be established from colour photographs, from published descriptions, from samples of original paint, or from published colour drawings. For the F4 classes written descriptions must be accompanied by colour chips certified by a competent authority.

(d) Aircraft speed:

The cruising speed of the subject aircraft must also be included in the documentation and repeated on all flight score sheets before each official flight starts. In the case of early aircraft, where only maximum speeds are likely to be listed, the maximum speed alone may be quoted in the documentation. The competitor must be prepared to substantiate this information if required.

(e) Competitor's declaration:

The Competitor must include in his documentation a signed declaration that his model conforms to the requirements and rules appropriate to the class of model. For C/L and R/C classes this declaration must take the form shown at ANNEX 6J. Copies are available from the scale Competition Secretary or the form can be downloaded from the Scale Technical Committee website at www.scalebmfa.co.uk .

(f) Indoor Models

For indoor classes 6.6 and 6.10, the competitor shall provide a declaration clearly stating the wing area, weight and wing loading of his model.

6.1.10 Judging for Fidelity to Scale and Craftsmanship

1. Scale Accuracy - side view ..... K = 13
2. Scale Accuracy - end view ..... K = 13
3. Scale Accuracy - plan view ..... K = 13
4. Markings
   - Accuracy ..... K = 8
   - Complexity ..... K = 3
5. Colour
   - Accuracy ..... K = 3
   - Complexity ..... K = 2
6. Surface Texture and Scale Realism
   - Surface Texture ..... K=7
   - Scale Realism ..... K=7
7. Craftsmanship
   - Quality ..... K = 12
   - Complexity ..... K = 5
8. Scale Detail
   - Accuracy ..... K = 9
   - Complexity ..... K = 5

Total K = 100

For control line events, items 1 to 5 are judged at a minimum distance of three metres from the centre of the model.

For radio control events, items 1 to 5 are to be judged at a minimum distance of five metres from the centre of the model.

For F/F contests involving smaller models, shorter distances are specified under each section where applicable.

6.1.11 Scoring

Each section in 6.1.10 shall be awarded a mark out of 10 by each judge. These marks shall then be multiplied by the appropriate K factor and aggregated. The static score can only be used in the final classification when the model completes an official flight.

6.1.12 Judges Guide for Static Judging

See Appendix 6a - Judges Guide for Static Judging.

6.1.13 Protests and Appeals

(a) Any competitor wishing to register a protest must do so at the event to the Contest Director.

(b) If not satisfied with the CD's decision the competitor must, at the event, hand him the protest in writing, together with a fee of double the standard entry fee. The CD will then immediately empanel a jury of three persons to deal with the protest.

(c) The jury's decision is final, subject to the right of the competitor to appeal to the BMFA Council.

(d) Notification that an appeal is pending must be sent by the competitor to the BMFA Competition Secretary to arrive not later than two weeks from the date of the event.

(e) The appeal itself, together with any supporting evidence, must be sent to the BMFA Competition Secretary to arrive not later than two months from the date of the event.

(f) If the written protest or the appeal is upheld, the protest fee will be returned.

6.1.14 Interruption of the Contest

The contest may be interrupted or the start delayed by the Contest Director if:

(a) The wind is continuously stronger than 9 m/s (20 mph) measured at two metres above the ground at the flight line for at least one minute (20 seconds for Free Flight), unless specified otherwise in category rules.

(b) The visibility prohibits proper observation of the models or due to atmospheric conditions it would be dangerous to continue the competition.

(c) It is necessary to reposition the Judges line.

(d) The prevailing conditions are such that they may lead to unacceptable sporting results.

In the event of an interruption during a round, the remainder of the round may be completed as soon as conditions allow.

6.2 SCALE CONTROL LINE

6.2.1 General Characteristics

Maximum weight

The weight of the complete model in flying condition without fuel, shall not exceed.....6 kg

except that a model of a multi-engined prototype shall not exceed .....7 kg

Motive power

(a) Rocket or pulse jet may not be used. The maximum thrust for a turbine motor shall be 10 kg.

(b) Electric Motors Max. voltage of power source 72 volts

The maximum noise level will be 96 dB(A) measured at 3 metres from the centre line of the model with the model placed on the ground over concrete or macadam at the flying site. With the engine(s) running at full power, measurement will be taken at 90 degrees to the flight path on the side chosen by the competitor and downwind from the model. The microphone will be placed on a stand 30 cm above the ground in line with the engine(s). No noise reflecting objects will be nearer than 3 metres to the model or the microphone. The noise measurement will be made prior to each flight. If a concrete or macadam surface is not available, the measurement may be taken over bare earth or very short grass, in which case the maximum level will be 94 dB(A). In the case of multi engined models, the noise measurement will be taken from the closest engine to the noise meter and the maximum noise level will be the same as for single engined models. If the model features variable pitch propeller(s), the noise test will run through the total variation of pitch.

Turbine powered models are exempt from the above noise checks.

6.2.2 Control Mechanism

(a) All Control Line Flying Scale Model Aircraft must be permanently attached to two or more non-extensible wires or cables during flight.

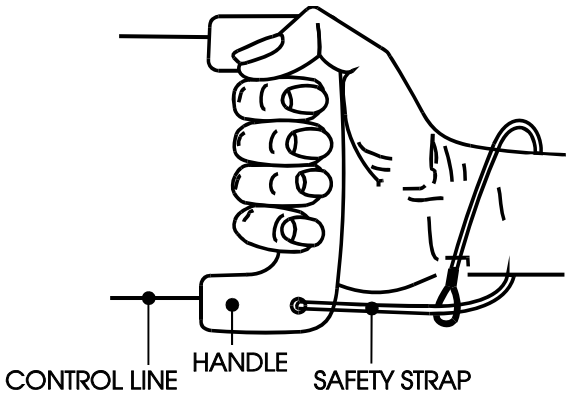
(b) Primary Control Function: The model aircraft's flight path may only be controlled by manually activated and mechanically linked flight control elements. This must be by a hand-held control handle manipulated by the pilot located on the ground at the centre of the model aircraft's flight circle. No automatic control of the Primary Control Function shall be permitted.

(c) Secondary Control Functions: These may include (but are not limited to) control of engine/s, landing gear, landing flaps. Secondary Control Functions may be controlled by the pilot via wires/cables, or may function completely automatically. The frequency of any electro-magnetic pulses sent through wires/cables shall not exceed 30 kHz.

(d) No control of either Primary or Secondary Control Functions other than through wires/cables shall be permitted.

(e) Before each flight the entire mechanism including control line and their attachments to the model aircraft and the control handle, shall be subject to a pull test equal to 5 times the weight of the model aircraft, as recorded at Processing, with a maximum of 25 kg. Control line length (central point of handgrip to vertical centre line of model aircraft) shall be not less than 15 metres or more than 21.5 metres.

(f) The safety strap connecting the competitor's wrist to the control handle must be attached for the whole flight. The circle marshal shall ensure that this requirement is met and any attempt to take off in breach of this will result in disqualification of that flight.



HAND AND SAFETY STRAP FIGURE

6.2.3. Official Flight

(a) Each competitor may be called to fly up to three times, and must execute an official flight within the required time limit (see 6.2.4) on each occasion to be eligible for flight points for that flight.

(b) If a competitor is unable to start or complete a flight and, in the opinion of the Contest Director, the cause is outside the control of the competitor, the Contest Director may, at his discretion, award the competitor a reflight. The Contest Director shall decide when the reflight shall take place.

(c) An official flight commences at the earliest of the following:

(1) The competitor signals to the timekeeper that he is commencing to start his motor(s).

(2) Two minutes after the competitor is instructed to start his flight (see 6.2.4.).

(d) An official flight is terminated when the model lands and stops, except during the option 6.2.8.(j) Touch and Go and 6.2.7.(o) (Taxi Demonstration).

6.2.4. Flying Time

Competitors must be called at least 7 minutes before they are required to occupy starting area. Each competitor shall have 9 minutes to complete each flight programme. Time shall start when competitor begins to crank motor or two minutes after entering the starting area, whichever is first. Model must become airborne within the first five minutes (plus one minute for each additional motor, in excess of one). No points may be scored after the expiration of the time limit (9 minutes plus one minute for each added motor).

6.2.5 Starting Time

(a) If the model is not airborne within the 5 minutes, plus one minute for each additional motor, the competitor must immediately make room for the next competitor. If the motor(s) stops after the take-off has begun, but before the model is airborne it may be restarted within the 5 minutes starting period.

b) There is only one attempt allowed to repeat the take off. In the case of a repeated attempt, no points will be assigned for the take-off.

Note: In this case, rule 6.2.5.(a) still applies.

6.2.6. Flight

The manoeuvres must be executed in the order listed below. Between the end of one manoeuvre and the start of the subsequent one, the competitor must fly the model a minimum of two laps.

(1) Take-off ..... K = 14

(2) 5 laps of straight level flight ..... K = 8

(3) Optional demonstration ..... K = 12

(4) Optional demonstration ..... K = 12

(5) Optional demonstration ..... K = 12

(6) Optional demonstration ..... K = 12

(7) Landing ..... K = 14

(8) Realism in flight

- (a) Model Sound ..... K = 4
- (b) Speed of the Model ..... K = 6
- (c) Smoothness of flight ..... K = 6

Total K = 100

Note: The scale of the model and the cruising speed or maximum speed of the prototype must be stated on the flight scoring form.

6.2.7 Optional Demonstrations

The competitor must be prepared, if required by the judges, to give evidence that the options selected are typical and within the normal capabilities of the aircraft subject type modelled.

The selected options must be given to the judges in writing before take-off. The options may be flown in any order but the order must be marked on the score sheet and any manoeuvre flown out of order will be marked ZERO.

Any demonstration of cargo doors or bomb doors must be done in conjunction with a cargo or bomb drop, if no cargo or ordnance is dropped, the manoeuvre will score ZERO

Not more than one drop option may be nominated.

Any model that flies with wheels down whereas the prototype actually features retractable landing gear shall have the total flight score reduced by 25%.

Only one attempt is permitted for each manoeuvre, the only exception is the take-off as described in 6.2.5.b.

All options carry a K factor of 12.

FOUR optional demonstrations must be selected from the following list:

A Multi-engine option – in order to qualify for full multi-engine points, all engines must run for the complete flight. Should any engine cut prematurely, them the marks will be reduced accordingly.

Note - The K Factor of 12 applies to any multi-engine subject. No points are awarded for each individual engine.

B Retract and extend landing gear.

C Retract and extend flaps.

D Drop bombs or fuel tanks.

E High flight over 30° line angle.

F One inside loop.

G Three inverted laps.

H Wingover.

I Figure eight.

J Touch and go.

K Lazy Eight

L Parachute drop.

M 1st Flight function by subject aircraft.

Competitors may demonstrate one different flight functions of their own choice, but must be prepared to supply evidence that the function was performed by the prototype modelled. Competitors must indicate to the Flight Judges the nature of the demonstration before going to the flight line).

O Taxi demonstration

P Overshoot

6.2.8 Marking (Flight Points)

Each manoeuvre may be awarded marks between 0 and 10 using increments of half a mark by each judge during the flight. These marks are multiplied by the K factor.

6.2.9 Flight Score

The flight score shall be the aggregate sum of points awarded in 6.2.7 by the judges.

6.2.10 Scoring

Add the points earned in 6.1.11 to the score of the best flight under 6.2.10 if only two rounds are flown, or the average of the best two flights under 6.2.10 if more than two rounds are flown.

6.2.11 Flying Only Events

Selected events may be designated Flying Only contests. No static judging will take place, the competition result being settled entirely on the flying of the model. Models used must be clearly recognisable as bona fide models of full size prototypes. The Contest Director may disallow any entries that he considers not to fit this specification.

The requirement for the entrant to have constructed his own model (6.1.1) is waived for such Flying Only contests."

6.2.12 Judges Guide

See Annex 6b - Judges Guide to Scale C/L Flying Schedule.

6.3 SCALE RADIO CONTROLLED MODELS (FAI Class F4C)

6.3.1 General Characteristics

Maximum weight of complete model in flying condition without fuel
but including any dummy pilot: .....15 kg

Models using electric motors as a power shall be weighed without the batteries used for those models

Motive power:

(a) Rocket or pulse jet may not be used.

(b) Electric motors - Maximum voltage of power source to be 72 volts

The maximum noise level will be 96 dB(A) measured at 3 metres from the centre line of the model with the model placed on the ground over concrete or macadam at the flying site. With the engine(s) running at full power, measurement will be taken at 90 degrees to the flight path on the side chosen by the competitor and downwind from the model. The microphone will be placed on a stand 30 cm above the ground in line with the engine(s). No noise reflecting objects will be nearer than 3 metres to the model or the microphone. The noise measurement will be made prior to each flight. If a concrete or macadam surface is not available, the measurement may be taken over bare earth or very short grass, in which case the maximum level will be 94 dB(A). In the case of multi engined models, the noise measurement will be taken from the closest engine to the noise meter and the maximum noise level will be the same as for single engined models. If the model features variable pitch propeller(s), the noise test will run through the total variation of pitch.

Turbine powered models are exempt from the above noise checks.

The use of attitude or motion stabilising devices (e.g. gyros) is forbidden.

6.3.2 Official Flights

(a) Each competitor may be called to fly up to three times and must execute an official flight within the required time limit (see 6.3.4) on each occasion to be eligible for flight points for that flight.

(b) If a competitor is unable to start or complete a flight and, in the opinion of the contest director, the cause is outside the control of the competitor, the C.D. may, at his discretion, award the contestant a re-flight. The C.D. shall decide when the re-flight shall take place.

(c) An official flight commences at the earliest of the following:

(i) The competitor signals to the timekeeper that he is commencing to start his engine(s).

(ii) Two minutes after the competitor is instructed to start his flight (see 6.3.4.(b))

(iii) An official flight is terminated when the model lands and stops, except during manoeuvre 6.3.7.(m), (Touch and Go).

6.3.3 Flying Time

(a) A contestant will be advised that he will be required to start his flight not less than five minutes before the instruction to start.

(b) The contestant will then be instructed to start his flight.

(c) Timing of the flight will commence when the official flight commences (see 6.3.3.(c)).

(d) The contestant will be allowed 17 minutes to complete his flight.

(e) In the case of a piston engine powered model of a multi-engined prototype the time allowed in (d) above will be increased by one minute for each additional engine.

(f) No points will be awarded for any manoeuvre which is not completed at the end of the time allowed.

6.3.4 Starting Time

(a) If the model is not airborne within 7 minutes (plus one additional minute for each extra engine) after the official flight and timing commence, the flight will end and no points will be awarded for the flight.

(b) If the motor(s) stops after the take-off has commenced, but before the model is airborne, the motor(s) may be restarted. There is only one attempt allowed to repeat the whole procedure. In case of a repeated attempt no points will be assigned for this interrupted manoeuvre.

Note - in this case, rule 6.3.5.(a) still applies.

6.3.5 Flight

(1) Take-off ..... K = 11

(2) Option ..... K = 7

(3) Option ..... K = 7

(4) Option ..... K = 7

(5) Option ..... K = 7

(6) Option ..... K = 7

(7) Option ..... K = 7

(8) Option ..... K = 7

(9) Option ..... K = 7

(10) Approach and Landing ..... K = 11

(11) Realism of flight

(a) Model Sound ..... K = 4

(b) Speed of the model ..... K = 9

(c) Smoothness of flight ..... K = 9

Total K = 100

Notes

The scale of the model and the cruising or maximum speed of the prototype must be stated on the score sheet.

Only one attempt is permitted for each manoeuvre, the only exception is the procedure of getting a model airborne, as defined in 6.3.5.b).

6.3.6 Optional Demonstrations

The manoeuvres “Figure Eight” and “Descending 360 degree Circle” are mandatory manoeuvres to be included in each flight, to be positioned within the flight schedule at the competitor’s discretion.

Competitors must be prepared, if required by the judges, to give evidence that the options selected are typical and within the normal capabilities of the aircraft subject type modelled.

The selected options must be given to judges in writing before taking off. The options may be flown in any order but the order must be marked on the score sheet and any manoeuvre flown out of order will be marked zero.

Only one manoeuvre involving the demonstration of a mechanical function may be included in a competitor’s choice of options. These include options D (Bombs/Fuel Tank Drop), L (Parachute Drop) and, if applicable, P and Q. (Flight functions by subject aircraft).

A competitor may not select option C (Retract and extend flaps) if option B (Retract and extend landing gear) has been selected.

Options A (Chandelle), N (Overshoot), R (Flight in triangular circuit), S (Flight in rectangular circuit), T (Flight in a straight line at constant height), W (Wing Over) and Z (Procedure Turn) may only be chosen by subjects certified and approved as ‘non-aerobatic’ on the Competitor’s Declaration Form. Should a competitor choose to fly a non-aerobatic manoeuvre with an aerobatic subject, zero marks are to be awarded for that particular manoeuvre. These are aircraft designed with limited manoeuvrability where the original prototypes of which were restricted by the manufacturer or licensing government agency.

Examples are:

Pioneer and early aircraft (pre 1915)

Purpose designed reconnaissance and bomber aircraft (note: this does not include fighter aircraft later adapted for reconnaissance duties or fighter/bombers where the designer intended an aerobatic capability)

Touring aircraft

Passenger and cargo aircraft

Military transports

(See also Judges’ Guide references 6.3.13.7 Realism in Flight.

Note that all options carry a K factor of 7.

A Chandelle - (non-aerobatic).

B Retract and extend landing gear

C Retract and extend flaps

D Dropping of bombs or fuel tanks

E Stall turn

F Immelman turn

G One inside loop.

H Spilt S

I Cuban eight.

J Normal spin

K Roll.

L Parachute

M Touch and go

N Overshoot or Go-Around - (non-aerobatic)

O Side slip to left or right.

P Option - The competitor may demonstrate a flight function of his own choice. He must supply evidence that this function was performed by the subject aircraft. He must indicate to the flight judges the nature of his demonstration before going to the flight line

Q Option - As P above but different flight function

R Flight in triangular circuit - (non-aerobatic)

S Flight in rectangular circuit - (non-aerobatic).

T Flight in a straight line at consistent height - (non-aerobatic).

U Flight in a straight line with one engine throttled - (for multi-engines).

V Wingover – (Non-aerobatic).

W Inverted Flight

X Lazy Eight

Y Derry Turn

Z Procedure Turn – (non aerobatic)

6.3.7 Marking (Flight Points)

Each manoeuvre may be awarded between 0 and 10 inclusive using increments of half a mark by each of the judges during the flight. These marks are then multiplied by the appropriate K factor. The manoeuvres must be performed in a plane and at a height which will allow them to be seen clearly by the judges. The non-observance of this rule will be penalised by loss of points

6.3.8 Flight Score

The flight score shall be the aggregate sum of the points awarded by all the judges in 6.3.7.

6.3.9 Organisation of Radio Control Flying Scale Events

All transmitters, except 2.4 GHz transmitters, likely to be used during the contest must be checked and placed in a compound under observation. During the contest, a steward must be in control of the transmitter compound and will issue the transmitter to the competitor only when his name is called for him to stand by to make his flight. As soon as the attempt has ended, the competitor must immediately return his transmitter to the steward at the transmitter compound.

All unauthorised transmission during the contest will result in automatic disqualification of the offender from the entire contest, and render him liable to further penalties.

The order of starting of the competitors will be established by means of a draw before the start of the contest.

6.3.10 Safety

(a) All manoeuvres must be performed parallel with the judges' line such that if any part of the manoeuvre is performed behind the judges' line it will score ZERO.

(b) Exceptions from this rule are manoeuvres 6.3.1. Take-off, 6.3.6.10 Landing, and 6.3.7.m. Touch and Go. These manoeuvres have the right to be performed into wind as long as they do not overfly a designated area behind the judges' line laid out for the protection of spectators, officials and other competitors or helpers.

(c) If a model is in the opinion of the Judges or Contest / Flightline Director unsafe, or being flown in an unsafe manner, they may instruct the pilot to land.

6.3.11 Scoring

Add points earned in 6.1.11 and the score of the best flight under 6.3.9.1 if only two rounds are flown, or the average of the best two flights under 6.3.9.1 if more than two rounds are flown.

6.3.12 Judges Guide

See Annex 6c - Judges Guide to Scale R/C Flying Schedule.

6.12 RADIO CONTROL STAND-OFF SCALE

6.12.1 Contest Rules

The General Characteristics of the model and the Flying Schedule shall be the same as F4C. (6.3 refers) The Static Judging requirements are as shown below.

6.12.2 Scoring

One third of the marks are available for Static, two thirds for Flight.

Normally two rounds will be flown and the final score will be the sum of the two flight scores and the static score. If one round is flown the flight score will be doubled, if three rounds are flown the best two flight scores will be used.

6.12.3 Eligibility

In addition to rule 6.1.7, no model which has previously been placed in the top three in a BMFA R/C Scale (F4C) competition, including repaints and rebuilds, will be permitted in Stand-Off Scale.

The minimum requirement is that the surface finish (colour and markings) on the model must have been applied by the competitor. The requirement for the competitor to have constructed his own model (rule 6.1.9.4.e) is not applicable to Stand-Off Scale.

6.12.4 Declaration

The competitor must complete and sign the Declaration Form at ANNEX 6j certifying that he has applied the surface finish (colour and markings) to the model. The declaration also includes a questionnaire which is used by the Static Judges to assess how much the competitor contributed to the Scale Accuracy. If an incorrect declaration is subsequently revealed, the competitor may be disqualified from the contest. The competitor may also use photographs or sample material in support of the declaration.

6.12.5 Static Judging

A minimum of two Static Judges shall be appointed. The final static score shall be the average of the individual judges marks.

All static judging is carried out at a distance of 5 metres. This is measured from the centre line of the model to the judges seating position.

The format for the static Score sheet is at ANNEX 6J

Each of the following will be awarded a mark out of 10 by each Judge and the K-factors are listed below: -

6.12.5.1 Scale Accuracy.

This an assessment of the outline accuracy of the model compared with the prototype as seen from three aspects (side, front and top plan), judged by comparison with the documentation presented.

6.12.5.2 Originality of Model Design & Construction

This is an assessment of the extent to which the scale accuracy of the model is due to the effort of the competitor. Maximum marks will be awarded to a model which is designed and constructed in its entirety by the competitor. A model which is built from a kit will score less, dependent upon the extent of prefabrication and an ARTF model will score zero (unless evidence is presented of extensive modification by the competitor).

6.12.5.3 Colour and Markings Accuracy

This is an assessment of the accuracy of the colour and markings of the model by comparison with the documentation presented.

6.12.5.4 Colour and Markings complexity

This is a subjective assessment of the difficulty in reproducing and applying the finish and markings to the model.

6.12.5.5 Realism

This is a subjective assessment of how well the model captures the character of the prototype as illustrated by the documentation; taking into account the surface finish, weathering and any detail that is noticeable at 5m.

6.12.5.6 Prototype Design Complexity

This is a subjective assessment of the difficulty in reproducing the shape, and intricacy of the prototype.

6.12.5.7 K - Factors

Scale Accuracy –

Side View ..... K = 15

Front View ..... K = 15

Upper Plan View ..... K = 15

Originality of model Design & Construction ..... K = 15

Colour and Markings Accuracy ..... K = 10

Colour and Markings Complexity..... K = 5

Realism ..... K = 20

Prototype Design Complexity ..... K = 5

6.12.6 Documentation

The documentation requirement has been reduced to the minimum considered necessary to fully assess the outline from 3 aspects, the colour, the markings, the realism and the prototype design complexity. As with all scale aeroplanes static judging, good photographs are the prime means of judging scale accuracy. Photographs and reproductions should be of a reasonable size, (approximate A5 minimum) and presented on separate sheets or as a montage no larger than A2. A book with page markers is not acceptable.

There are no prescribed penalties for missing or inadequate documentation, but judges can only award marks on the basis of the documentation available. Poor documentation will be reflected in reduced scores and any aspect of static judging for which there is no documentation will result in a Zero score for that aspect.

6.12.6.1 Photographic evidence:

At least three photographs or printed reproductions of the prototype, one or more of which must show the actual subject aircraft being modelled. Ideally these must show the entire aeroplane and show the three aspects; side view; front view and top plan view (the underneath plan view will not be judged). There is no requirement for close up or detail photographs, but additional photographs can be used to support the three aspects if the outline needs clarification.

6.12.6.2 Drawings:

Drawings are only required and indeed will only be used by the judge if the photographic evidence for any of the outline views is inadequate. If used, drawings must conform to the requirements of rule 6.1.9.4(b). (Cautionary note - if the competitor is in any doubt on this subject, then drawings should be supplied)

6.12.6.3 Proof of colour and markings:

This may be in the form of original paint samples, colour photographs (which may be the same photos supplied for outline), or colour illustrations published in books, magazines or on kit boxes. Published descriptions are also acceptable when accompanied by examples of similar colours used on other aircraft types. Authenticated colour chips will not be a requirement for proof of colour.

6.12.7 Judges Guide

See Annex 6a.1 – Judges Guide to Stand-Off Scale Static Judging

6.13 RADIO CONTROL SCALE FLYING ONLY

6.13.1 Contest Rules

Selected events may be designated Flying Only contests. Flying will be to Radio Control Scale Rules (FAI class F4C). No static judging will take place and the competition result will be decided entirely on the flying of the model. Models used must be clearly recognisable as bona fide models of full size prototypes. The Contest Director may disallow any entries that he considers do not fit this specification.

The requirement for the entrant to have constructed his own model (6.1.1) is waived for Flying Only contests.

6.4 SCALE OUTDOOR FREE FLIGHT (I/C Piston Engine Powered)

6.4.1 General Characteristics

Maximum surface area ..... 150 dm^2

Maximum weight of complete model without fuel .....2 kg

Maximum loading ..... 50 g / dm^2

Motive Power.....I/C Piston engine(s), individual 2.5cm3 max or total 5cm3 max"

6.4.2 Definition of an Official Flight

An official flight shall be recorded when the model has been airborne for 30 seconds, except when the wind velocity exceeds 4 m/s, when the qualifying time shall be reduced to 20 seconds.

6.4.3 Number of Flights

Each competitor shall have the opportunity to make a minimum of four flights.

6.4.4 Flying Time

Competitors must be called at least five minutes before they are required to occupy the starting area. Each competitor shall have a flying time of five minutes (plus one minute for each additional engine of multi-engined models) to complete each flight programme, the flying time commencing when the competitor begins to start the engine(s) or two minutes after entering the starting area, whichever is first. No points may be scored after the end of the flying time.

6.4.5 Flight

(a) Take-off (optional, see 6.1.6.(a)) ..... K = 20

(b) Initial Climb ..... K = 15

(c) Realism in flight ..... K = 35

(d) Transition to descent ..... K = 10

(e) Descent and landing approach ..... K = 20

Total K = 100

6.4.6 Complexity Bonus

The flight score shall be subject to a complexity bonus as listed in the following schedule. All bonuses are additive. The best flight score shall be factored by the appropriate total bonus, to become the scoring flight.

Engines (on different thrust lines) Bonus

Single 0

Two or more engines 10%

N.B. - To qualify for the multi engine bonus each propeller must be driven by a separate engine unless this was not the case with the prototype modelled. The engines must deliver similar levels of power.

Undercarriage

Fixed (any configuration) 0

Retractable (remains up for landing) 5%

Retractable (lowers again for landing) 10%

6.4.7 Marking (Flight Points)

Each part of the flight, as defined in 6.4.5, will be awarded marks between 0 and 10 by each judge during the flight. These marks are then each multiplied by the appropriate K factor and aggregated before the bonuses are applied as described in 6.4.6.

6.4.8 Flight Score

The flight score shall be the aggregate sum of points awarded by the judges as described in 6.4.7.

6.4.9 Total Score

Add the points earned in 6.1.11 to the best flight score as defined in 6.4.8.

Note - Static judging is to take place at a minimum distance of 2 metres for items 1 to 5 in 6.1.11, and 0.5 metre for items 6 to 8 in 6.1.11.

6.4.10 Judges Guide

See Annex 6d - Judges Guide to Scale F/F Flying Schedule.

6.5 SCALE OUTDOOR FREE FLIGHT (Rubber Powered)

6.5.1 General Characteristics

Maximum surface area ..... 150 dm^2

Maximum weight of complete model ..... 2 kg

Maximum loading ..... 50 g / dm^2

Minimum wing span ..... 60 cm

6.5.2 Definition of an Official Flight

An official flight shall be recorded when the model has been airborne for 20 seconds.

6.5.3 Number of Flights

Each competitor shall have the opportunity to make a minimum of four flights.

6.5.4 Flying Time

Competitors must be called at least five minutes before they are required to occupy the starting area. Each competitor shall have five minutes to complete each flight programme. This time shall commence two minutes after entering the starting area. The competitor may wind, or commence to wind, the motor(s) at any time beforehand. No points may be scored after the end of the time limit.

6.5.5 Flight

(a) Initial Climb ..... K = 20

(b) Realism in flight ..... K = 40

(c) Transition to descent ..... K = 15

(d) Descent and landing approach ..... K = 25

Total K = 100

6.5.6 Complexity Bonus

The flight score shall be subject to a complexity bonus as listed in the following schedule. All bonuses are additive. The best flight score shall be factored by the appropriate total bonus, to become the scoring flight.

Engines (on different thrust lines) Bonus

Single 0

Two or more engines 10%

N.B. - To qualify for the multi engine bonus each propeller must be driven by a separate engine unless this was not the case with the prototype modelled. The engines must deliver similar levels of power.

Undercarriage

Fixed (any configuration) 0

Retractable (remains up for landing) 5%

Retractable (lowers again for landing) 10%

6.5.7 Marking (Flight Points)

Each part of the flight, as defined in 6.5.6, will be awarded marks between 0 and 10 by each judge during the flight. These marks are then each multiplied by the appropriate K factor and aggregated before the bonuses are applied as described in 6.5.7.

6.5.8 Flight Score

The flight score shall be the aggregate sum of points awarded by the judges as described in 6.5.8 and 6.5.7.

6.5.9 Total Score

Add the points earned in 6.1.11 to the best flight score as defined in 6.5.9.

Note - Static judging is to take place at a minimum distance of 1.5 metres for items 1 to 5 in 6.1.11, and 0.5 metre for items 6 to 8 in 6.1.11.

6.5.10 Judges Guide

See Annex 6d - Judges Guide to Scale F/F Flying Schedule.

6.7 SCALE OUTDOOR FREE FLIGHT (CO_2 or Electric Powered)

6.7.1 General Characteristics

Maximum surface area ..... 150 dm^2

Maximum weight (no fuel but including cells or tanks) ..... 2 kg

Maximum wing loading ..... 50 g / dm^2

Motive Power:

(a) CO_2 motors

(b) Electric motors (battery to be carried in the model)

Models above 200gms fitted with electric motor(s) driving external propeller(s) must have a safety device(s) which cuts the power when the propeller(s) meet an obstruction, or the model decelerates sharply. The device must also prevent the motor(s) being restarted if the model is picked up by a third party. The competitor may be required to demonstrate the effectiveness of the safety device by the competition director.

6.7.2 Definition of an Official Flight

An official flight shall be recorded when the model has been airborne for 20 seconds.

6.7.3 Number of Flights

Each competitor shall have the opportunity to make a minimum of four flights.

6.7.4 Flying Time

Competitor must be called at least five minutes before they are required to occupy the starting area. Each competitor shall have a flying time of 5 minutes to complete each flight programme, the flying time commencing two minutes after entering the starting area. No points may be scored after the expiration of the flying time.

6.7.5 Flight

(a) Take-off (optional, see 6.1.6.(a)) ..... K = 20

(b) Initial Climb ..... K = 15

(c) Realism in flight ..... K = 35

(d) Transition to descent ..... K = 10

(e) Landing approach ..... K = 20

Total K = 100

6.7.6 Complexity Bonus

The flight score shall be subject to a complexity bonus as listed in the following schedule. All bonuses are additive. The best flight score shall be factored by the appropriate total bonus, to become the scoring flight.

Engines (on different thrust lines)	Bonus
Single	0
Two or more engines	10%

N.B. - To qualify for the multi engine bonus each propeller must be driven by a separate engine unless this was not the case with the prototype modelled. The engines must deliver similar levels of power.

Undercarriage

Fixed (any configuration)..... 0

Retractable (remains up for landing)..... 5%

Retractable (lowers again for landing) 10%

6.7.7 Marking (Flight Points)

Each part of the flight, as defined in 6.7.5, will be awarded marks between 0 and 10 by each judge during the flight. These marks are then each multiplied by the appropriate K factor and aggregated before the bonuses are applied as described in 6.7.6.

6.7.8 Flight Score

The flight score shall be the aggregate sum of points awarded by the judges as described in 6.7.7 and 6.7.6.

6.7.9 Total Score

Add the points earned in 6.1.11 to the best flight score as defined in 6.7.8. Note - Static judging is to take place at a minimum distance of 1.5 metres for items 1 to 5 in 6.1.11, and 0.5 metre for items 6 to 8 in 6.1.11.

6.7.10 Judges Guide

See Annex 6d - Judges Guide to Scale F/F Flying Schedule.

6.11 SCALE RUBBER DURATION FLYING

6.11.1 General Characteristics

Minimum wingspan ..... 14".

6.11.2 Documentation

The documentation must, as a minimum, show the general shape of the aircraft and also the typical markings.

6.11.3 Flights

Flights are to be scored on duration only, up to a maximum of 50 seconds. Competitors will have the opportunity to make four flights, no attempts, and the highest two scores will be aggregated. All flights will be hand launched and the times will be rounded down to the nearest second. Two flights of 10 seconds duration minimum must be achieved to qualify for static judging.

6.11.4 Flight Bonuses

Flight bonuses shall be awarded for complexity as follows:-

(a) Two motors ..... 10 seconds

(b) Four motors ..... 15 seconds

(c) Three motors ..... 5 seconds

(d) Biplane ..... 7 seconds

(e) Triplane or more ..... 10 seconds

(f) Floatplanes ..... 7 seconds

6.11.5 Static Judging

For static scoring, all models will be assembled together and placed in order of merit by two experienced judges, with realism as the criterion. Points will then be awarded up to 100 to reflect the relative quality of the models.

6.11.6 Scoring

To determine the winner, the flight score in seconds (maximum 100 plus 2 x bonus) is added to the static score (maximum 100). The highest total score wins.

6.6 SCALE INDOOR FREE FLIGHT (Rubber Powered)

6.6.1 General Characteristics

Maximum weight.....150 g (including motor)

Maximum wing loading..... 15 g / dm^2

Motive Power.....extensible motors (rubber) only

6.6.2 Definition of an Official Flight

An official flight shall be recorded when the model has been airborne for 15 seconds.

6.6.3 Number of Flights

Each competitor shall have the opportunity to make a minimum of four flights.

6.6.4 Flying Time

A minimum period of 15 minutes shall be allocated for trimming before the competition begins and the competitor must be called five minutes before he/she is required to occupy the starting area. Failure to comply will result in the loss of the flight. The model will be released, after notifying the flight judges, within a period of 3 minutes, plus one minute for each additional motor. Only one release is permitted during the allocated time.

6.6.5 Flight

(a) Take-off (optional, see 6.1.6.(a)).....K = 15

(b) Initial Climb.....K = 12

(c) Descent and landing approach .....K = 19

(d) Quality of landing .....K = 17

(e) Realism in flight.....K = 37

Total K = 100

6.6.6 Complexity Bonus

The flight score shall be subject to a complexity bonus as listed in the following schedule. All bonuses are additive. The best flight score shall be factored by the appropriate total bonus, to become the scoring flight.

Engines (on different thrust lines) Bonus

Single 0

Two or more engines 10%

Note - To qualify for the multi-engine bonus each propeller must be driven by a separate engine unless this was not the case with the prototype modelled. The engines must deliver similar levels of power.

Undercarriage

Fixed (any configuration)..... 0

Retractable (remains up for landing)..... 10%

Retractable (lowers again for landing) 20%

6.6.7 Marking (Flight Points)

Each part of the flight, as defined in 6.6.5, will be awarded marks between 0 and 10 by each judge during the flight. These marks are then each multiplied by the appropriate K factor and aggregated before the bonuses are applied as described in 6.6.6.

6.6.8 Flight Score

The flight score shall be the aggregate sum of points awarded by the judges as described in 6.6.6 and 6.6.7.

6.6.9 Total Score

Add the points earned in 6.1.11 to the best flight score as defined in 6.6.8.

Note - Static judging is to take place at a minimum distance of 1.5 metres for items 1 to 5 in 6.1.10, and 0.5 metre for items 6 to 8 in 6.1.10.

6.6.10 Judges Guide

See Annex 6d - Judges Guide to Scale F/F Flying Schedule.

6.10 SCALE INDOOR FREE FLIGHT (CO2 or Electric Powered)

6.10.1 General Characteristics

Maximum weight (no fuel but including cells or tanks) ..... 150 g

Maximum wing loading ..... 15 g / dm^2

Motive Power:

(a) CO_2 motors

(b) Electric motors (battery to be carried in model)

6.10.2 Definition of an Official Flight

An official flight shall be recorded when the model has been airborne for 15 seconds.

6.10.3 Number of Flights

Each competitor shall have the opportunity to make a minimum of four flights.

6.10.4 Flying Time

A minimum period of 15 minutes shall be allocated for trimming before the competition begins and the competitor must be called five minutes before he/she is required to occupy the starting area. Failure to comply will result in the loss of the flight. The model will be released, after notifying the flight judges, within a period of 3 minutes, plus one minute for each additional motor. Only one release is permitted during the allocated time.

6.10.5 Flight

(a) Take-off (optional, see 6.1.6.(a)) ..... K = 15

(b) Initial Climb ..... K = 12

(c) Descent and landing approach ..... K = 19

(d) Quality of landing ..... K = 17

(e) Realism in flight ..... K = 37

Total K = 100

6.10.6 Complexity Bonus

The flight score shall be subject to a complexity bonus as listed in the following schedule. All bonuses are additive. The best flight score shall be factored by the appropriate total bonus, to become the scoring flight.

Engines (on different thrust lines)	Bonus
Single	0
Two or more engines	10%

Note - To qualify for the multi-engine bonus each propeller must be driven by a separate engine unless this was not the case with the prototype modelled. The engines must deliver similar levels of power.

Undercarriage

Fixed (any configuration)..... 0

Retractable (remains up for landing)..... 10%

Retractable (lowers again for landing) 20%

6.10.7 Marking (Flight Points)

Each part of the flight, as defined in 6.10.5, will be awarded marks between 0 and 10 by each judge during the flight. These marks are then each multiplied by the appropriate K factor and aggregated before the bonuses are applied as described in 6.10.6.

6.10.8 Flight Score

The flight score shall be the aggregate sum of points awarded by the judges as described in 6.10.6 and 6.10.7.

6.10.9 Total Score

Add the points earned in 6.1.11 to the best flight score as defined in 6.10.8.

Note - Static judging is to take place at a minimum distance of 1.5 metres for items 1 to 5 in 6.1.10, and 0.5 metre for items 6 to 8 in 6.1.10.

6.10.10 Judges Guide

See Annex 6d - Judges Guide to Scale F/F Flying Schedule.

6.8 SCALE PEANUT

6.8.1 Qualification

Open to any scale free flight rubber powered model of either not more than 13'' span or not more than 9'' overall length excluding propeller.

6.8.2 Documentation

The minimum documentation is to be one of the following:

(a) A general arrangement drawing of at least 2 inches wing span, plus one photograph or printed reproduction of the full sized aircraft. If the photograph or printed reproduction is not in colour, then an Authentic written colour description must be included.

or;

(b) A coloured 3-view (e.g. 'Profile' publication) to a minimum of 1/144 scale.

The competitor must also state in the documentation, the type of covering material used on the model.

6.8.3 Flying Section

Each competitor is allowed up to 9 official flights. An official flight is counted each time the model is released for a declared flight. The times of the longest 2 flights (each rounded down to the nearest second) will be aggregated to form the competitor's flight score. Flights may be hand launched or from Take-off. If Take-off is successfully achieved, without pushing or similar assistance, then 10 seconds will be added to the flight time recorded.

6.8.4 Appearance

Models will be judged visually, in comparison with the documentation provided, by one or more judges. No scale measurements will be taken and there is no restriction to static judging distance. Marks will be awarded as follows:

Points

(a) Workmanship, marked on merit ..... 0 - 15

(b) Complexity and accuracy of colour and markings..... 0 - 10

(c) Authentic details..... 0 - 5

(d) Flying surfaces

All double surface 4

Double surface wing but single surface tail 2

Single surface 0

Note - If however the prototype itself was single surface, then the model should be likewise single surface and be awarded the full 4 points.

(e) Surface Finish

Authentic Colour ..... 5 - 9

Unpainted coloured tissue 4

Unpainted condenser paper..... 3

Clear film..... 0

(f) Landing gear

Scale length	3
Slightly enlarged	2
Greatly enlarged or no documentation	1
None or retracted	0

(g) Dihedral

Scale	3
Slightly exaggerated	1
Grossly exaggerated or no documentation	0

(h) Stabiliser outline

Correct size and shape	3
Correct size, wrong outline	2
Enlarged	1
Grossly enlarged	0

(i) Bonus points for complexity

Low wing	9
Biplane	9
Triplane	15
Autogyro	21
Helicopter	27
Flying boat or floatplane	9
Scale number of wing ribs	2 per wing
Scale number of tailplane ribs	1
Scale number of rudder ribs	1/2
Separate ailerons	1
Separate rudder	1/2
Separate elevator or all moving tailplane	1/2
Other than square fuselage	1
Wheel pants or spats	1
Three-dimensional pilot	1
Exposed engine	1

(j) Negative points for deviation from scale to assist flying performance

Lengthening of nose or tail moment	2 each
Moving wing back	2
Simplifying fuselage cross-section or outline	2
Enlarging rudder	2
All other non-scale performance aids	2 each

6.8.5 Scoring

The order of marking in 6.8.3 and 6.8.4 will produce a ‘place’ in the Flying and Appearance sections respectively. Each contestants numerical ‘places’ in the two sections are added. The lowest overall totals then determine the final overall placings in the competition.

In the event of a tie, final overall places shall be determined by referring to the appearance score, followed if necessary by reference to the flight scores, comparing first flights, then second flights. If there is still a tie, the places will be decided by a duration fly off.

Models that do not record an official flight time will not qualify for a placing in the competition. (Note that paragraph 6.1.11 on page 6 does not cover this point as it only refers to those classes judged in accordance with Paragraph 6.1.10 which do not include Peanut and Pistachio.)

6.8.6 Judges Guide

See Annex 6e - Judge's Guide for Scale Peanut and Pistachio.

6.14 SCALE PISTACHIO

6.14.1 Qualification

Open to any scale free flight rubber powered model of either not more than 8" span or not more than 6" overall length excluding propeller.

6.14.2 Documentation

The minimum documentation is to be one of the following:

(a) A general arrangement drawing of at least 2 inches wing span, plus one photograph or printed reproduction of the full sized aircraft. If the photograph or printed reproduction is not in colour, then an authentic written colour description must be included.

or;

(b) A coloured 3-view (e.g. 'Profile' publication) to a minimum of 1/144 scale.

The competitor must also state in the documentation, the type of covering material used on the model."

6.14.3 Flying

Each competitor is allowed up to nine official flights. An official flight is counted each time the model is released for a declared flight.

All models will be hand launched.

The times of the longest two flights (each rounded down to the nearest second) will be aggregated to form the competitor's flight score.

6.14.4 Appearance Score

Models will be judged visually, in comparison with the documentation provided, by one or more judges. No scale measurements will be taken and there is no restriction to static judging distance. Marks will be awarded as follows:

(a) Workmanship ..... 0 - 10

(b) Complexity and authenticity of colour and markings ..... 0 - 5

(c) Authentic details ..... 0 - 3

(d) Scale dihedral 2

(e) Scale tailplane/stabiliser 2

(f) Surface finish (no penalty for single surface) ..... 0 - 5

(g) Complexity

- low wing 4
- biplane 4
- triplane (or more) 7
- more than one powered propeller 3
- floats 2
- helicopter/autogyro 5
- for each flying surface with separate controls ..... 1 each
- fuselage cross-section ..... 0 - 3
- pilot ..... 0 - 2

exposed engine..... 0 - 2

wheel spats/pants 1

rigging or flying wires ..... 0 - 3

extra complexity bonus for features not already assessed ..... 0 - 3

(h) Deviations to aid flying performance ..... minus 2 each

Competitor's appearance score will be the sum of the marks awarded in 6.14.4.(a) through to 6.14.4.(h).

6.14.5 Scoring

The order of marking in 6.14.3 and 6.14.4 will produce a 'place' in the Flying and Appearance sections respectively. Each contestant's numerical 'places' in the two sections are added. The lowest overall totals then determine the final overall placings in the competition.

In the event of a tie, final overall places shall be determined by referring to the appearance score, followed if necessary by reference to the flight scores, comparing first flights, then second flights. If there is still a tie, the places will be decided by a duration fly off.

Models that do not record an official flight time will not qualify for a placing in the competition.

6.14.6 Judges Guide

See Annex 6e - Judges Guide to Scale Peanut and Pistachio.

6.15 SCALE INDOOR KIT SCALE

6.15.1 Qualification

Open to any scale model built from a commercial kit that meets the following general characteristics:

Maximum weight.....150g (including motor)

Maximum wing loading..... 15g/dm2

Motive Power..... rubber, CO2 or electric

No declaration as to compliance is required from the competitor but the judges reserve the right to weigh and exclude any model they suspect of being overweight.

Models may be built from kit parts or the builder's own wood but the kit plan must be provided as authentication.

The only modifications permitted from the original kit are those associated with fitting an alternative power source, a replacement propeller (including for rubber) and wheels.

6.15.2 Documentation

The minimum documentation required is the original (or photocopy) plan from which the model was built and one photograph, drawing or painting (eg box art) of either the aircraft modelled or a similar aircraft from the same era to authenticate the general colour scheme and markings.

6.15.3 Static Marking

Points will be awarded up to the maximum of 100 to reflect the quality of workmanship and character of the models as follows:

(a) Workmanship (finesse, accuracy to plan, warps, neatness of covering etc) .....(60%)

(b) Authenticity of Colour Scheme & Accuracy of Markings (if present)..... (20%)

(c) Overall Character .....(20%)

It is expected that most models will have a coloured tissue finish with painted, printed, transfer or tissue markings. Fully painted models will not be excluded but will have 5 marks deducted from their static score. 5 marks will also be deducted for each significant deviation from the original design other than those permitted above. (Typical deductions include: increased dihedral, separate control surfaces where these are not shown on the plan etc)

6.15.4 Definition of an Official Flight

An official flight shall be recorded when the model has been airborne for 10 seconds.

6.15.5 Number of Flights

Each competitor shall have the opportunity to make a minimum of 4 flights.

6.15.6 Flying Time

A minimum period of 15 minutes shall be allocated for trimming before the competition begins. Thereafter, each competitor shall be called five minutes before he/she is required to occupy the starting area. The model shall be released, after confirming that the flight judges are ready, within a period of 3 minutes, plus one minute for each additional motor. Failure to comply will result in the loss of the flight. Only one release is permitted during the allocated time.

6.15.7 Marking

Each phase of the flight will be awarded marks between 0 and 10 by each judge during the flight as follows:

(a) Take-off (Optional, see 6.1.6.(a)) ..... K = 1

(b) Initial Climb ..... K = 1

(c) Descent and Landing Approach ..... K = 1

(d) Quality of Landing ..... K = 1

(e) Realism in Flight (speed, 'sit', stability and character) ..... K = 2

6.15.8 Flight Score

The flight score will be the aggregate of the 2 highest scores awarded by each of 2 judges. If only one flight judge is available, the flight scores will be doubled.

6.15.9 Total Score

The total score will be the aggregate of the static mark and flight score (Maximum 340). In the event of a tie, the model with the higher flight score will take the higher place.

6.15.10 Judges' Guide

See Annex 6f – Judges' Guide to Kit Scale

ANNEX 6a

JUDGES GUIDE FOR STATIC JUDGING

APPLICABLE TO SCALE RADIO CONTROL (F4C); SCALE CONTROL LINE AND SCALE FREE FLIGHT CLASSES ONLY

6.1.12 General

(a) The static evaluation is broken down into six items as listed in 6.1.10. Judges must discuss each item as a team and attempt to arrive at a unanimously agreed score for each item, although each will retain the right to differ. Any degree of difference should however be minimal.

(b) Regardless of the actual marks awarded, it is imperative that an accurate and fair comparison is attained across the whole range of models entered. The relative mark of one model compared to another is the most important standard to be achieved. Judges are encouraged to make use of analysis sheets and electronic or other archive devices to achieve this comparison.

(c) If model aircraft are flown before being static judged (see 6.1.3.), any damage sustained during flight shall be ignored by the static judges provided the model is intact and it is practical to do so.

6.1.12.1 Documentation for Proof of Scale

The minimum documentation as stated in 6.1.9.4. must be provided. Failure to comply shall result in penalty marks as follows:

(a) Fewer than 3 full photos of prototype:

ZERO points for Scale Accuracy	(6.1.10.1)
Likely downmarking of Realism	(6.1.10.4)
Likely downmarking of Craftsmanship	(6.1.10.5)
Likely downmarking of Scale Detail	(6.1.10.6)

(b) Missing or unauthorised drawings:

ZERO points for Scale Accuracy	(6.1.10.1)

(c) No photo of subject aircraft:

ZERO points for markings	(6.1.10.2)
Likely downmarking for Realism	(6.1.10.4)

(d) Incomplete colour documentation:

ZERO points for Colour	(6.1.10.3)

The documentation stated above is the absolute minimum required for participation. In reality more comprehensive evidence is needed to assess the model relative to the prototype. As the full size aircraft cannot be presented it follows that the photographic documentation provided should be as comprehensive as possible if a high score is to be achieved.

All documentation should relate to the subject aircraft whenever possible; variations from this must be clearly marked if not otherwise obvious.

The static judges have a difficult task to do in a short period of time. Documentation should therefore be presented in a format that can be quickly and accurately assessed. Superfluous or contradictory evidence should be avoided. The documentation should

be presented on separate sheets to avoid the requirement for judges to continually turn pages for cross-references. A stiff A2 size sheet is considered to be the largest that may be comfortably handled by the judges. It will assist the judges if the documentation is presented in a format that reflects the sequence of the judging aspects, e.g.: Side view, End view, Plan view, Markings, Colour, etc.

6.1.12.2 Static Judging

Items 6.1.10.1. must be judged at a minimum distance of 3 metres in Scale C/L and 5 metres in F4C from the centre of the model. A handler should be prepared to position the model as directed by the judges. No measurements are to be taken and the models must not be handled by the judges.

The model must be judged against the documents presented and judges should award marks solely on this evidence. The quality of the documentation / evidence provided by the competitor will normally be reflected in the score that the judges award. Accurate and clear evidence deserves good marks if the model matches this. Judges must ensure that a competitor does not benefit by default by submitting poor or incomplete documentation.

Judges must assess both accuracy and complexity in those aspects where indicated.

6.1.12.3 Scale Accuracy

The photographs are the prime means of determining the accuracy and realism relative to the full size aircraft and must always take precedence over drawings if there is any doubt concerning an item of scale accuracy. Caution should however be exercised when determining rigging angles using photographs that are taken at an oblique angle, as these might give the wrong impression. In this particular case the drawing may be a more appropriate reference for checking dihedral and incidence angles.

The model should first be positioned in a pose similar to that in the best photograph and checked for any obvious discrepancies. This procedure is then repeated with other suitable photographs.

Then using photographs and drawings, check:

(a) Side view, this may be either left or right depending upon the most suitable photograph. A check should be made of the fuselage outline, cabin or canopy shape, cockpit aperture shape, engine cowling and spinner shape, outline of fin and rudder, wing and tailplane sections. Also the shape, angle and position of landing gear legs and tail wheel or skid, the size of wheels and tyres. On multi-wing aircraft a check should be made of wing stagger, wing gap and the shape and arrangement of struts and incidence wires.

(b) Front-end view, for dihedral, wing thickness and taper, wing struts, bracing and gap on multi-wing aircraft. Also the thickness of fin, rudder and tailplane, cross-sections of fuselage and engine cowling, cowling shape and cutouts, propeller size and shape, shape of cockpit canopy or windshields; size, shape, position and angle of landing gear, wheel track, tyre thickness.

(c) Upper-plan view for wing outline and fairings, aileron size, flaps; tailplane size and outline; elevator size, shape and cut outs, trim tabs, fuselage shape and taper, cockpit or canopy shape, engine cowling shape.

Judges attention is drawn to Rule 6.1.1 “Definition of Scale Models” concerning the use of pre-moulded commercial parts that contribute towards the outline of the model in either side plan or front views. If in any doubt, judges should elicit information from the competitor during static judging to determine the extent of use commercially moulded items that contribute to the outline of the model and deduct marks accordingly from those awarded for the side, plan and front views.

6.1.12.4 Markings

The relative positioning and shape of the markings on the model are often a good indication of scale accuracy as they highlight errors in shape and outline. The opportunity to check markings on the underside of the model can also be taken whilst checking the plan view.

Markings Accuracy:

Check the position and size of all markings and lettering. Particular emphasis should be made to the relative positioning of markings to other markings and key features on the airframe. Check that the style and thickness of all letters and figures are correct. Check that any trim strips are of the correct dimensions and are correctly positioned. Check camouflage patterns.

Markings Complexity:

Prior to commencing the competition the judges should agree the principle for awarding complexity points in relation to markings. A high mark for complexity is not solely dependent upon the number of markings, but the difficulty in achieving the required effect. Complex lettering, particularly when spread over a large area or relating to key positions on the airframe, should attract a higher complexity mark than sparsely positioned markings of more simple design. Curved lines are usually more complex than straight lines. Camouflage patterns should be considered carefully, with the more complex styles involving irregular patterns and indistinct edges being rewarded accordingly. For high marks to be given in this section it is important that documentation is presented covering all the markings to be assessed.

6.1.12.5 Colour

Colour Accuracy:

Correct colour may be established from colour photographs, from accepted published descriptions if accompanied by colour chips certified by competent authority, from samples of original paint, or from accepted published colour drawings. Also check colours of national markings, lettering and insignia. Camouflage colour schemes should show the correct degree of merging of the shades.

Colour Complexity:

Consideration should be given to the greater effort involved in reproducing multi-coloured finishes compared to models which feature only one or two basic colours. The system for awarding colour complexity points should be agreed before starting competitive judging. Up to two complexity points may be given for each main colour that covers a significant part of the airframe. A maximum of a single point may be given for each minor colour, such as those for the insignia, struts, guns, bombs etc. Basic colours of black and white should attract a fraction of a complexity point. It is again essential that if high marks are to be awarded, a comprehensive standard of colour documentation must be presented.

6.1.12.6 Surface Texture and Scale Realism

Realism is a question of how well the model captures the character of the full size aircraft. The judges should ask themselves if they are looking at the subject aircraft in miniature, or just a model aeroplane?

The texture and appearance of the surface of the model should be a good reproduction of that of the prototype. Fabric covered types should be covered in the correct material, and the outline of stringers and wing ribs should be visible. Ply covered or wooden monocoque types should be correctly simulated and any sag between the ribs and formers should be apparent if this is present on the prototype. Metal stressed skin types should show simulation of panels and rivets. In all instances, the appropriate gloss, or matt finish should be correctly reproduced.

If the subject aircraft is an unblemished museum example then the model should be in similar pristine condition. If the subject aircraft is an operational aircraft then a degree of weathering and signs of regular use should be evident if appropriate to the full size machine.

The documentation should show these aspects and the judges should mark accordingly.

6.1.12.7 Craftsmanship

This section deals with the skill, ingenuity, general finesse and complexity involved in the construction of the model.

Craftsmanship Quality:

The model should be checked for quality of workmanship, with particular reference to clean, sharp edges, especially trailing edges of wings and tail surfaces; correct gaps at hinge line of control surfaces; close fit where non-scale joints are used for dismantling the model or access hatches used for model operation.

Non-scale Items such as switches, needle valves, silencers, control horns, etc. should not be visible.

Craftsmanship Complexity:

Judges should consider the overall complexity of the design awarding higher marks for more intricate shapes and structure. Special items of ingenuity may also be rewarded under this section.

In assessing both the above aspects judges should consult the competitor's declaration and check for any components that have not been made by the competitor (see 6.1.9.4e) and adjust the marks awarded accordingly.

The points that are awarded must again reflect the standard of documentation presented.

6.1.12.8 Scale Detail

Check that items such as those listed are present on the model where applicable, and that they are accurately reproduced and correctly positioned.

Hatches	Brake pipes
Handles	Landing gear springing
Footsteps	Tyre treads
Doors	Wing slots
Armament	Navigation and landing lights
Bomb racks	Pitot head
Control cables	Walkways
Control horns	Tanks
Fairings	Radiators
Bracing	Filler caps
Turnbuckles	Louvres
Struts	Cooling gills
Lacing or stitching	Mass balances
Aerials	Instrument panel
Venturis	Cockpit or cabin interior detail

The points awarded should reflect both the accuracy and the quantity of scale detail present.

Scale Detail Accuracy:

The documentation presented should clearly show the features that are being assessed. Higher marks should be awarded to those competitors who accurately reproduce these items.

Scale Detail Complexity:

A well-documented highly detailed model should score proportionately more than a model with little detail, even if the full-size prototype is itself sparsely detailed. Judges should ensure when marking this aspect that they are relating to the complexity of detail actually on the model, not awarding marks for just what the prototype should have.

Annex 6a.1

R/C STAND-OFF SCALE - JUDGES GUIDE FOR STATIC JUDGING

6A.1.1 General

As with other scale classes, before individual judging commences all the models entered should be reviewed in order to superficially grade the complexity aspects of the models in relation to each other. These are Colour and Markings Complexity and Prototype Design Complexity. It is particularly important during this initial evaluation, that because all static judging is carried out at 5 metres, judges should avoid any close up examination of the models.

The documentation requirements for Stand-Off scale have been reduced to the minimum which is considered necessary to make a fair assessment of the judging aspects required; which in practice could be just 3 photographs. It is important that judges do not waste time seeking to assess any aspect which is not adequately supported by the documentation and provision is made on the score sheet for this to be recorded.

As a rough guide approximately15 to 20 minutes is considered sufficient time for each model.

Where relevant, paragraphs 6.1.12.2 to 6.1.12.6 also apply.

6A.1.2 Scale Accuracy (Outline Accuracy)

As with all static judging, photographs are the prime means of assessing accuracy of outline. If the photographs are considered sufficient to fully assess the three views, the competitor should not be penalised for not providing drawings. Paragraph 6.1.12.3 provides further advice on assessing scale accuracy.

6A.1.3 Originality of Model Design & Construction

The judge must examine the Competitors Declaration including any supporting evidence presented by the competitor and if necessary question the competitor, in order to evaluate the extent to which the competitor has contributed to the Scale Accuracy (Outline Accuracy). A maximum of 10 points should only be awarded to a model which is entirely 'scratch built' and declared as such by the competitor. The score must be reduced if the Scale Accuracy is achieved by someone other than the competitor, or by the use of commercially available machined, moulded or pre-cut parts. However an allowance should be made if the competitor is able to provide evidence that he has modified such parts to improve Scale Accuracy. A model which has been assembled 'straight out of the box' should score a zero.

The following should be used as a guide:

Scratch built models entirely designed and built by the competitor .....10 points

Models built from a kit or a published plan based on a built-up structure and which may include pre-cut parts and some proprietary items. .....5-9 points

Models built from a kit based on a moulded/grp fuselage and veneered foam or grp flying surfaces. .....2-4 points

Typical ARTF – moulded or built-up and covered structure .....0-2 points

6A.1.4 Colour and Markings Accuracy

Colour and markings accuracy is determined by comparison with the documentation which is presented. The ambient light conditions (e.g. light and shade) prevailing during judging may not be the same as that which applies to the documentation and particular

consideration should be given when this occurs. Camouflage colour schemes should show the correct pattern and the correct degree of merging of the shades. Check the position and size of markings, insignia, numbers and lettering. Up to 5 points should be awarded for colour accuracy and up to 5 points for markings accuracy.

6A.1.5 Colour and Markings Complexity

Consideration should be given to the effort involved in reproducing the colour and markings of the prototype. This should not be confined to the number of colours and the extent of the markings, but also how they are distributed on the model. i.e. the complexity of the boundary between colours and whether applied to a flat or curved surface, on fabric or solid surfaces etc.

It is important to ensure that the marks awarded are a fair comparison with the spread of marks awarded across the range of models entered. Paragraphs 6.1.12.4 and 6.1.12.5 provide additional guidance.

6A.1.6 Realism

Judges should consider how well the model captures the character of the full size aircraft as portrayed in the documentation. If the subject aircraft is 'factory fresh' or an unblemished museum example, then the model should be in a similar pristine condition. Alternatively if the photograph of the subject aircraft shows worn or stained surfaces and weathered paintwork, then this should be reflected in the model. Judges should be careful to avoid penalising the omission of details which are not clearly visible at 5 metres.

6A.1.7 Prototype Design Complexity

Judges should consider the overall complexity of the prototype design, awarding higher marks where the shape and intricacy of the structure is more difficult to reproduce. It is important to separate complexity from repetition and to recognise that compound curves are more difficult to reproduce than 'straight line' structures; e.g. a Sopwith Triplane, with straight wings, slab sided fuselage and fixed u/c will not necessarily attract a higher score than a monoplane which has compound curves on the fuselage and curved wings of variable cross section e.g. a Spitfire.

It is important to ensure that the marks awarded are a fair comparison with the spread of marks awarded across the range of models entered.

6A.1.8 Final Assessment

When all the models have been individually judged the spread of marking for all the models should be reviewed, particularly the complexity marks awarded. This is to ensure that these marks accurately reflect the spread of complexity across all the models entered. The relative mark of one model compared with the others is important and to ensure this is achieved, the marks can be altered retrospectively.

ANNEX 6b

6.2.12 JUDGES GUIDE TO SCALE C/L FLYING SCHEDULE

6.2.12.1 General

All flying manoeuvres must be judged bearing in mind the performance of the full size subject aircraft. The aim of the scale flight schedule is to recreate the flight characteristics and realism of the full-size aircraft within the limits of the control-lines. Judges must therefore not confuse Scale C/L contests with Stunt F2B-contests.

The errors under each manoeuvre cannot be an exhaustive list of all possible faults. They are intended rather to show the sort of mistakes that are likely during the course of that manoeuvre. These errors examine each manoeuvre from three aspects.

1 The shape, size and technical requirements of the intended manoeuvre.

2 The positioning of the manoeuvre relative to the judges position or other datum.

3 How well the pilot is able to suppress the limiting factor of the control-lines and still achieve scale realism in his flight.

It remains the responsibility of the judges to decide from their own experience on the importance of each error and deduct marks accordingly, always taking into account the characteristics of the full size aircraft

Each manoeuvre must be announced prior to commencement and called on commencement by the word ”NOW”. Completion of each manoeuvre must also be announced by the word ”FINISHED”. Failing to do so, loud and clear, will result in loss of marks for that manoeuvre.

The judges will be seated outside the circumference of the contest circle in a position agreed with the Contest Director. When the wind direction, in the opinion of the CD, continually deviates more then 30º from the first decided direction, the judges position will be adjusted accordingly.

The pilot is permitted to choose the spots where he wishes to commence his take off run and terminate the roll out after landing. He is also free to choose where he wishes to position each manoeuvre, but must bear in mind that manoeuvres need to be positioned in full view of the judges to achieve a good score.

In the interest of safety, any manoeuvre that is carried out when the pilot steps outside a circle of 3 metres diameter will score ZERO.

Before the flying part of the contest commences there must be agreement between the contestant and the judges on the exact nature of manoeuvres M and N if these are to be nominated (Flight function(s) performed by the subject aircraft). These agreed manoeuvres must be presented to the judges well before the flying commences, as there can be no discussion at the flight line itself on this matter.

All judges should discuss Realism of Flight, on completion of each flight and they should attempt to arrive at a unanimously agreed score for this item.

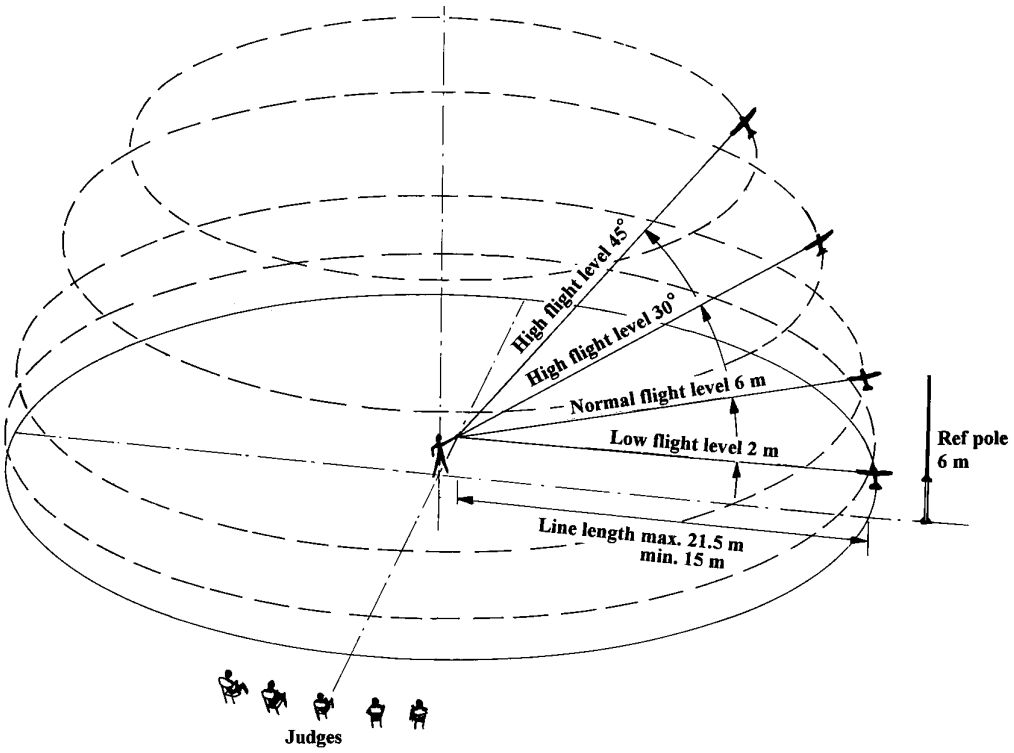
Definitions:

Three basic levels of flight are defined:

Low Flight Level at approximately 2 m height

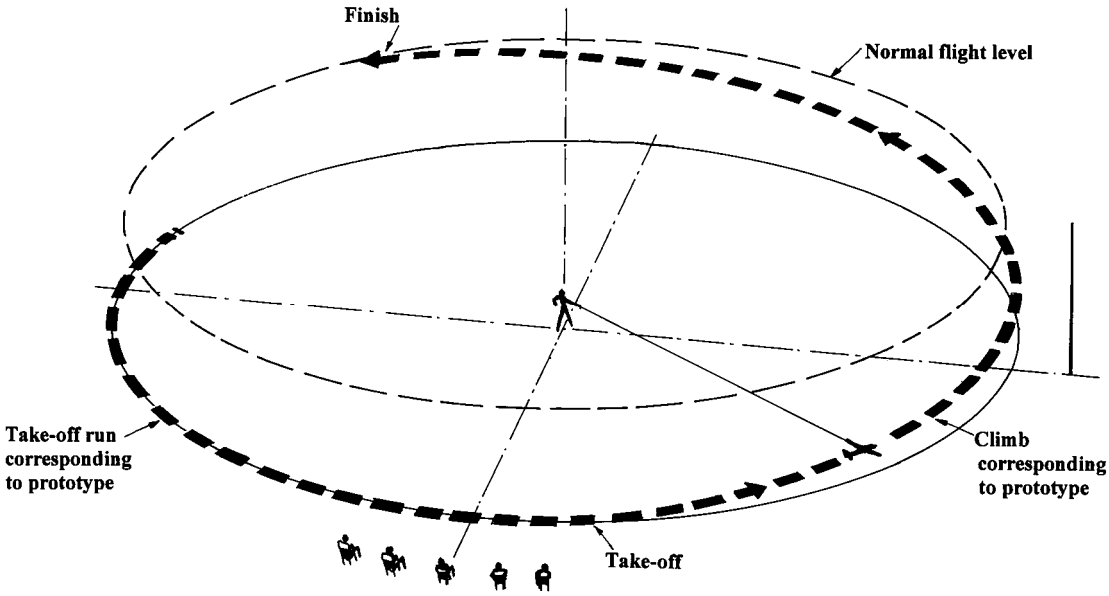
Normal Flight Level at approximately 6 m height

High Flight Level between 30º and 45º line elevation



6.2.12.2 Take-off

The model should stand still on the ground with the engine(s) running without being held. If the model is touched after the word ”NOW” has been called the manoeuvre will score zero. The model should accelerate to a realistic speed and lift smoothly from the ground, climb at an angle consistent with the subject aircraft and level off at Normal Flight Level. The manoeuvre may, depending of the subject aircraft, take more then one lap to complete.



Errors:

(1) Model touched after calling ”NOW” (zero marks).

(2) Climb erratic.

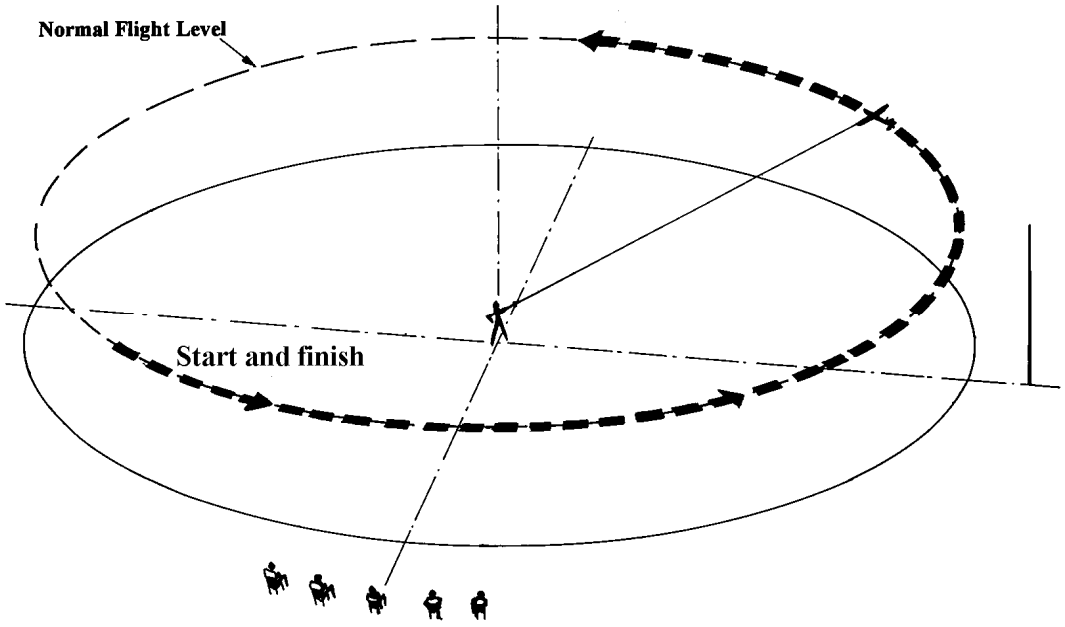
(3) Climb not consistent with subject aircraft.

(4) Level off not smooth.

(5) Level off not at Normal Flight Level.

6.2.12.3 Five laps at Normal Flight Level:

This manoeuvre should demonstrate the basic flying qualities of the model. Five smooth and stable laps should be flown at Normal Flight Level. Height should remain almost constant for full marks.



Errors:

(1) Not five laps (zero marks). More than five laps is not an error.

(2) Flight above or below Normal Flight Level (approx. 6 m) will downgrade the score proportionately.

(3) Model flight path not smooth and steady.

6.2.12.4 Optional Demonstrations - General

The selection of manoeuvres and the order in which they are to be flown must be shown on the score sheet and given to the judges before each flight. This order must be adhered to and any manoeuvre flown out of sequence will score zero.

A Multi-engines:

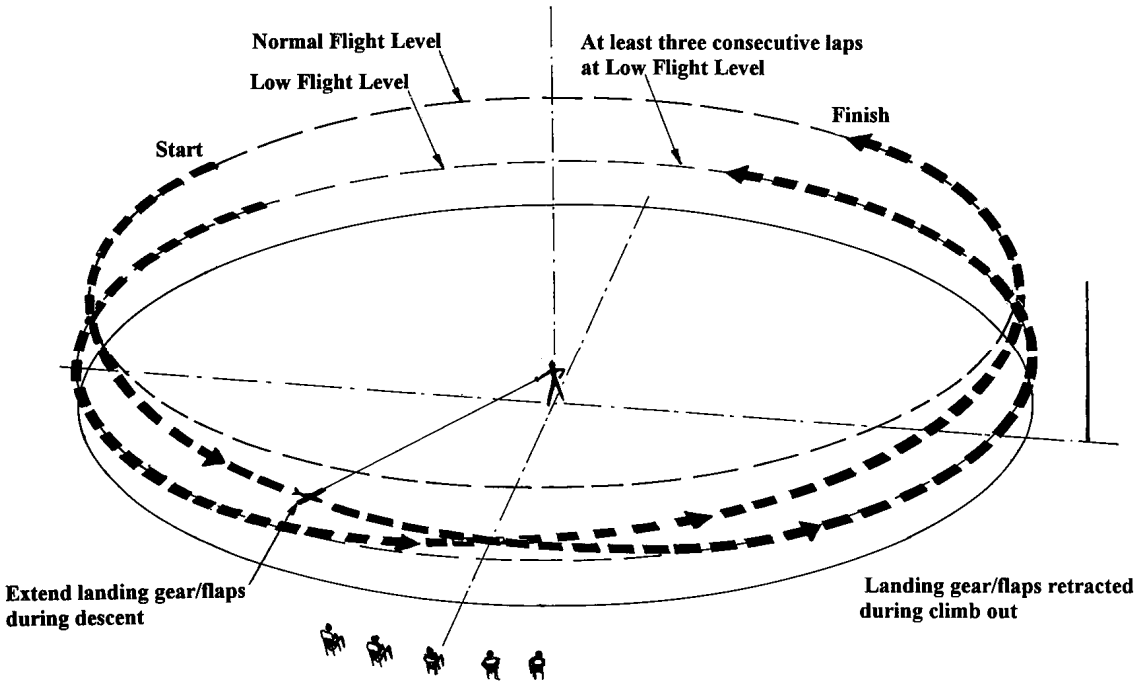
In order to qualify for full multi-engine points, all engines must run for the complete flight. Should any engine cut prematurely, then the mark will be reduced accordingly.

B Retract and Extend Landing Gear:

C Extend and Retract Flaps:

(Diagram and errors applicable to both manoeuvres unless stated)

The manoeuvre should commence from Normal Flight Level and be flown with the gear/flaps fully extended at Low Flight Level (approx. 2m) for at least three consecutive laps. The gear/flaps will then be retracted during a climb out to Normal Flight Level where the manoeuvre is finished.



Errors:

(1) Not commenced from Normal Flight Level.

(2) Extension and or retraction not in full view of the judges.

(3) Model speed too high for landing gear/flap lowering.

(4) Model not flown at Low Flight Level for three consecutive laps with gear/flaps extended.

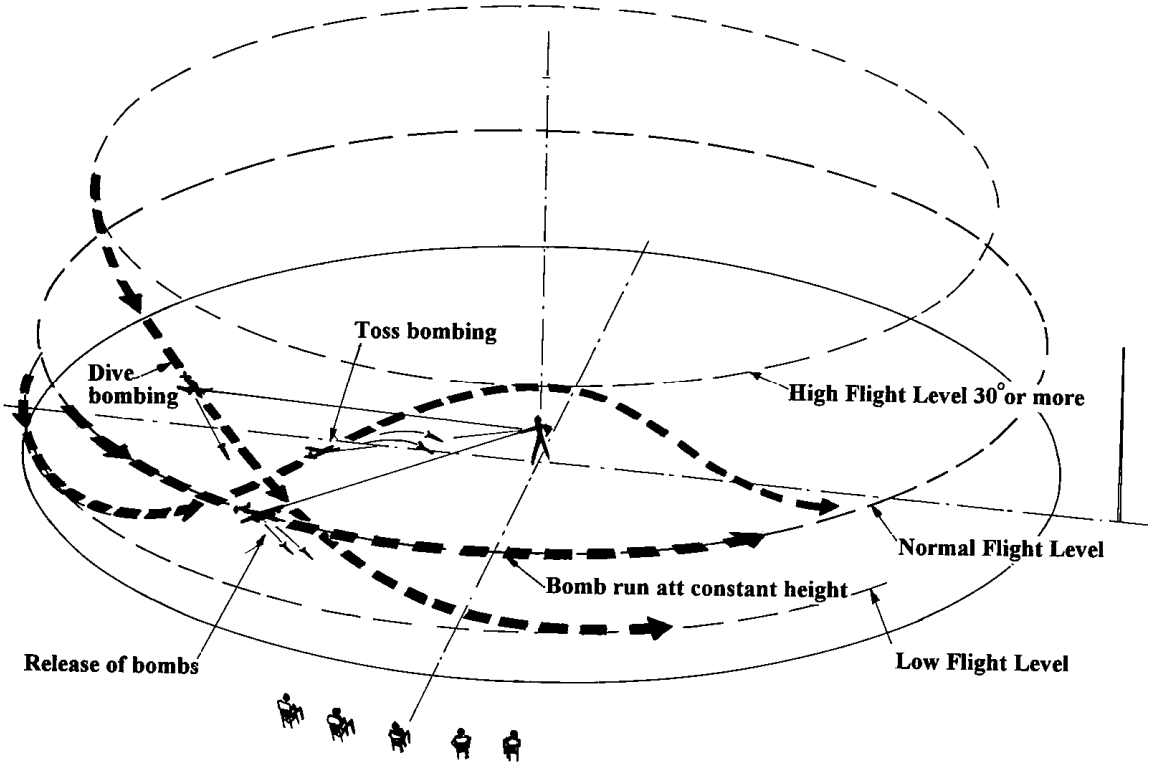
(5) Speed and or sequence of extension and retraction not realistic.

(6) No change in attitude with flaps lowered.

(7) Manoeuvre not finished at Normal Flight Level.

D Dropping of Bombs or Fuel Tanks:

If bombs are carried internally, bomb-bay doors must be open and be closed after the drop. If bombs or fuel tanks are carried externally, they must be fitted in the correct position and in the correct manner. Dropping should be in the manner of the prototype. Dropping should be within clear view of the Judges and centred on the Judges position. Any special features of the manoeuvre should be declared to the Judges beforehand



Errors:

(1) Not a realistic way of releasing the bomb load.

(2) Bomb bay doors did not operate in a realistic way.

(3) Bombs do not behave as such on falling to their target zone

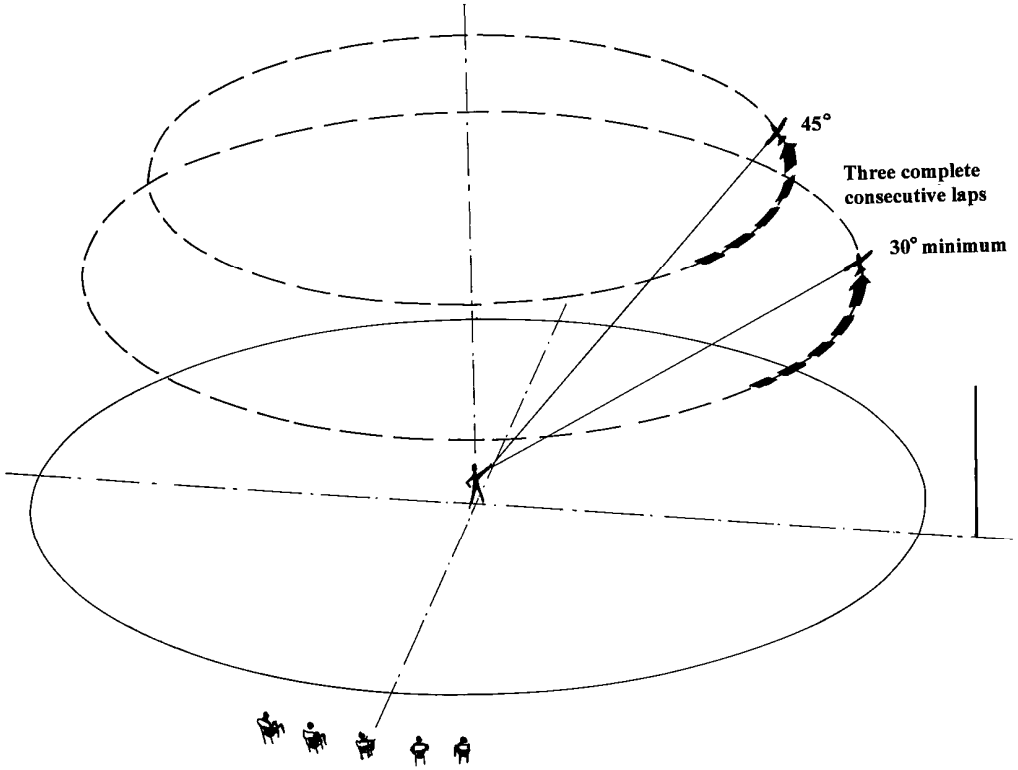
(4) Bombs not falling on the intended and agreed area.

(5) Drop tanks not behaving as drop tanks in the air.

E High Flight At Over 30º Line Angle:

During three complete and consecutive laps the lines must be at a minimum angle of 30º to the ground. The centre of the circles, which the model describes, must be directly over the flier's head.

Optimum marks will be awarded if the lines do not come below 45º and the flight level must remain almost constant. Lower marks will be awarded to models which fly below 45º but above 30º, or if the flight level changes considerably during the three laps. Zero marks shall be given if the model flies below 30º line-angle at any moment during the three laps.



Errors:

(1) Not three consecutive laps.

(2) Not between 30º and 45º line angle.

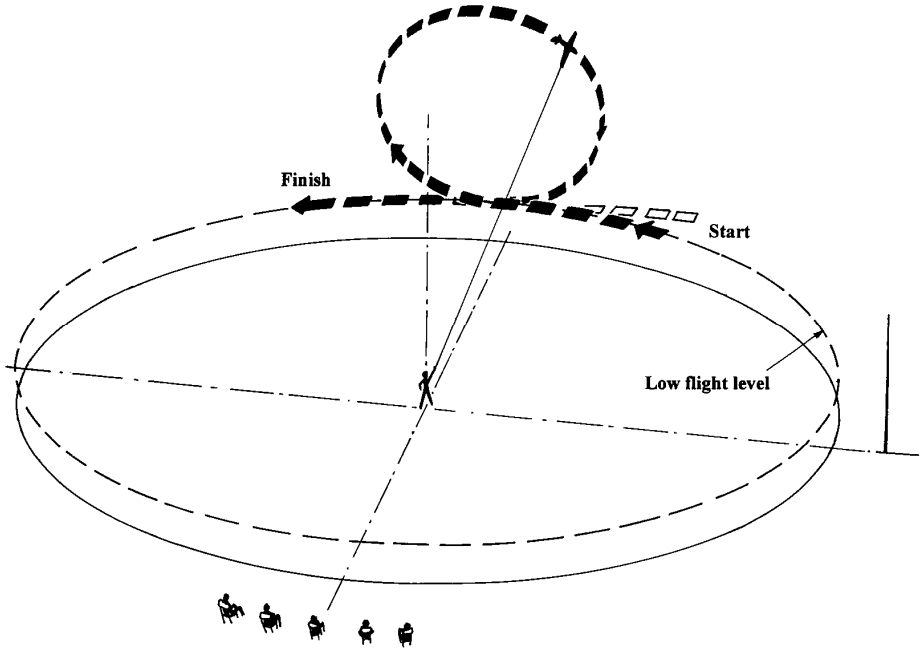
(3) Great variations of height during the flight.

(4) Centring varies during the flight.

(5) Below 30º line-angle, at any moment, zero marks.

F One Inside Loop:

From Low Flight Level, the model pulls up into a circular loop and resumes level flight at the same height as the entry. The throttle may be reduced at the top of the loop, as the subject aircraft would be operated. Low powered aircraft types would be expected to execute a shallow dive at full throttle in order to pick up speed before commencing the loop.



Errors:

(1) Loop not commenced at Low Level Flight.

(2) Track of loop not vertical.

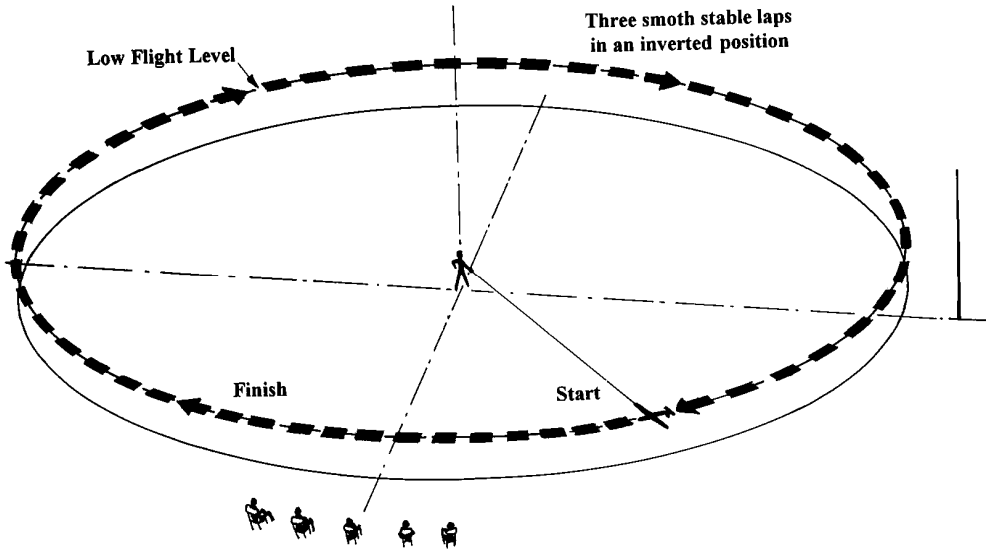
(3) Loop not as per prototype.

(4) Inappropriate use of throttle.

(5) Loop not finished at Low Flight Level.

G Three Inverted Laps:

The model should make three smooth and stable consecutive laps in an inverted position at Low Flight Level. Height should remain constant for optimum marks.



Errors:

(1) Less then three laps, zero marks.

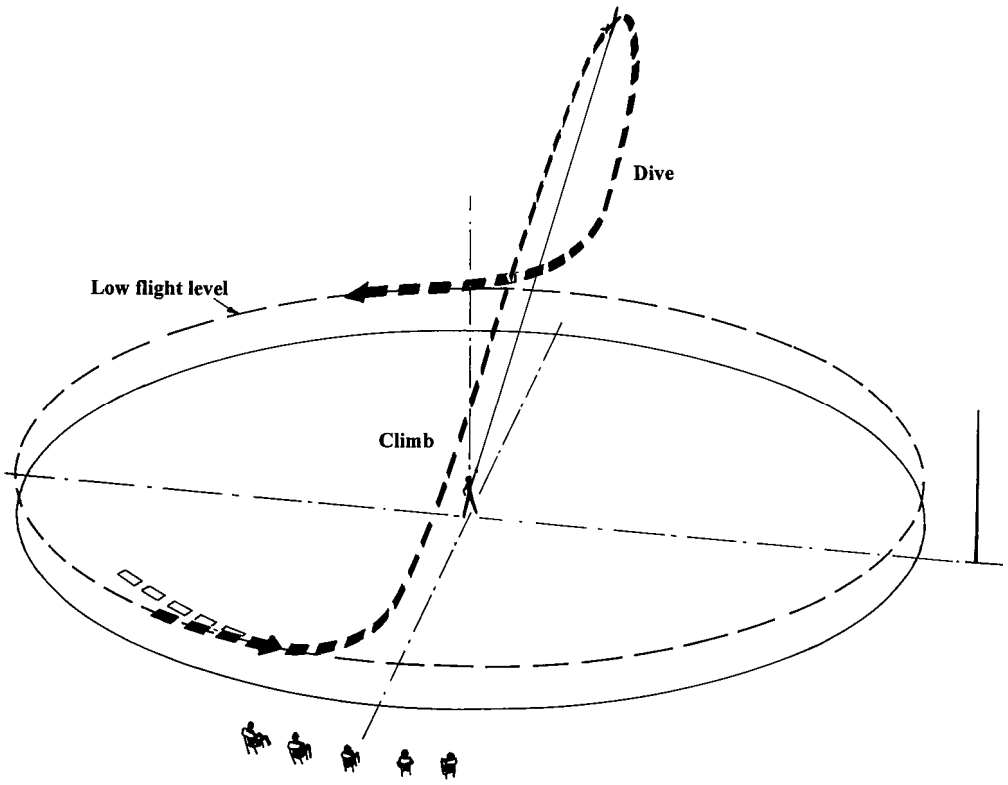
(2) The height not at Low Flight Level.

(3) Not smooth and stable.

(4) Variations in height.

H Wingover:

From Low Level Flight the model should make a near vertical climb, then perform an equally near vertical dive and finally level out at Low Level Flight. The radii in the pull-up and the pullout should be of equal size for full marks. Low powered aircraft types would be expected to execute a shallow dive at full throttle in order to pick up speed before commencing the manoeuvre.



Errors:

(1) Not commenced from Low Level Flight.

(2) Not sufficiently steep climb. (Less than 60º will score zero).

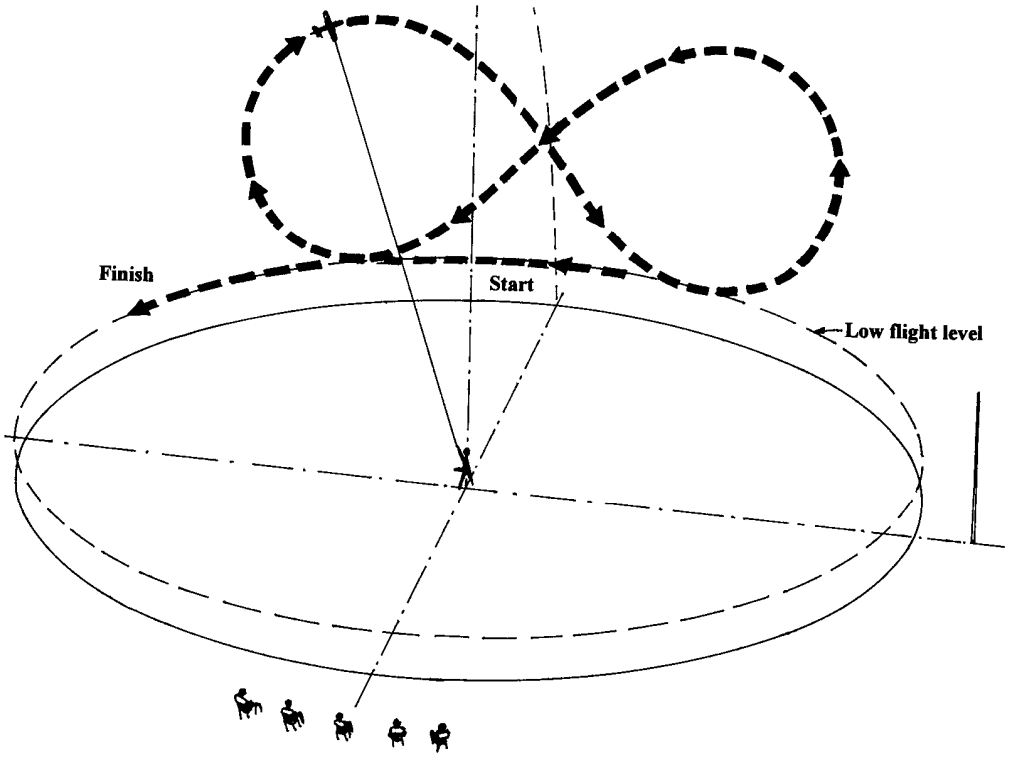
(3) Not sufficiently vertical dive. (Less then 60° will score zero).

(4) Not equal shape in the pull-up and the pull-out.

(5) The manoeuvre is not finished at Low Level Flight.

I Figure Eight:

From Low Level Flight, the model pulls up into a near circular loop until 45º nose down. The 45-degree inverted is then held until the entry height is reached when another near circular loop is executed inverted. The manoeuvre is completed with a second 45º nose down and a pullout at Low Level Flight. The 45-degree intersection shall divide the manoeuvre in two equal parts for top marks.



Errors:

(1) Manoeuvre not commenced from Low Flight Level.

(2) Loops not near circular.

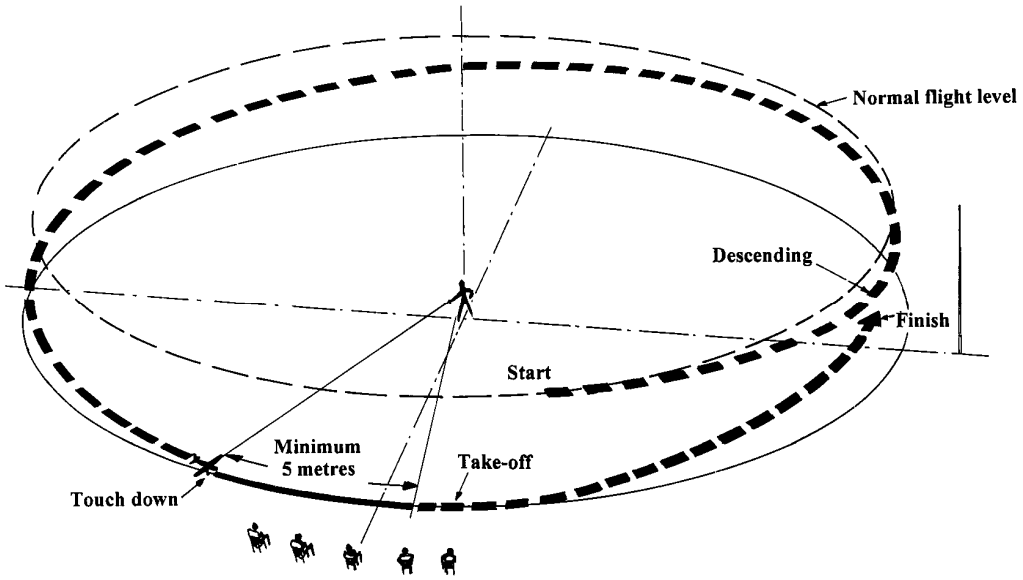
(3) Not a 45-degree intersection.

(4) Loops are not the same size.

(5) The manoeuvre not finished at Low Flight Level.

J Touch and Go:

From Normal Flight Level, the model reduces speed and extends landing gear and flaps, as applicable to the subject aircraft, touches down and rolls along the ground without coming to a halt. The main wheels must roll along the ground for a minimum of five lengths of the actual model. The model then makes a normal take-off and completes the manoeuvre at Normal Flight Level. The descent, prior to touch down, may take more then one lap to complete.



Errors:

(1) Descent not commenced from Normal Flight Level.

(2) Throttle, gear and flaps not operated smoothly during the descent.

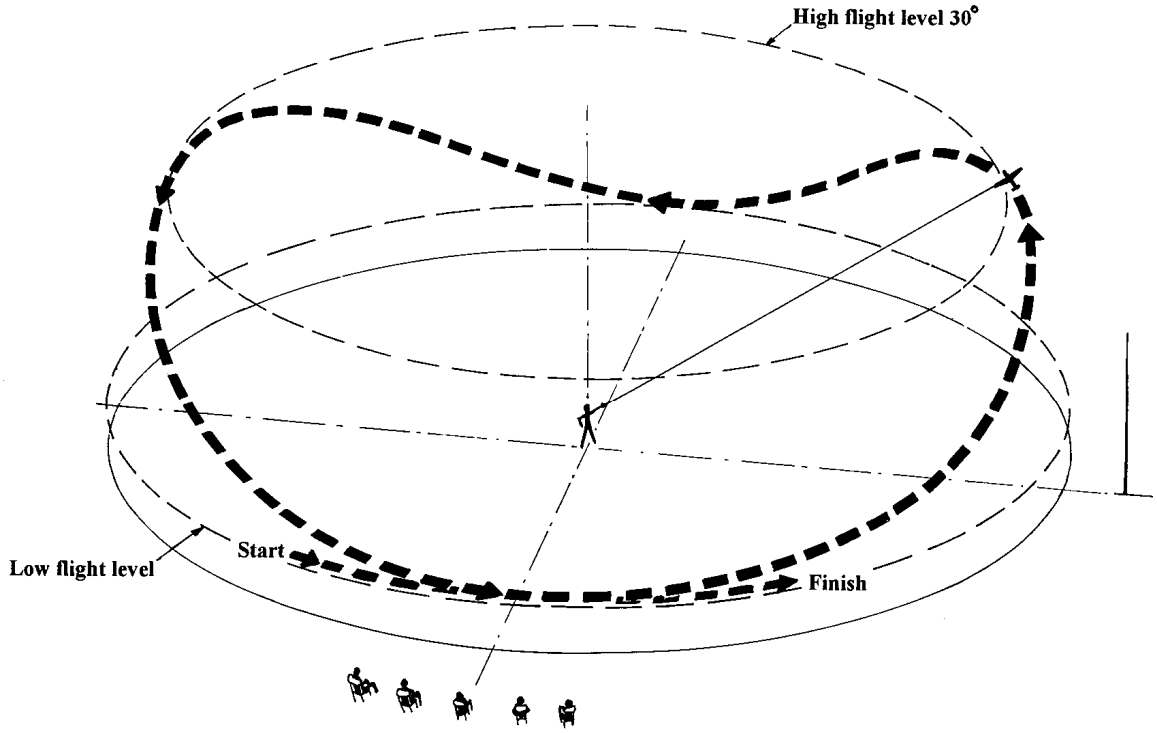
(3) The model bounces on touch down and the continuing roll on the ground.

(4) The roll on the ground is less than five lengths of the model.

(5) Not a normal take off and climb out to Normal Flight Level.

K Lazy Eight

From Low Flight Level in front of the judges the model describes a climbing turn to High Flight Level and down again opposite the judges. The climbing turn is then immediately repeated in the other half of the circle and finished in front of the judges at Low Flight Level. This manoeuvre is for all types of aircraft.



Errors:

(1) The manoeuvre not executed from Low Level Flight

(2) The climbing turn not to High Flight Level

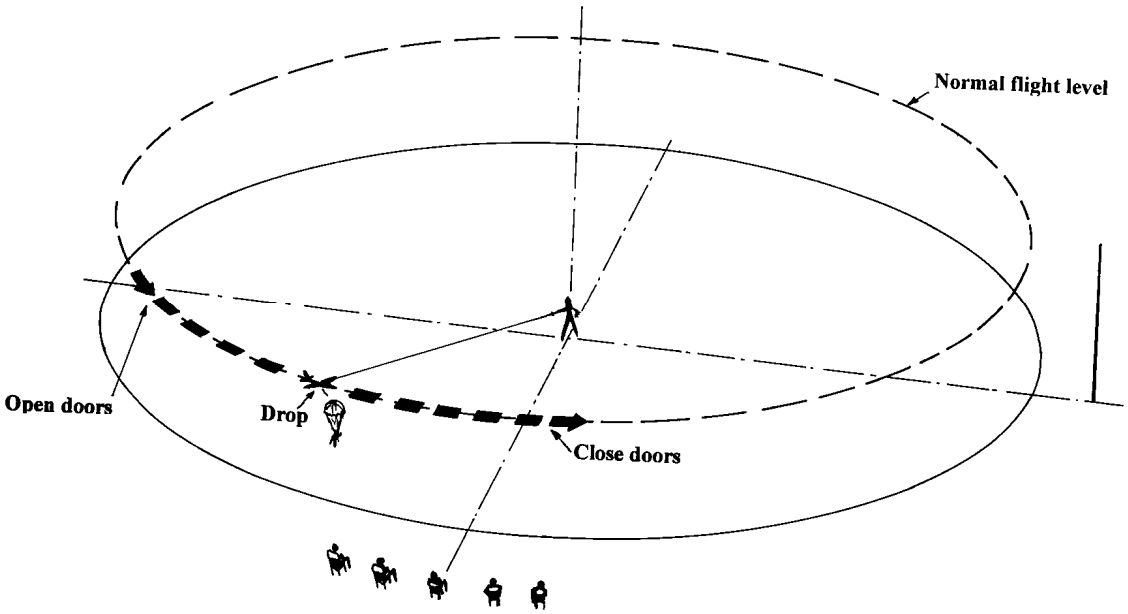
(3) The second climbing turn not a copy of the first

(4) The manoeuvre not finished at Low Flight Level

(5) The manoeuvre not centred in front of the judges

L Parachute drop:

The drop or ejection should be in the manner of the subject aircraft. Cargo should be dropped from a hatch or from bomb bays. A man should be dropped via doors, a hatch or by inverting the aircraft. If the subject aircraft used a braking parachute when landing, the competitor may demonstrate this aspect for this manoeuvre.



Errors:

(1) Not a realistic way of dropping or ejecting the parachute.

(2) The parachute not dropped at the agreed spot or area.

M Flight Function by the subject aircraft:

The competitor may demonstrate one function of his own choice, in each flying round. This must be agreed prior to the commencement of the flight program.

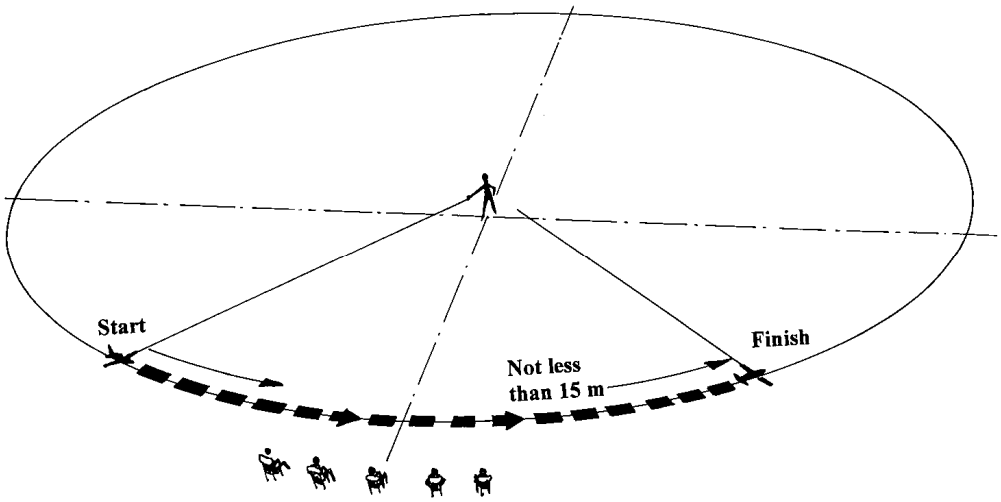
Note:

Not more than one drop option may be nominated.

Flight functions should be of a nature that is easily understood by the judges. Pure mechanical options, which could equally be performed on the ground, are not allowed.

O Taxi Demonstration

The model should stand still on the ground with the engine(s) running without being held. The model should then taxi a minimum distance of 15 metres in a manner of the subject aircraft and finally come to a full stop. All engines must be operating for full marks. This manoeuvre may be executed before or after the flight.



Errors:

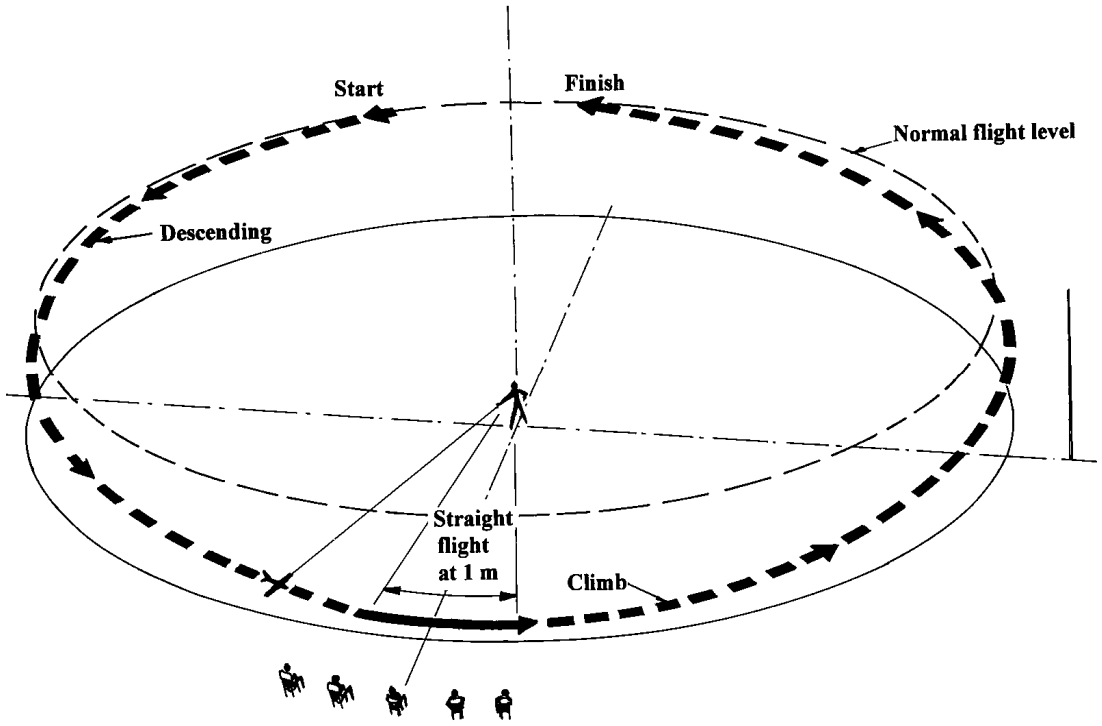
(1) Not 15 metres.

(2) Not a realistic taxi for the subject aircraft.

(3) Not all engines operating.

(4) If held or touched during the manoeuvre, the score is zero.

P **Overshoot:**



From Normal Flight Level, the model reduces speed and extends landing gear and flaps, as applicable to the subject aircraft. When the model reaches not more than one metre

height it picks up speed before it then makes a normal climb out and completes the manoeuvre at Normal Flight Level. The descending to approximately one metre may take more then one lap to finish.

Errors:

(1) Descent not commenced from Normal Flight Level

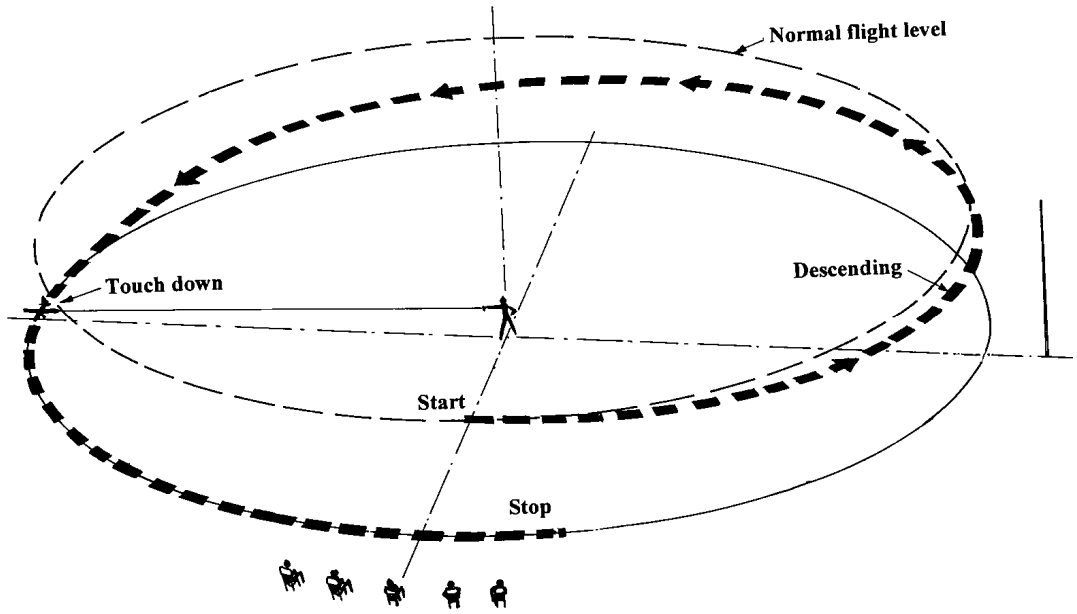
(2) Throttle, gear and flaps not operated smoothly during descent.

(3) The model not allowed to accelerate smoothly before climbing out.

(4) The manoeuvre not finished at Normal Flight Level.

6.2.12.5 Landing:

From Normal Flight Level, the model smoothly descends while throttling back and begins the approach with flaps and gear down, when applicable, the model then continues to round out, adopting the attitude applicable to the subject aircraft and touches down with no bouncing and rolls to a stop. The landing may take more then one lap to finish.



Errors:

(1) Landing manoeuvre not commenced from Normal Flight Level.

(2) Not a smooth descent down to the touchdown point.

(3) Gear/flaps not lowered in correct positions.

(4) Excessive use of throttle on finals.

(5) Model too fast, not correct approach configuration.

(6) Model bounces on touch down.

(7) Model does not come to a gradual and smooth stop after landing.

(8) Model noses over (30 % penalty when nose-down, zero if it overturns).

(9) Engine(s) stops before the landing manoeuvre is finished.

6.2.12.6 Realism of Flight:

All judges should discuss this after completion of the flight and they should attempt to arrive at an agreed score for each item. Realism of Flight covers the entire flight performance including the way the model flies between the manoeuvres. Judges will allot points for Realism within the following aspects, always keeping in mind the likely characteristics of the subject aircraft.

If the model lands (or crashes) before the flight schedule is complete, all the realism marks should be reduced from what would have been awarded if the schedule had been completed. The amount of reduction should be in proportion to the percentage of the schedule not flown.

Model sound ..... K = 4

This is an assessment of how the model replicates the characteristic sound of the Prototype. Apart from the obvious differences between piston powered, propeller-turbine powered and jet turbine powered aeroplanes, judges should be familiar with typical sounds produced by different categories of aeroplane and the variations in sound produced at varying throttle settings and/or propeller speeds. Judges cannot be expected to have retained an exact impression of the sound produced by all aeroplanes likely to be modelled. Judges should therefore consider how closely the sound produced by the model demonstrates what would be the typical sound produced by a prototype in the same category and powered by a similar means of propulsion to that which the model is attempting to replicate.

Special consideration should be given where the model demonstrates any particular characteristic sounds of the full size aeroplane. Competitors are encouraged to advise judges if such characteristic sounds can be reproduced and where they will occur in the flight. E.g. Excessive propeller noise at high power setting or noise produced by the airframe during high ‘g’ manoeuvres.

Speed of the model ..... K = 6

Judges must use their own experience to score this aspect.

Smoothness of flight ..... K = 6

The model should be well trimmed and show no signs of instability. Judges should assess the smoothness of control taking into account the prevailing weather conditions. They should also judge the attitude of the model in flight, i.e. any nose-up or nose-down tendency.

A model, which flies with wheels down, whereas the subject aircraft actually featured retractable landing gear, shall have the total flight score reduced by 25%.

If the pilot of the subject aircraft is visible from the front or from the side during flight, a dummy pilot of scale size and shape shall be equally visible during flight in the model. If such a pilot is not fitted, the total flight score shall be reduced by 10%.

ANNEX 6c

6.3.13 JUDGES GUIDE TO SCALE R/C FLYING SCHEDULE

Applicable to

6.3 FAI Class F4C 6.12 R/C Stand-Off Scale 6.13 R/C Scale Flying

6.3.13.1 General

All flying manoeuvres must be judged bearing in mind the performance of the full size prototype. The aim of the scale flight schedule is to recreate the flight characteristics and realism of the full-size aircraft. Judges must not therefore confuse scale contests with aerobatic contests.

The errors mentioned under each manoeuvre can not be an exhaustive list of all possible faults. They are intended to show the sort of mistakes that are likely during that manoeuvre. These errors examine each manoeuvre from three aspects:

(1) The shape, size and technical requirements of the intended manoeuvre.

(2) The positioning of the manoeuvre relative to the judges position or other datum.

(3) The scale realism achieved relative to the subject aircraft.

It remains the responsibility of the judges to decide upon the importance of each error and deduct marks accordingly, always taking into account the characteristics of the full size aircraft.

Each manoeuvre must be announced prior to commencement and called on commencement by the word “NOW". All flying manoeuvres must be announced upon completion by the word "FINISHED".

The judges will be seated alongside the take-off and landing area on a line which is approximately parallel with the wind direction. This axis will be referred to as the “judges’ line”. The Contest/Flight Line Director will be responsible for the measuring of wind direction. If, in the opinion of the Contest/Flight Line Director, the wind direction continually deviates more than 30^{O} from the judges’ line, the judges’ line will be adjusted accordingly.

With the following exceptions, all manoeuvres must be performed parallel with the judges’ line such that if any part of the manoeuvre is performed behind the judges’ line it will score ZERO.

Exceptions from this rule are manoeuvres 6.3.1. Take-off, 6.3.6.10 Landing, and 6.3.7.m. Touch and Go. These manoeuvres have the right to be performed into wind as long as they do not overfly a designated area behind the judges’ line laid out for the protection of spectators, officials and other competitors or helpers.

If a model is in the opinion of the Judges or Contest / Flightline Director unsafe, or being flown in an unsafe manner, they may instruct the pilot to land.

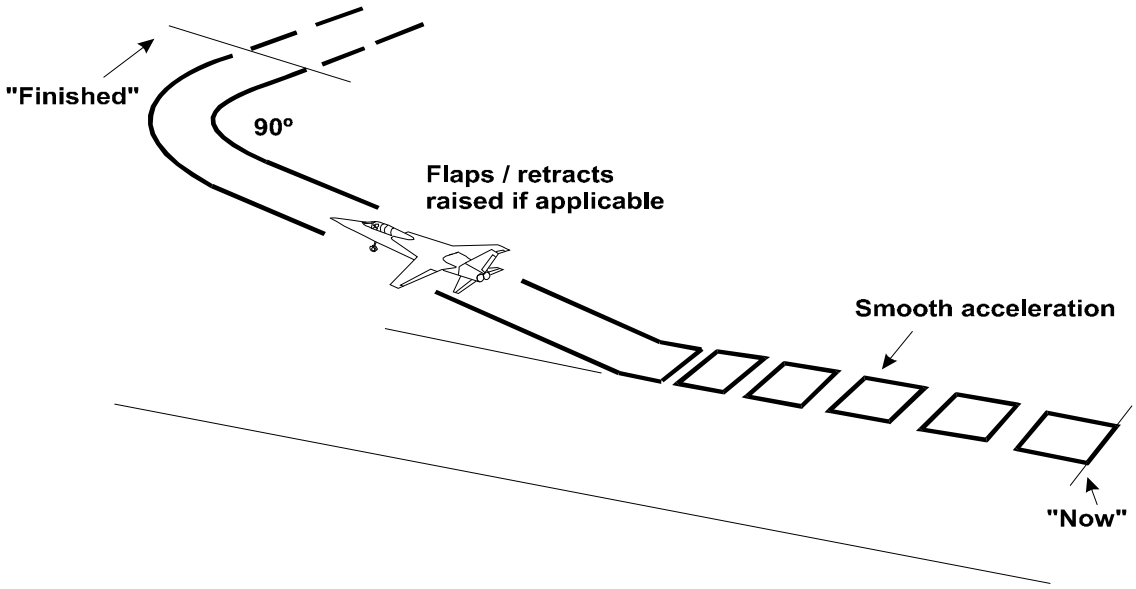
The height and positioning of individual manoeuvres should be proportional to that expected in a full size display typical to each prototype. Unless specified otherwise, manoeuvres that are carried out in a horizontal plane (e.g. Figure Eight, Triangular Circuit) should commence on a flight path that is between 30º and 60º elevation to the judges. Manoeuvres such as the Descending Circle and Spin should start at a higher elevation. Judges should down mark manoeuvres as too high, too low, too far away, or too close if they consider the positioning to be so.

At the end of each flight, the chief judge must check all score sheets for completeness.

6.3.13.2 Take-Off

The model should stand still on the ground with the motor running without being held by the pilot or mechanic and then take-off into wind, or as required by the competitor to make best use of the take-off distance available (jet subjects). If the model is touched after the competitor calls “Now” the take-off will score zero. The take-off should be straight and the model should smoothly accelerate to a realistic speed, and then lift gently from the ground and climb at an angle consistent with that of the prototype. The take-off is completed after the model has turned 90 degrees.

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



Errors:

(1) Model touched after calling “Now” (zero marks).

(2) Swings on Take-off (a slight swing with other than a tricycle undercarriage is acceptable as the aircraft tail is raised).

(3) Take-off run too long or too short.

(4) Unrealistic speed / too rapid acceleration.

(5) Inappropriate attitude at lift-off for undercarriage configuration.

(6) Not a smooth lift off.

(7) Climb rate wrong (too steep or too shallow).

(8) Nose attitude wrong during climb (nose too high or too low).

(9) Flaps not used if applicable.

(10) Wheels not raised if applicable.

(11) Significant wing drop.

(12) Climb-out track not same as take-off run.

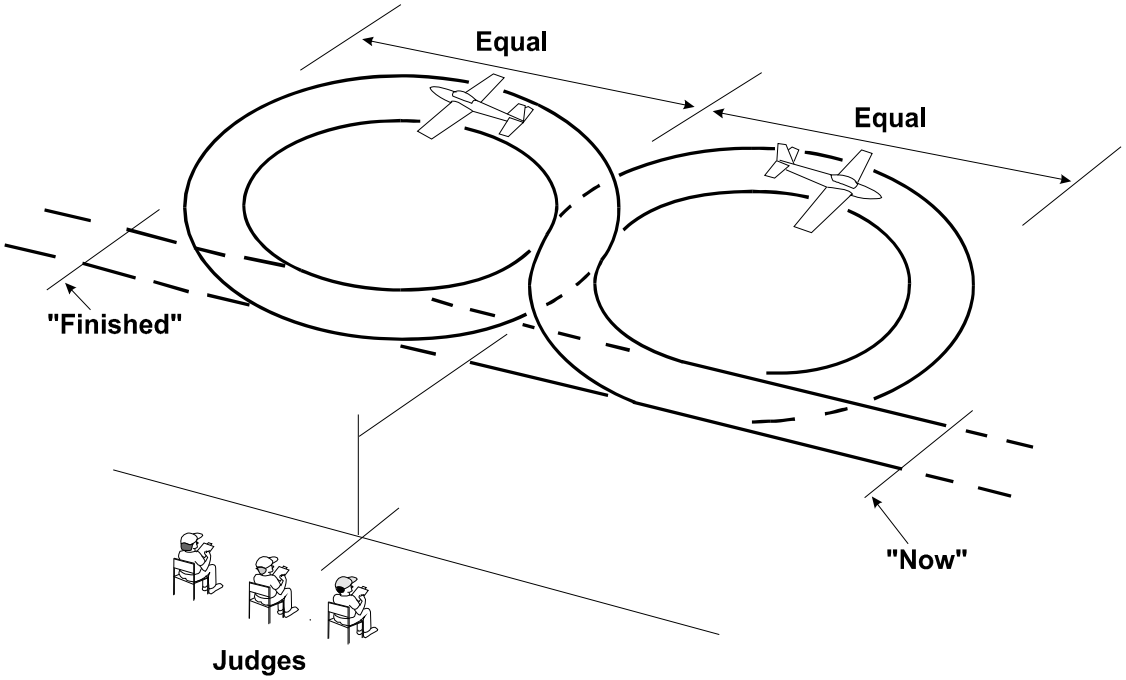
(13) Unrealistic rate of turn onto crosswind leg.

(14) Crosswind track not 90° to climb out track.

6.3.13.3 Figure Eight

The model approaches in straight and level flight on a line parallel with the judges' line, and then a one-quarter circle turn is made in a direction away from the judges' line. This is 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 that is at right angles to the direction of entry and passes through the centre of the judges' line.



Errors

(1) Entry into first circle not at right angles to original flight path.

(2) Circles unequal size.

(3) Circles misshapen.

(4) Constant height not maintained.

(5) Intersection not centred on judges' position.

(6) Entry and exit paths not on same line.

(7) Entry and exit paths not parallel with judges' line.

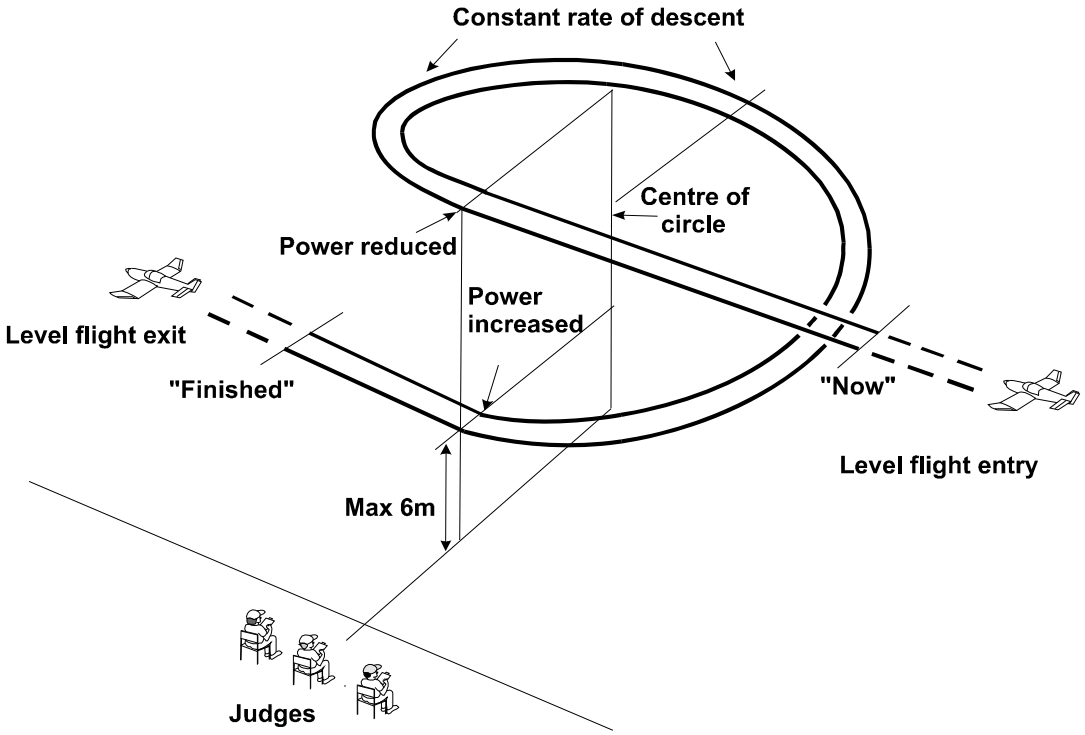
(8) Overall size of manoeuvre not realistic for prototype.

(9) Model flight path not smooth and steady.

(10) Too far away / too close / too high / too low.

6.3.13.4 3600 Descending Circle at Low Throttle Setting

Commencing from straight and level flight, the model performs a gentle 3600 descending circle over the landing area, in a direction away from the judges, at a low throttle setting. The manoeuvre terminates at a maximum height of 6 metres, resuming straight and level flight on the same path.



Errors

(1) Rate of descent not constant.

(2) Descent too steep.

(3) Throttle setting not low enough.

(4) Circle misshapen.

(5) No significant loss of height.

(6) Model does not descend to 6 metres or below.

(7) Circle not centred on judges' position.

(8) Entry and exit paths not parallel with the judges' line.

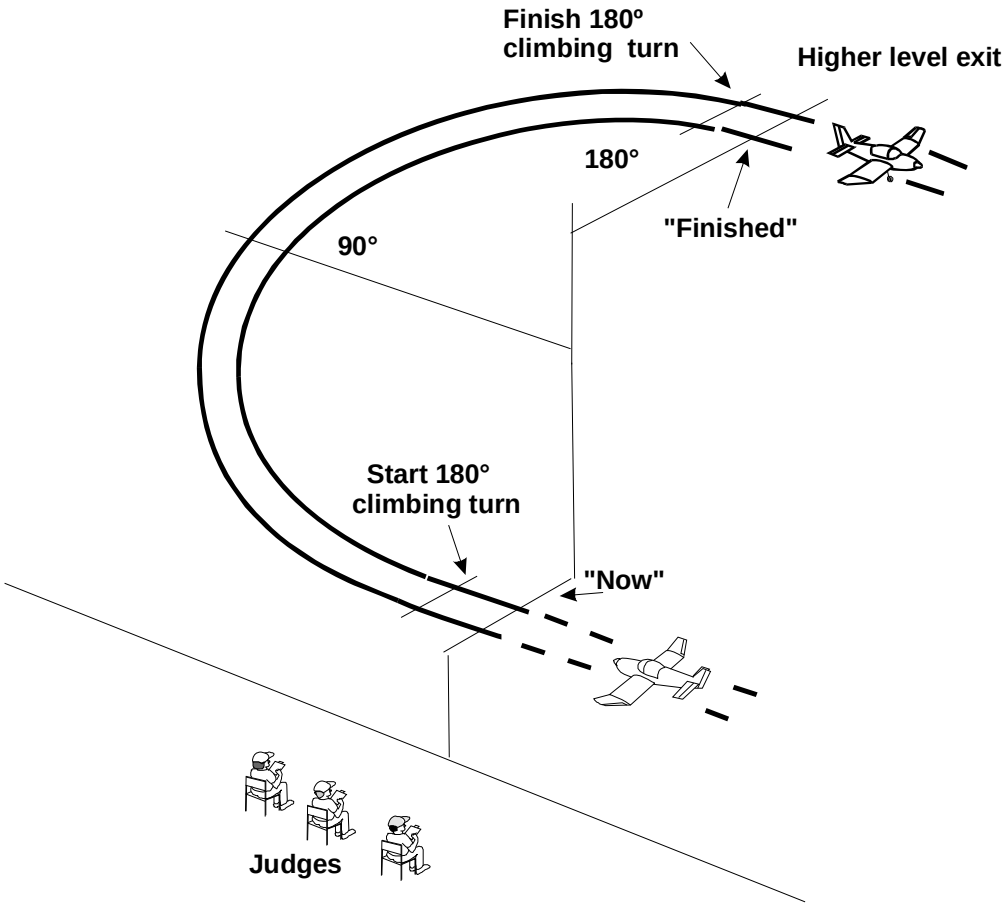
(9) Start and finish not called in straight and level flight.

(10) Too far away, too close.

6.3.13.5 Optional Demonstrations:

A Chandelle

From a straight and level flight the model passes the judges and then performs a 180^0 climbing turn in a direction away from the judges, resuming straight and level flight on the opposite heading. The rate of climb should be commensurate with that of the prototype.



Errors

(1) Turn not smooth and continuous.

(2) Climb not smooth and continuous.

(3) Half height gain not at 90° position.

(4) Excessive/unrealistic engine power used to achieve the climb.

(5) Insignificant height gain.

(6) Start & finish not centred on judges' position.

(7) Entry and exit paths not parallel with the judges' line.

(8) Final track not 180 degrees opposite to entry.

(9) Entry and exit not in straight and level flight.

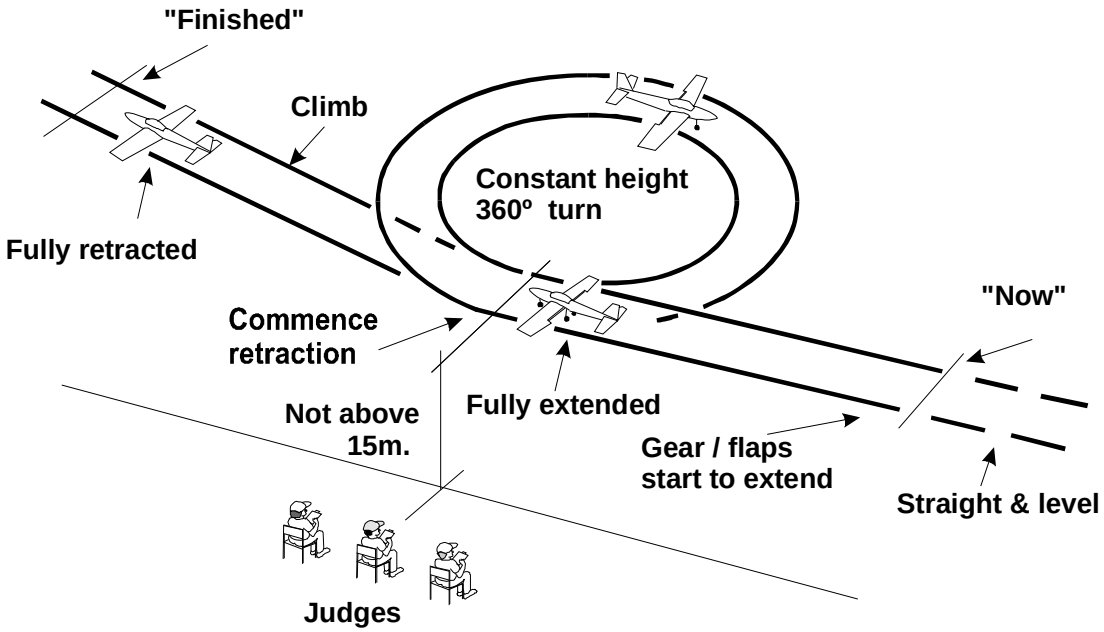
(10) Too far away or too high.

B Extend and Retract Landing Gear

C Extend and Retract Flaps

(Diagram and errors applicable to both manoeuvres unless stated)

Model approaches the landing area in straight and level flight at a height not exceeding 15m. and in full view of the judges, extends the landing gear / flaps. Model then executes a 360^0 turn in a direction away from the judges, and when again directly in front of the judges retracts the landing gear / flaps and climbs away in straight flight.



Errors

(1) Model speed too high for landing gear / flap lowering.

(2) Gear / flaps not extended in full view of judges.

(3) Speed and sequence of extension and retraction not realistic.

(4) Flaps demo only:

  (a) Instability when flaps lowered.

  (b) No change in attitude with flaps.

(5) Misshapen circle or not constant height.

(6) Circle height exceeds 15 metres.

(7) Circle not centred on judges' position.

(8) Retraction not commenced abeam judges.

(9) Entry and exit paths not parallel with the judges' line.

(10) Entry and exit tracks not the same.

(11) Unscale-like climb out.

(12) Too far away or too close.

D Dropping of Bombs or Fuel Tanks

If bombs are carried internally, bomb-bay doors must be open and be closed 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 in the manner of the prototype.

Dropping should be within clear view of the judges and centred on the judges' position.

Any special features of the manoeuvre should be declared to the judges beforehand.

Errors

(1) Bombs or tanks do not detach and fall in a realistic manner.

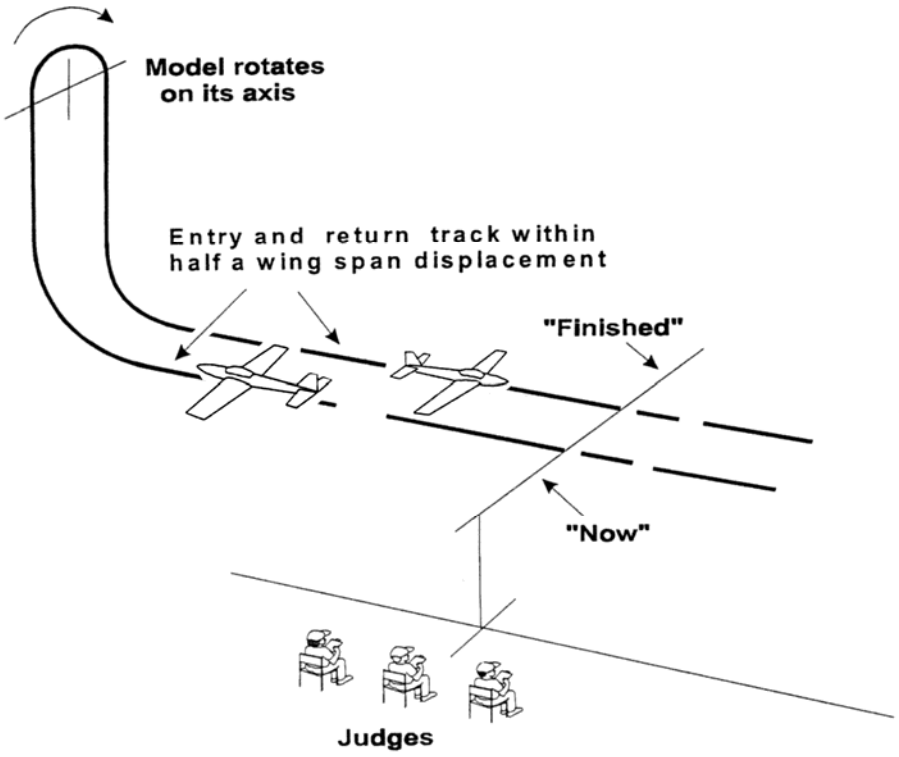
(2) Drop is not in front of judges.

(3) Overall dropping manoeuvre not presented in a realistic way.

(4) Too far away / too close / too high / too low.

E Stall Turn

The model aircraft starts in level flight, noses up to a vertical flight path until it comes to a stop. At which point the model aircraft yaws through 180 degrees in a direction away from the judges, then dives and finally recovers straight and level on a flight path in the opposite direction to the entry. Entry and exit should be at the same height. Low powered aircraft types would be expected to execute a shallow dive at full throttle in order to pick up the necessary speed before commencing the manoeuvre.



Errors

(1) Start and finish not parallel with judges' line.

(2) Pull up not positioned to give best view to judges.

(3) Climb and descent not near vertical.

(4) Insufficient height gain.

(5) Model aircraft does not stop.

(6) Model does not turn within half its wingspan and around its vertical axis.

(7) Model turns towards the judges.

(8) Entry and exit paths are not at same height.

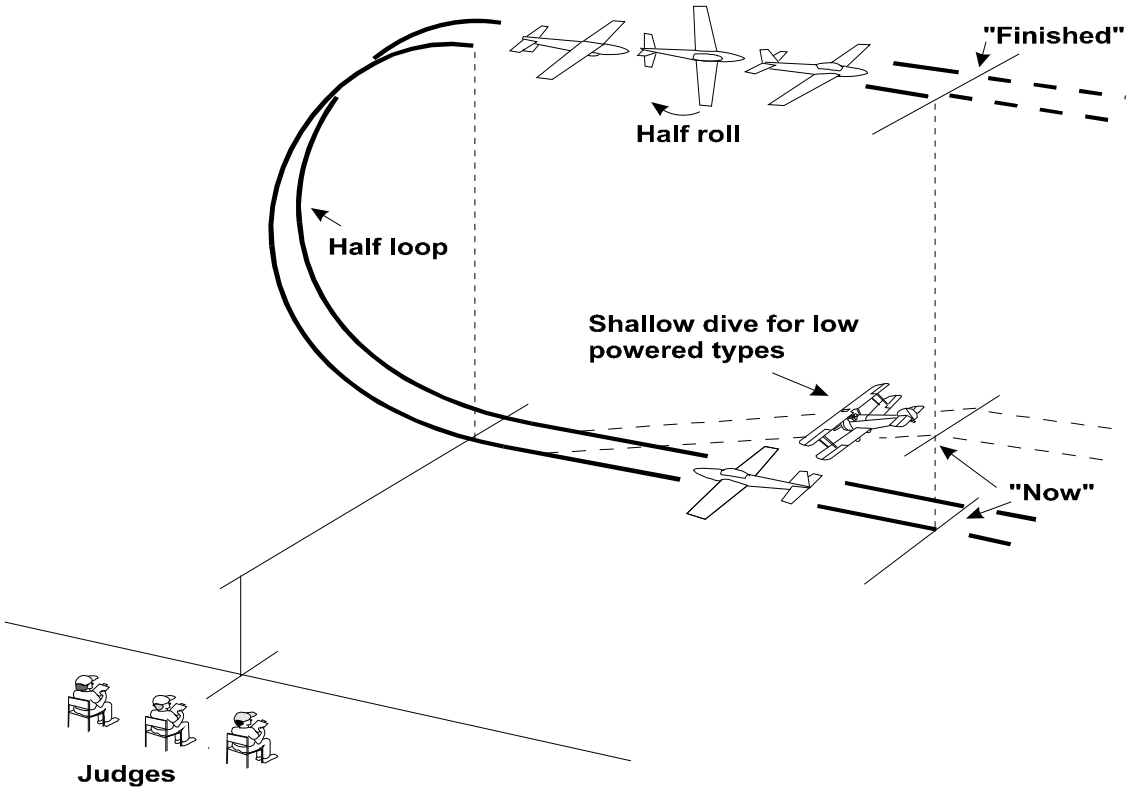
(9) Model aircraft does not exit within half span displacement of entry track.

(10) Entry and exit paths not parallel with the judges' line.

(11) Too far away / too close / too high / too low.

F Immelman Turn

From a straight and level flight the model pulls up into the first half of a circular loop (commensurate with the performance of the subject type), and when inverted, performs a half roll before resuming straight and level flight on the opposite track. Low powered 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

(1) Track of the half loop not vertical.

(2) Half loop not centred on judges' position.

(3) Half loop is not sufficiently semicircular.

(4) Roll starts too early or too late.

(5) Excessive height loss in the roll.

(6) Track veers during the roll.

(7) Does not resume straight and level flight on the opposite track to entry.

(8) Manoeuvre not flown parallel with judges' line.

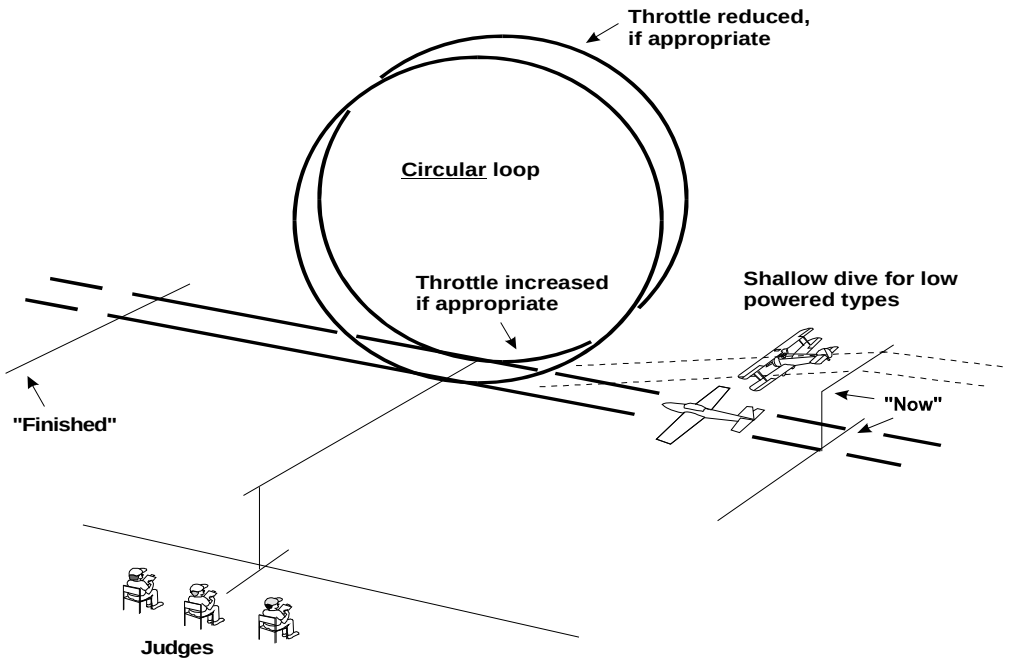
(9) Size of manoeuvre and speed not in manner of the prototype.

(10) Too far away / too close / too high / too low.

G Loop

From straight flight, the model pulls up into a circular loop and resumes straight and level flight on the same heading as the entry. The throttle may be reduced at the top of the loop as appropriate to type, and opened if necessary when normal flight is resumed. Low powered aircraft types would be expected to execute a shallow dive at full throttle in order to pick up speed before commencing the loop.

Note: Whilst the loop is intended to be a circular manoeuvre, the ability of a low powered aircraft to achieve a perfect circle will be significantly less than that of a jet or high powered aerobatic machine. A slightly elongated loop by the former would therefore expect to score as well as a perfect circle achieved by the latter, but a grossly misshapen circle would be significantly down marked. This also applies to other options involving looping manoeuvres.



Errors

(1) Track of loop not vertical

(2) Loop not sufficiently circular, commensurate with the subject type.

(3) Inappropriate use of throttle.

(4) Size and speed of Loop not in manner of prototype.

(5) Not centred on judges' position.

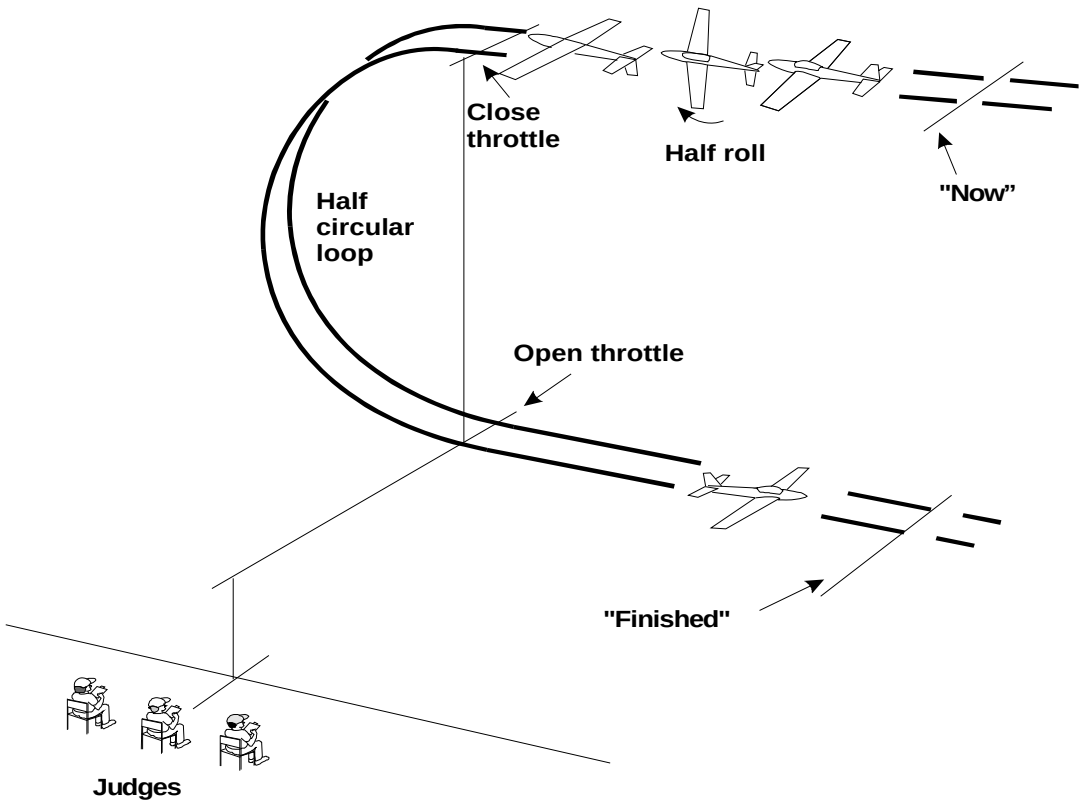
(6) Does not resume straight and level flight on same track and height as entry.

(7) Manoeuvre not flown parallel with judges' line.

(8) Too far away / too close / too high / too low.

H Split S (Reversal)

From straight flight, the model performs a half roll and when inverted performs half of a circular inside loop (commensurate with the performance of subject type), and resumes straight and level flight on a flight path opposite to that of the entry. The throttle should be closed at the inverted position, as appropriate to type, and opened when normal flight is resumed.



Errors

(1) Model changes track during half roll.

(2) Model inverted too long or too short.

(3) Inappropriate use of throttle.

(4) Track of half loop not on line or vertical.

(5) Half loop is not sufficiently semicircular.

(6) Too fast or too tight a half loop.

(7) Does not resume straight and level flight on opposite track to entry.

(8) Half loop not centred on judges' position.

(9) Manoeuvre not flown parallel with the judges' line.

(10) Too far away / too close / too high / too low.

I Cuban Eight

This option has four variations as detailed below, the competitor must specify on the score sheet which variation will be flown.

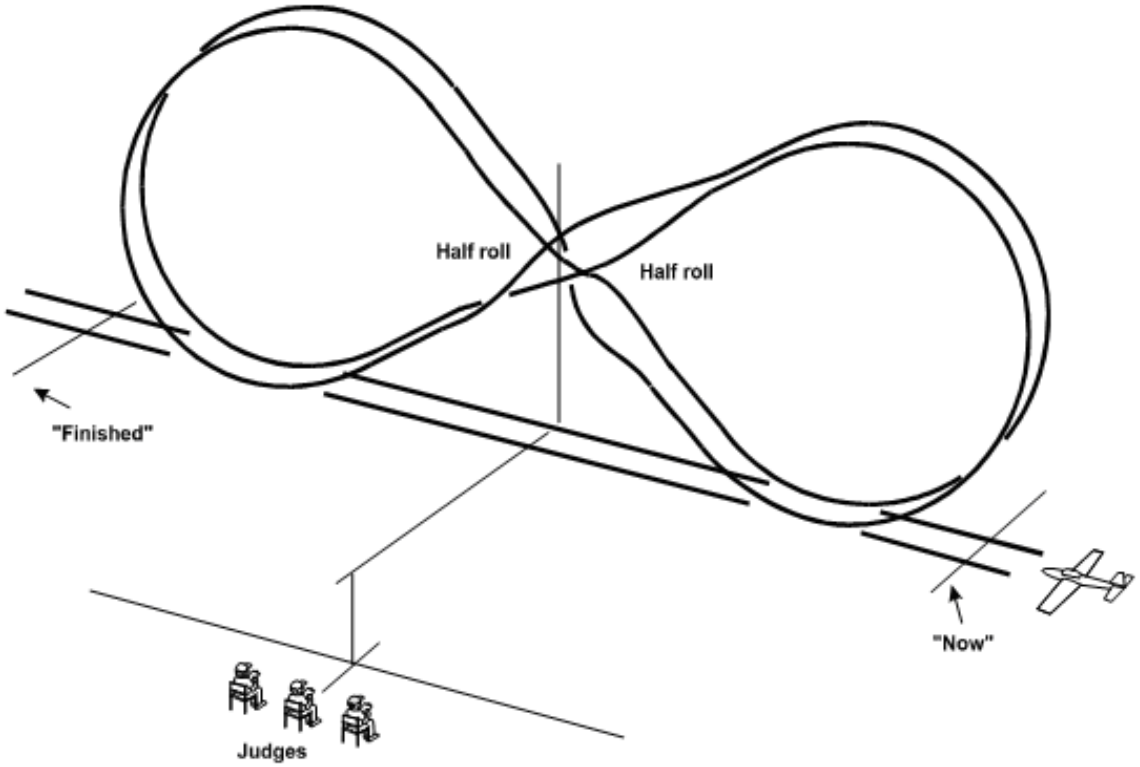
Normal Cuban Eight – Model pulls up into a circular inside loop until 45° nose down. The 45° inverted flight is held until a half roll when abeam the judges, the model then commences a similar circular inside loop with the bottom of this loop at the original entry height, followed by a half roll to repeat the manoeuvre in the opposite direction. Straight and level recovery is to be at the same height as the original entry.

Reversed Cuban Eight - The model starts with a 45° climb with half roll when abeam the judges. It then enters a downward loop with the bottom at the original entry height followed by a 45 ° climb with half roll, before entering the second downward loop, pulling out level at the entry height.

Half Cuban Eight - After the first 45 degree dive, with half roll, the model pulls out level at the entry height.

Reversed Half Cuban Eight - Start with the 45° climb and half roll then downward loop to finish level with entry.

Throttle may be closed at the top of each loop, as appropriate to subject type, and reopened during each descent. A low powered aircraft would be expected to execute a shallow dive at full throttle in order to pick up speed before commencing the manoeuvre.



Errors

(1) Manoeuvre not performed in a constant vertical plane that is parallel with the judges' line.

(2) Loops are not circular.

(3) Loops are not the same size.

(4) Half rolls are not centred on the judges' position.

(5) 45º descent paths not achieved.

(6) Model does not exit manoeuvre at same height as entry.

(7) Model does not resume straight and level flight on same track as entry.

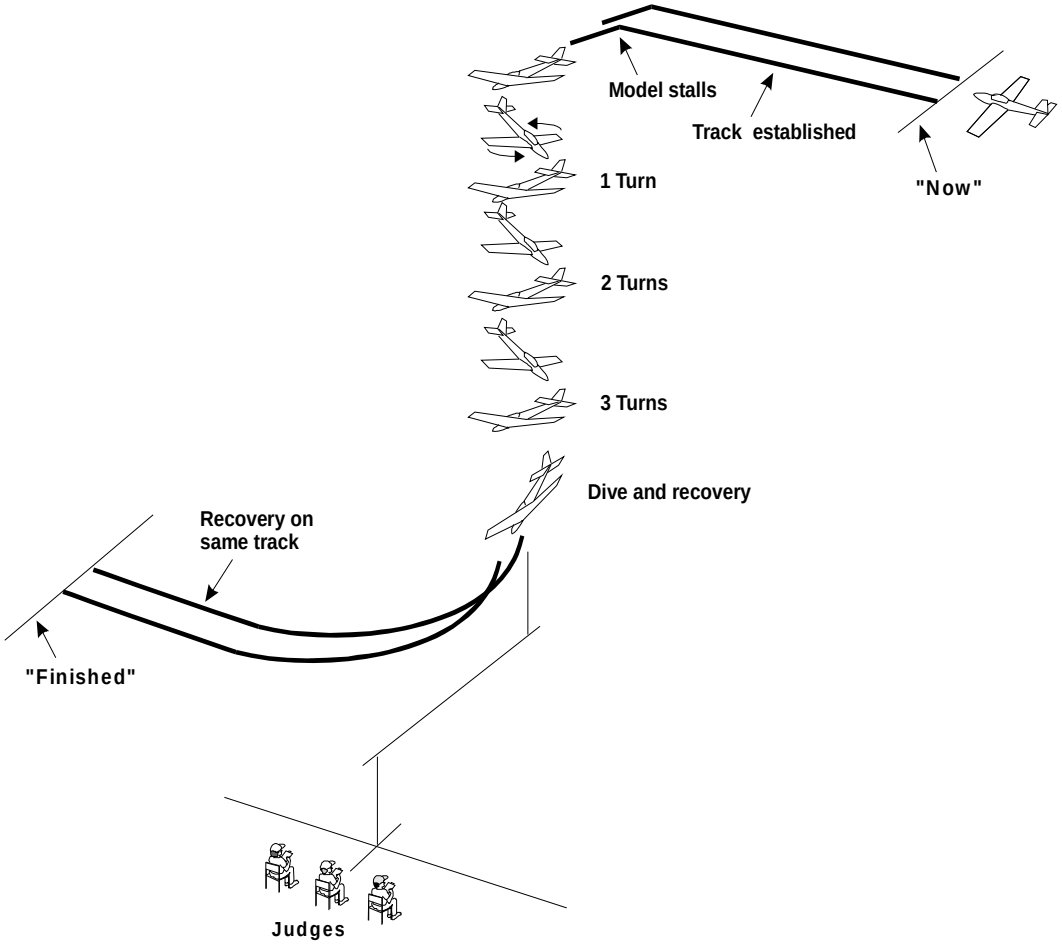
(8) Inappropriate use of throttle.

(9) Size and speed of loops not in manner of prototype.

(10) Too far away / too close / too high / too low.

J Spin Three Turns

From straight and level flight, the model decelerates into a stall and commences the spin through three turns and recovers to level flight on the same track as the initial flight direction. During descent the model may drift with the wind.



Errors

(1) Engine not throttled back at point of stall.

(2) Entry into spin not clean and positive.

(3) Not a true spin but merely a spiral dive (which should score zero).

Note: In a true spin descent path will be close to C of G of model. A spiral dive is a tight vertical barrel roll.

(4) Not three complete turns.

(5) Start of spin not centred on judges' position.

(6) Model does not resume straight and level flight on same track as entry.

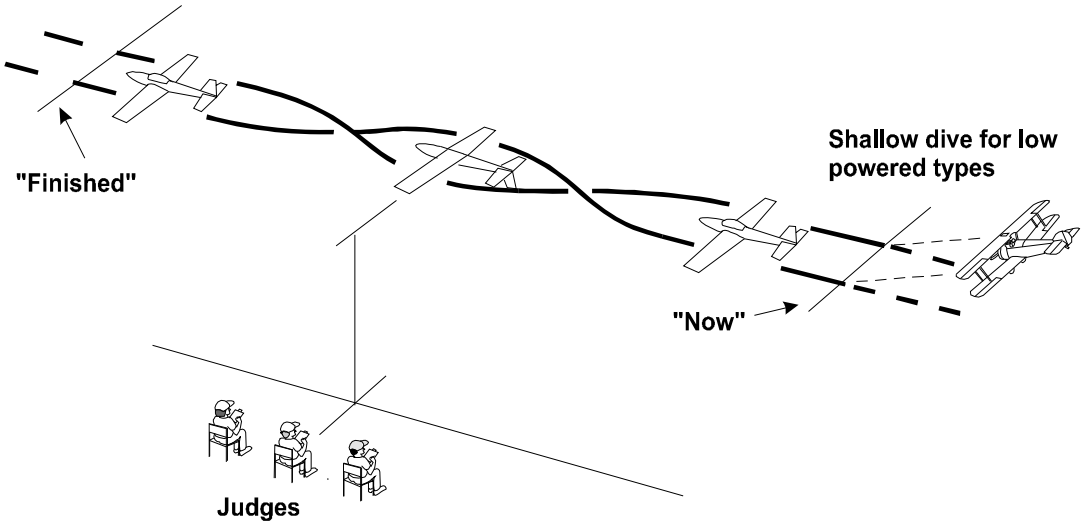
(7) Entry and exit paths not parallel with judges' line.

(8) Entry and exit not in level flight

(9) Too far away / too close / too high / too low.

K Roll

From straight and level flight, the model rolls at a constant rate through one complete rotation and resumes straight and level flight on the same track. Low powered aircraft would be expected to execute a shallow dive at full throttle before the manoeuvre. Competitors should nominate any special type of roll that will be performed, e.g. Slow, Barrel, Snap.



Errors

(1) Rate of roll is not constant.

(2) Style of roll not typical to prototype.

(3) Roll not centred on judges' position.

(4) Entry and exit at different heights.

(5) Entry and exit at different speeds.

(6) Entry and exit tracks and line of roll not parallel with judges' line.

(7) Does not resume straight and level flight on same track as entry.

(8) Style of roll not as nominated.

(9) Inappropriate use of throttle.

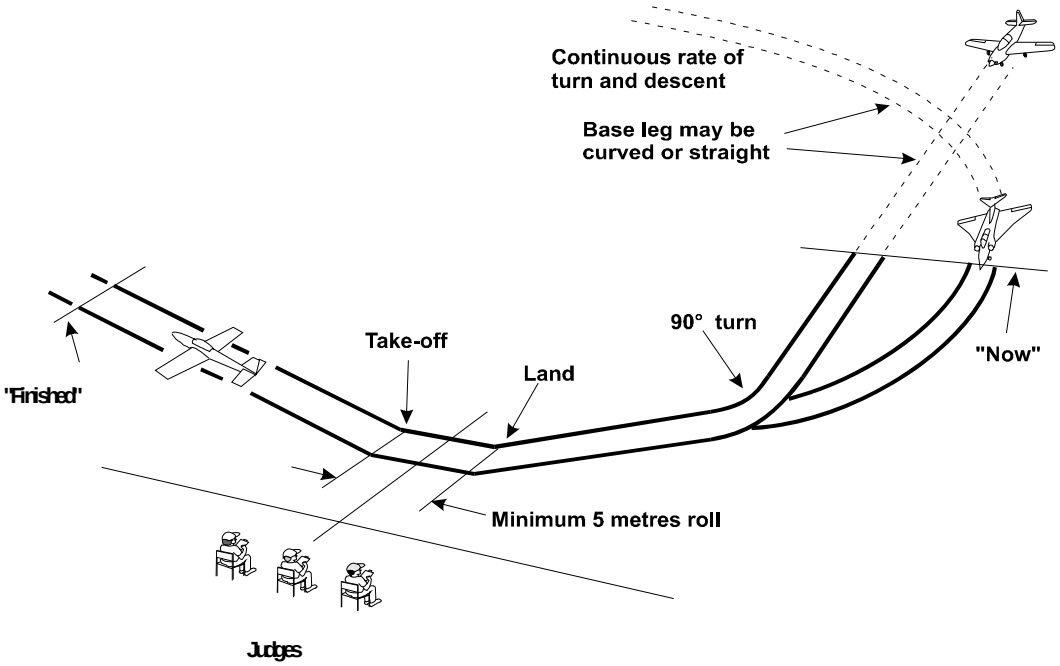
(10) Too far away / too close / too high / too low.

L Parachute

The drop 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. If the prototype used a braking parachute in landing, the competitor may demonstrate this.

M Touch and Go:

The model commences by descending from base leg, which may be either curved or straight as required by the pilot. The turn is continued through 90 degrees onto final approach. The model then lands and takes off again into wind without coming to a halt. The main wheels must roll on the ground for a minimum of five metres. Flaps will be used if applicable.



Errors

(1) Manoeuvre does not commence on base leg.

(2) Turn onto final approach too tight or not 90°.

(3) Descent from base leg not smooth and continuous.

(4) Model does not achieve correct landing approach prior to touchdown.

(5) Model does not achieve a minimum ground roll of 5 metres (note: if prototype has two main wheels then both wheels must roll on ground for minimum 5 metres

(6) Model bounces on landing.

(7) Inappropriate use of flaps.

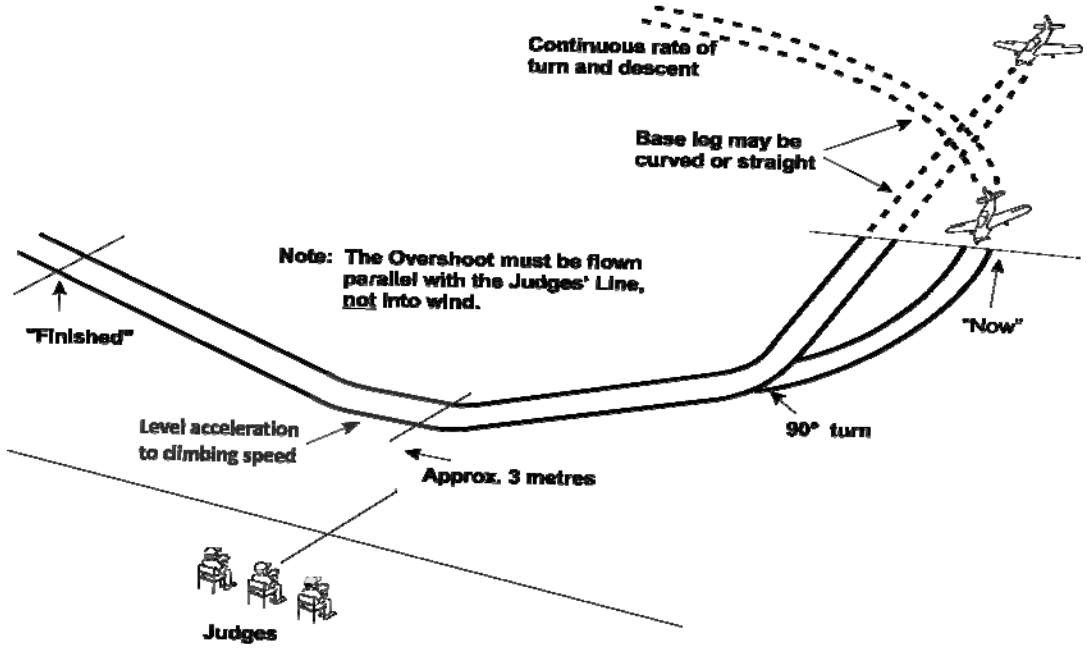
(8) Climb out not smooth or realistic.

(9) Approach and climb out tracks not the same.

(10) Does not make best use of landing space available for wind direction.

N **Overshoot:**

The model commences by descending from base leg, which may be either curved or straight as required by the pilot. The turn is continued through 90 degrees onto a higher than normal landing approach on low throttle, using flaps if applicable. On reaching the centre of the landing area at a height of approximately 3 metres, power is applied to check the descent. After normal flying speed and attitude are attained the model climbs straight ahead. The aim of the manoeuvre is to simulate an aborted landing due to a higher than normal landing approach.



Errors:

(1) Manoeuvre does not commence on base leg.

(2) Turn onto final approach not smooth and continuous or not 90°.

(3) Model does not achieve correct high landing approach.

(4) Model does not achieve correct landing speed or attitude.

(5) Not continually descending until power applied.

(6) Model descends to significantly above or below 3 metres.

(7) Lowest point of manoeuvre not achieved in front of judges.

(8) Not smooth transition of speed and attitude from approach, through descent check, to climb out.

(9) Inappropriate use of flap and/or gear.

(10) Model could have landed from approach.

(11) Model does not climb away smoothly.

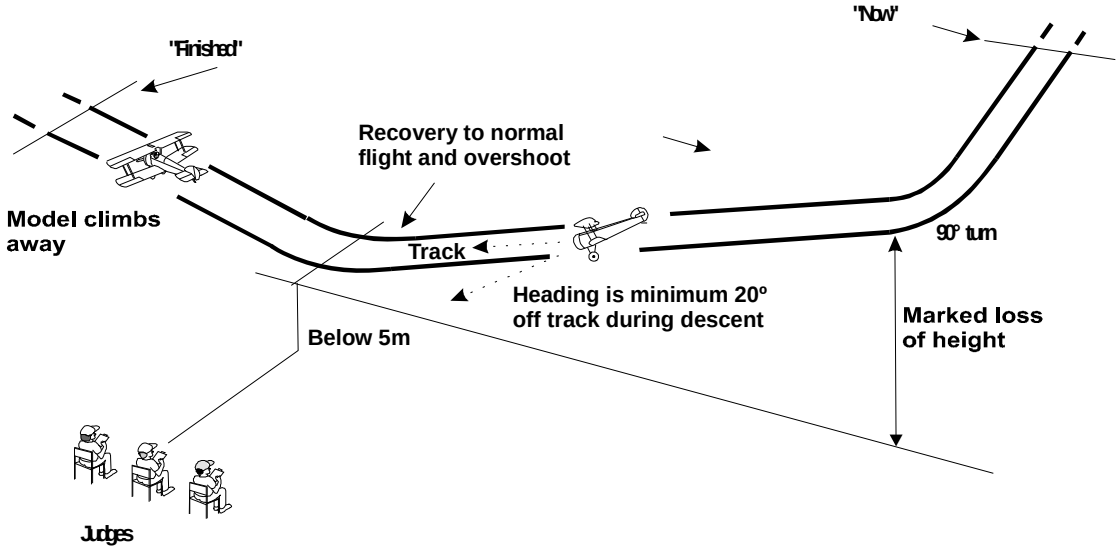
(12) Approach and climb out tracks not the same.

(13) Too close or too far away.

(14) Model gains height before accelerating

O **Side Slip:**

The model commences the manoeuvre in level flight by reducing power on base leg, and then turns onto a higher than normal final approach that is parallel with the judges' line. As the model enters the turn it starts a sideslip by the application of opposite rudder to the direction of turn, achieving a yaw of at least 20º off track. A marked loss of height must be apparent whilst maintaining final approach speed. The aim of the sideslip, if continued, would be to effect a landing in front of the judges. Before reaching the judges' position however, the sideslip is corrected, normal flight is resumed and the model carries out an overshoot from below 5m. before climbing away. The purpose of this manoeuvre is to demonstrate a marked loss of height on final approach without an excessive build up of speed or the use of flap.



Errors:

(1) Model does not smoothly enter sideslip upon turning final approach.

(2) Model is not yawed at least 20º off track during sideslip.

(3) Rate of sideslip and descent are not constant.

(4) There is insufficient height loss.

(5) Excessive speed is built up during descent.

(6) Approach track not maintained or not flown parallel with judges' line.

(7) The sideslip is not corrected before passing the judges.

(8) Overshoot is not below 5 metres.

(9) Not a smooth transition during return to normal flight and climbout.

(10) Too far away / too close / too high / too low.

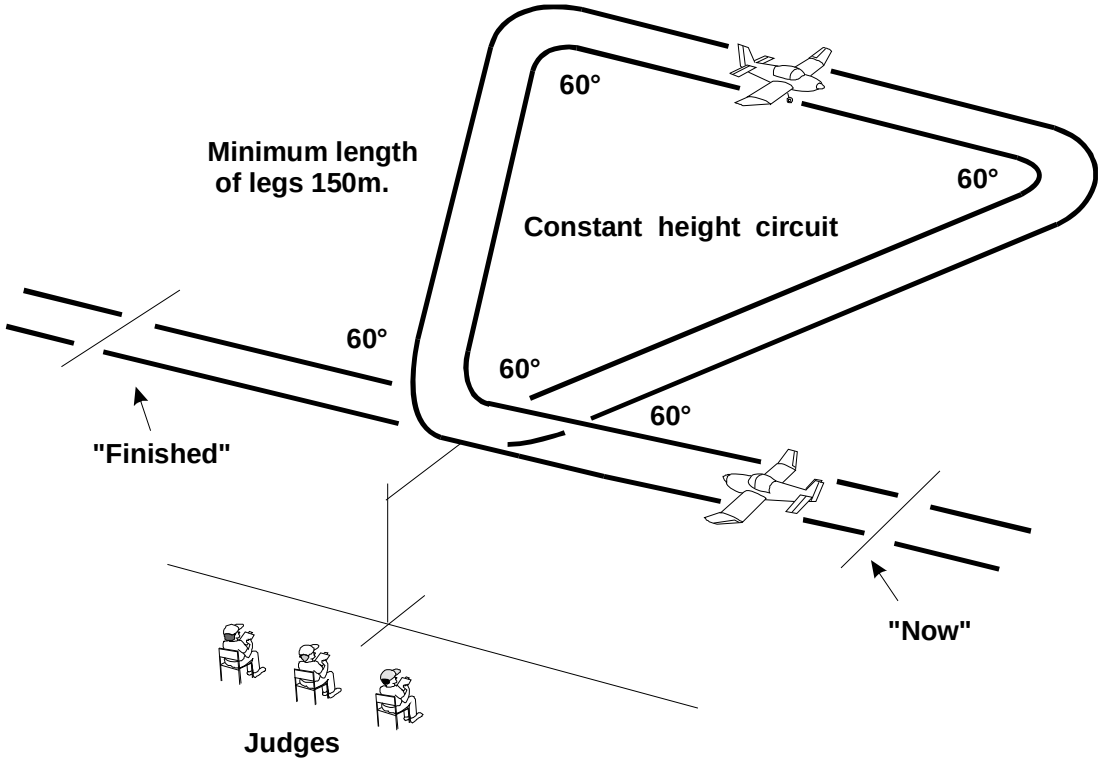
P & Q Flight Function(s) Performed by Prototype Aircraft

A competitor may demonstrate up to two flight functions of own choice but must indicate to the flight judges the nature of the demonstration(s) before going to the flight line. The competitor must be prepared to supply evidence that this function was performed by the aircraft subject type modelled, e.g. crop spraying, outside loop etc.

Procedural flying manoeuvres such as procedure turn, climbing turn, descending turn, etc. are not acceptable. Mechanical options, which could be equally performed on the ground (e.g. switching on and off lights), are also not allowed.

R Flight in Triangular Circuit

The model approaches in a straight and level flight to a point directly in front of the judges. It then turns away to track 60º away from the judges' line. It then flies straight and level for a minimum of 150 metres, turns to track parallel with the judges' line, flies a further minimum of 150 metres, then turns to track towards the judges and flies a further minimum of 150 metres to a position above the centre of the landing area, which completes an equilateral triangle (i.e. a triangle with sides of equal length and angles of 60°), before making a final turn to intercept the original entry track.



Errors

(1) Not commenced and finished at points equidistant from the judges.

(2) Model changes height.

(3) Rate of turn at corners not constant or inside corners of triangle not 60°.

(4) Sides of the triangle are not straight.

(5) Sides of triangle are not equal lengths.

(6) Sides of the triangle are too long or too short.

(7) Apex of triangle not centred on judges' position.

(8) Correction for drift not properly made.

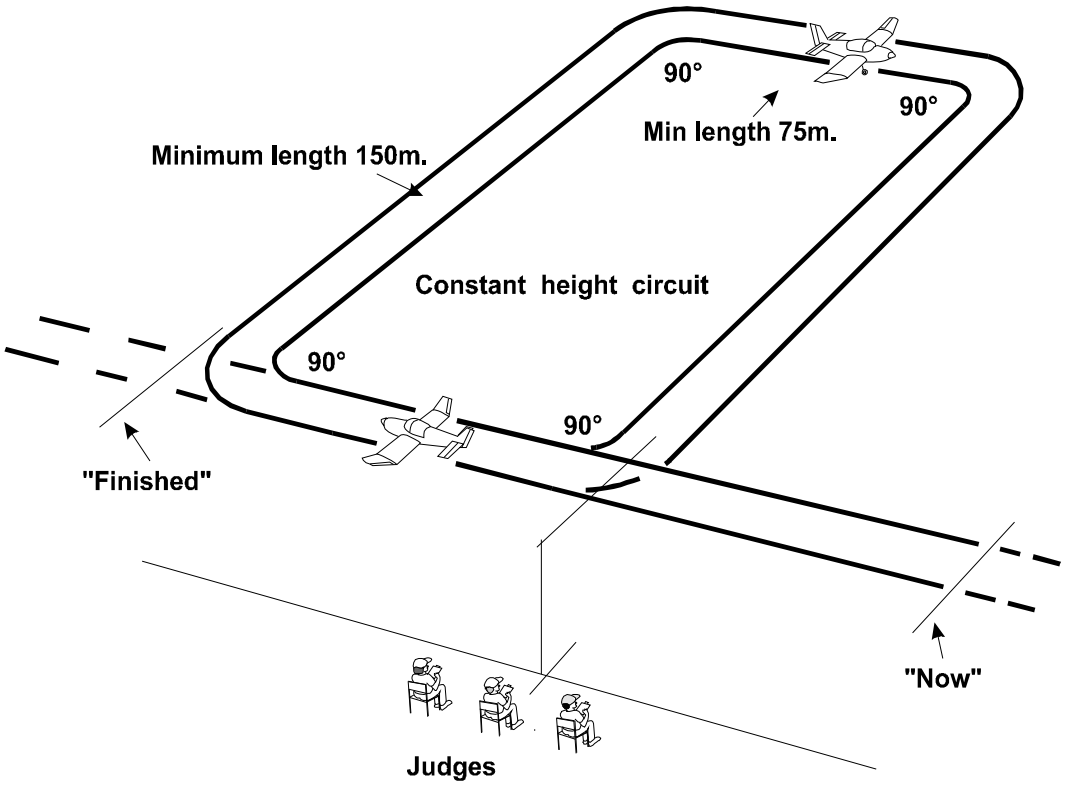
(9) Start and finish tracks not the same.

(10) Start and finish tracks not parallel with judges' line.

(11) Too far away / too close / too high / too low.

S Flight in Rectangular Circuit

The model approaches in straight level flight to a point directly in front of the judges. It then continues for a minimum of 75 metres before it turns away to track 90º from the judges' line and flies straight and level for a minimum of 150 metres before turning to track parallel with the judges' line for a further minimum of 75 metres. It then turns to track directly towards the judges for a minimum of 150 metres, to a point in front of the judges, before completing a final turn to intercept the original entry track. This manoeuvre describes a rectangle over the ground.



Errors

(1) Not commenced and finished at points equidistant from the judges.

(2) Model changes height.

(3) Rate of turn at corners not constant or corners not 90°.

(4) Legs are not straight.

(5) Legs too long or too short.

(6) Opposite sides of rectangle are not of equal length

(7) Correction for drift not properly made.

(8) Final leg of rectangle not centred on judges' position.

(9) Start and finish tracks not the same.

(10) Start and finish tracks not parallel with judges' line.

(11) Too far away / too close / too high / too low.

T Flight in a Straight Line at Constant Height (Maximum 6 m)

Model approaches in straight flight at a constant height not exceeding 6 metres for a minimum distance of 100 metres, then climbs away.

Errors

(1) Not a straight course (slight corrections acceptable with light aircraft).

(2) Not constant height.

(3) Not 6 metres or below.

(4) Not pass over the landing area.

(5) Not centred on judges' position.

(6) Not parallel with the judges' line.

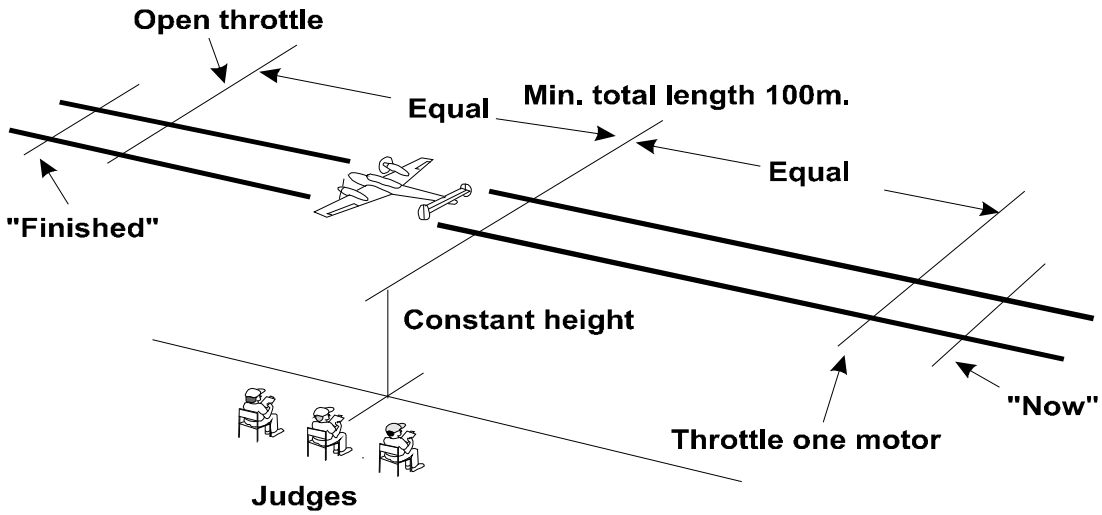
(7) Too short distance (too long is not an error).

(8) Model flight path not steady.

(9) Too far away / too close / too high / too low.

U Flight in a Straight Line With One Motor Throttled

Model approaches in straight flight at a constant height 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 only for multi-engined subjects.)



Errors

(1) Flight not straight.

(2) Model is unstable.

(3) Undue loss of height.

(4) Engine not opened up after demo.

(5) Engine not throttled back sufficiently.

(6) Insufficient duration.

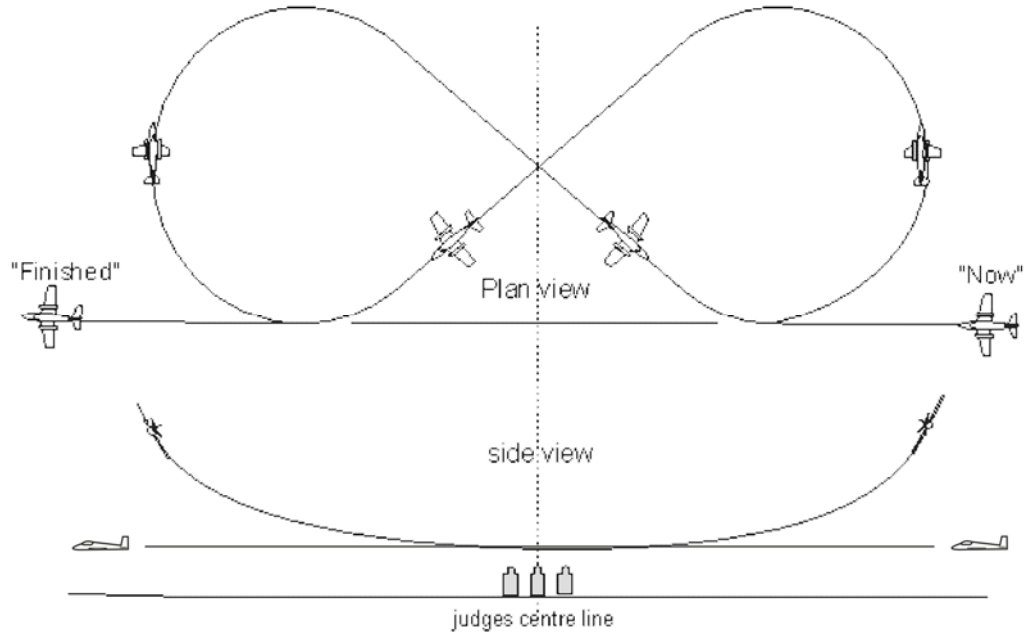
(7) Not centred in front of judges' position.

(8) Not flown parallel with the judges' line

(9) Too far away / too close / too high / too low.

V Lazy Eight

The model approaches in straight and level flight on a line parallel with the Judges' line. When the model is in line with the judges (the centre) a smooth curving climb is commenced which progresses to a smooth climbing turn of constant radius away from the judges. At the apex of the turn the bank should be at least 60 degree and the model shall be on a heading of 90 degrees to the judges' line. The nose of the model then lowers and the bank comes off at the same rate as it went on. The turn is then continued beyond 180 degree to intercept the centre with the wings level and at the same height as the entry height into the manoeuvre. At the centre another smooth climbing turn is immediately commenced away from the judges, the shape of which should be the same as the first turn. The second turn is then continued beyond 180 degree to cross the centre with wings level and at the same height as the entry height into the manoeuvre. The Lazy Eight is completed by maintaining this height and heading with wings level before turning to intercept the original approach track to exit the manoeuvre parallel to the judges' line in straight and level flight. A low powered aircraft would be expected to execute a shallow dive at full throttle in order to pick up speed before commencing the manoeuvre. The figure should be symmetrical each side of the judges' position.



Errors:

(1) Entry and exit paths not parallel with judges' line.

(2) Insufficient climb achieved.

(3) Insufficient bank achieved.

(4) Climb and descent curves not equal throughout manoeuvre.

(5) Manoeuvre not symmetrical about judges' position.

(6) Arcs misshapen.

(7) Start and finish positions not as indicated.

(8) Overall size of manoeuvre not realistic for prototype.

(9) Model flight path not smooth and steady.

(10) Too far away / too close / too high / too low.

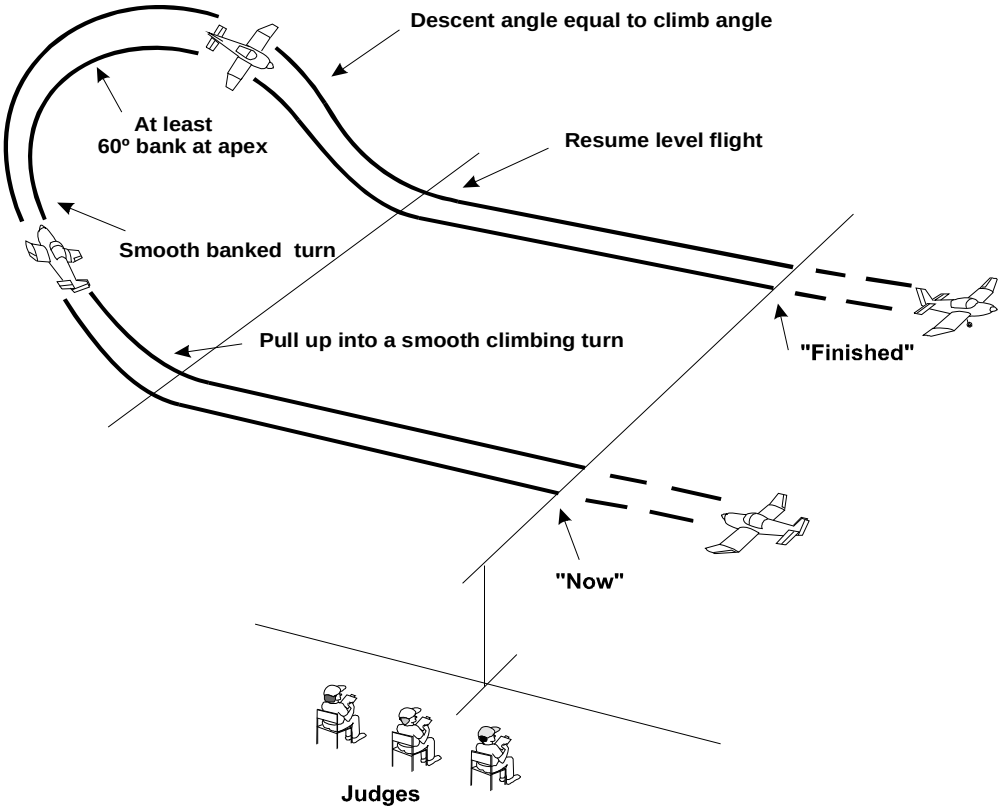
(11) Apexes of turns not coincident with a model heading of 90 degrees.

(12) Wings not level at the crossover.

W Wingover.

The model approaches in straight and level flight on a line parallel with the Judges' line. After passing the judges' position a smooth climbing turn is commenced away from the judges. At the apex of the turn the bank should be at least 60º. The nose of the model then lowers and the bank comes off at the same rate as it went on. The turn is continued through 180º to recover straight and level flight at the same height and on a heading opposite to that of the entry.

A low powered aircraft would be expected to execute a shallow dive at full throttle in order to pick up speed before commencing the manoeuvre.



Errors:

(1) Start and finish positions not as indicated.

(2) Insufficient climb achieved.

(3) Insufficient bank achieved

(4) Climb and descent angles not equal throughout manoeuvre.

(5) Model does not fly a smooth and symmetrical arc.

(6) Entry and exit paths not parallel with judges' line.

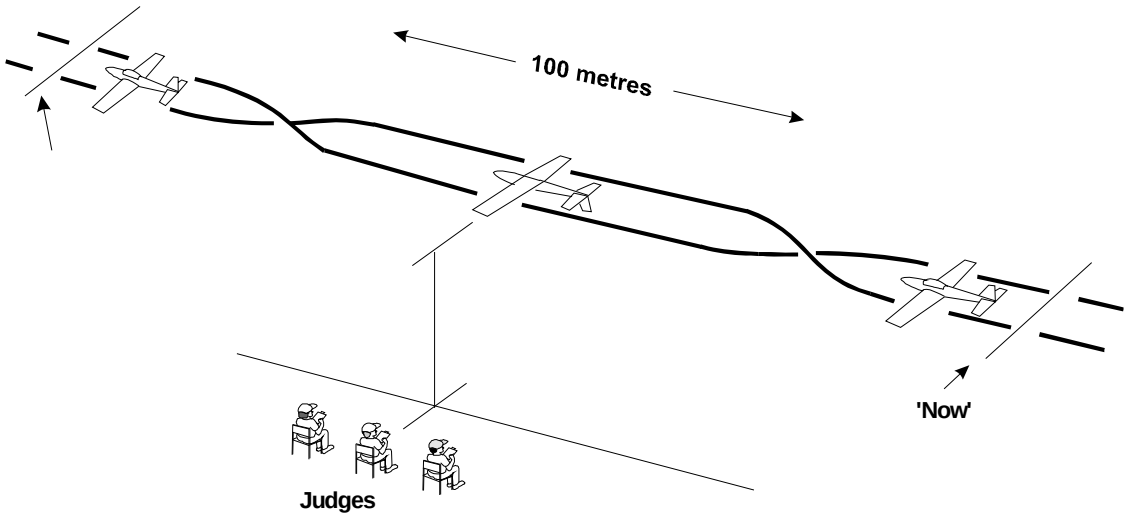
(7) Overall size of manoeuvre not realistic for prototype.

(8) Model flight path not smooth and steady.

(9) Too far away / too close / too high / too low.

X Inverted Flight

Model half rolls into inverted attitude and makes a straight inverted flight of 100 metres in length, then half rolls out of inverted attitude and resumes normal straight flight. A low powered aircraft would be expected to execute a shallow dive at full throttle in order to pick up speed before commencing the manoeuvre.



Errors

(1) Half rolls not performed on same track as inverted flight.

(2) Model does not fly a straight course.

(3) Model gains or looses height.

(4) Model does not remain inverted for the prescribed duration.

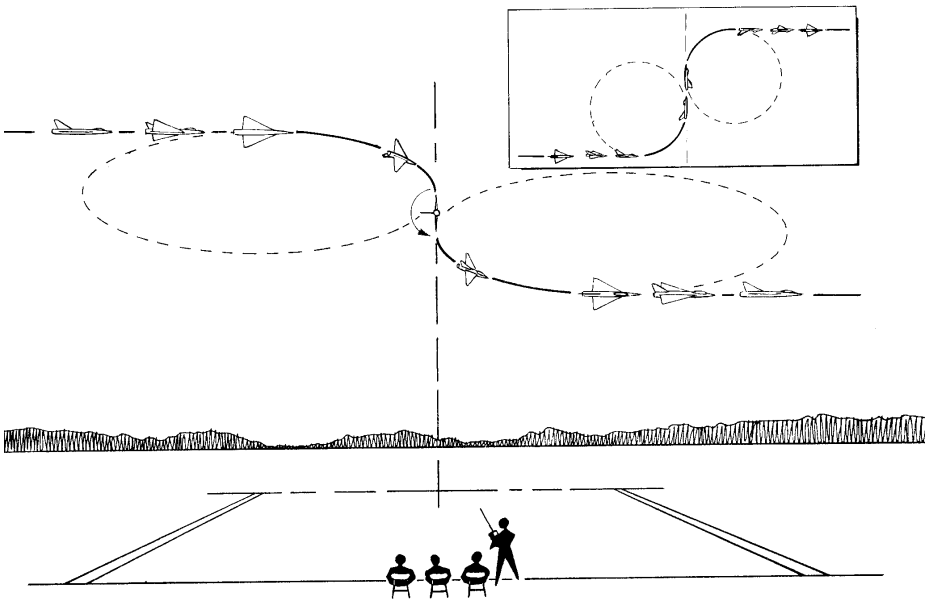
(5) Manoeuvre not centred on judges' position.

(6) Manoeuvre not flown parallel with judges' line.

(7) Too far away / too close / too high / too low.

Y Derry Turn

The model approaches at a high speed in straight and level flight on a line parallel with the judge's line. The model then makes a steep (in excess of 60° bank) one quarter circle turn in a direction away from the judges, without loosing height. When centred in front of the judges the model makes a half roll in the same rolling direction as the entry, again directly followed by a steep one quarter circle turn in the opposite direction, and then flies off straight and level on a line parallel with that of the entry to the manoeuvre. The manoeuvre should be smooth and continuous.



Errors

(1) Entry not in parallel with the judges line.

(2) The manoeuvre not centred in front of the judges.

(3) The rolling manoeuvre in front of the judges not axial .

(4) The roll in centre not in the same direction as the entry to the manoeuvre.

(5) The roll not carried out on a line directly away from the judges.

(6) Any hesitation between the end of the first quarter turn, the roll and/or the start of the second turn.

(7) Exit not parallel with entry.

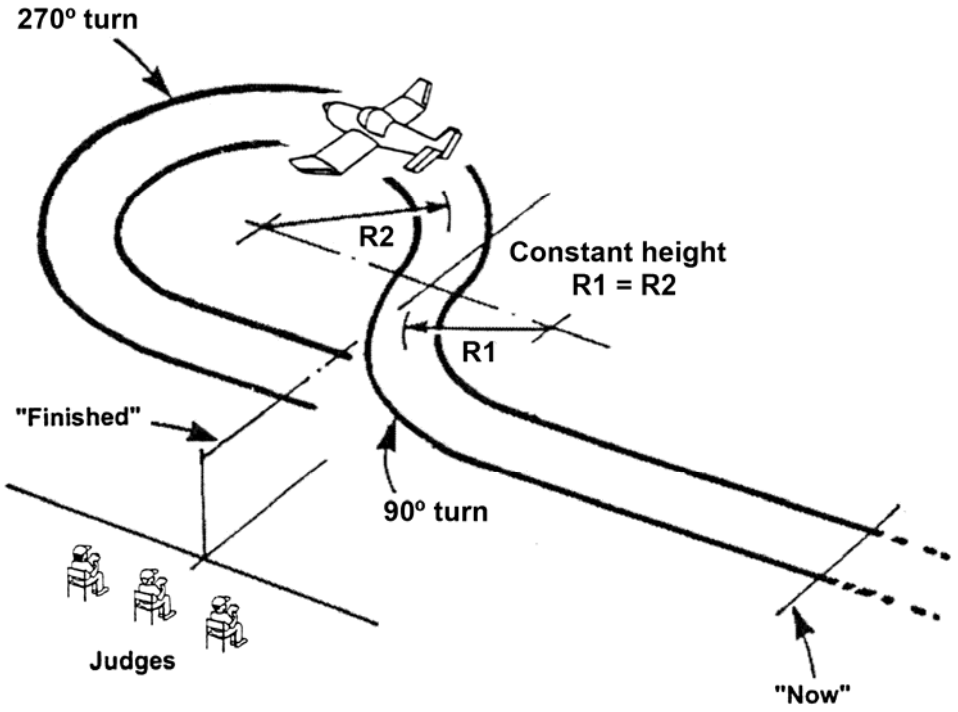
(8) Significant height difference during the manoeuvre.

(9) The manoeuvre misshapen as seen as part of a figure eight.

(10) The manoeuvre is executed too low or too high to be easily judged.

Z Procedure Turn

The model approaches in straight and level flight on a line parallel with the Judges' line, and then a one-quarter circle turn is made in a direction away from the Judges' line. This is followed by a 270-degree turn in the opposite direction, completing the manoeuvre on the reciprocal heading on the original approach line. The manoeuvre must be commenced so as to place the point where the model changes from the 90° turn to the 270° on a line which is at a right angle to the direction of entry and passes through the centre of the Judges' line.



Errors

(1) Rate of turn is not constant.

(2) Radius of turn is not constant.

(3) Constant height not maintained.

(4) Entry and exit paths not on same line

(5) Entry and exit paths not parallel with Judges' line.

(6) Change from 90° to 270° turn not at right angles to original flight path.

(7) Change from 90° to 270° turn not centred on Judges' position.

(8) Overall size of manoeuvre not realistic for prototype.

(9) Model flight path not smooth and steady.

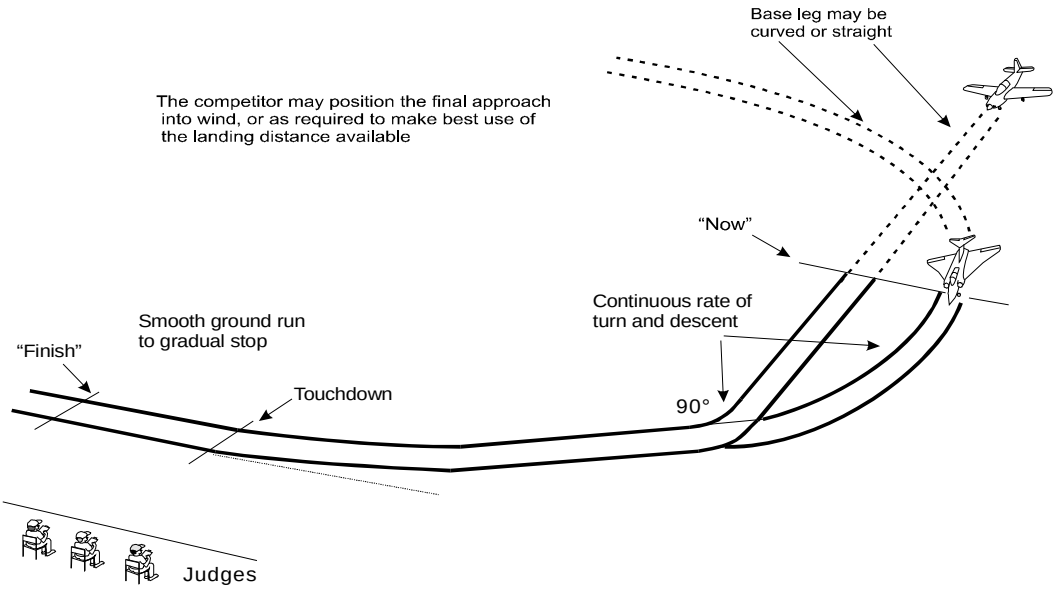
(10) Too far away / too close / too high / too low.

6.3.13.6 Approach and Landing

The manoeuvre commences by descending from base leg (in the same way as the Touch and Go). Prior to this point the model may complete any form of appropriate circuit to achieve a landing configuration. This may be a full rectangular or oval pattern, or a join directly onto the downwind or base legs. The Approach and Landing may be orientated into wind, or as required by the competitor to make best use of the landing distance available (e.g. jet subjects).

The base leg may be either straight or curved as required by the pilot. From the start position the model completes the turn through 90 degrees onto final approach. The model should round out smoothly, adopting the attitude applicable to the specific type and touch down without bouncing before smoothly rolling to a stop. An aircraft with conventional landing gear will make a three point landing or will land on the main wheels and then gently lower the tail, as appropriate to the prototype, the prevailing wind conditions, or the surface of the landing area. An aircraft with tricycle landing gear will land on the main wheels first and then gently lower the nosewheel.

If the prototype used flaps and/or speed brakes for landing, then the model should also, but this may be subject to the competitor's judgement taking into account the wind strength. Flaps and/or speed brakes should be deployed at the appropriate point in the landing circuit up to and including the final approach. Any flapless landing due to the wind must be nominated at the time the landing manoeuvre is announced.



Errors

(1) Manoeuvre does not commence on base leg.

(2) Turn onto final approach not constant rate or not 90°.

(3) Descent from base leg not smooth and continuous.

(4) Model does not achieve correct landing approach prior to touchdown.

(5) Model does not round out smoothly.

(6) Model bounces.

(7) Drops a wing during landing.

(8) Touches wing tip on ground.

(9) Does not come to a gradual and smooth stop after landing.

(10) Does not adopt landing attitude appropriate to subject type.

(11) Model runs erratically or turns after landing.

(12) Model noses over (note 30% penalty if only nose-down - zero if it over-turns).

(13) Flaps and/or speed brakes not used if applicable.

Note:

A crash landing scores zero points but if the model makes a good landing and then stops nose down towards the end of the landing run, then the landing marks which would have been otherwise awarded should be reduced by 30%. If the nose down situation is solely the result of the model running off the prepared area, because this is too short for the particular wind direction, the above down marking will not apply. Models with retractable landing gears, landing with one or more gears retracted should have the landing points reduced by 30%. All landings ending with the model on its back will be considered a crash landing.

6.3.13.7 Realism in Flight

Realism in Flight covers the entire flight performance including the way in which the model flies between manoeuvres.

Realism in flight aspects shall be discussed by all flight judges after completion of the flight, taking note of any claim for non-aerobatic status. The judges should attempt to arrive at agreed scores for these aspects.

If the model lands (or crashes) before the flight schedule is complete, all the realism marks should be reduced from what would have been awarded if the schedule had been completed. The amount of reduction should be in proportion to the percentage of the schedule not flown.

Judges will allot points for Realism within the following aspects, always keeping in mind the likely characteristics of the full size subject:

Model sound..... ..... K = 4

This is an assessment of how the model replicates the characteristic sound of the Prototype. Apart from the obvious differences between piston powered, propeller-turbine powered and jet turbine powered aeroplanes, judges should be familiar with typical sounds produced by different categories of aeroplane and the variations in sound produced at varying throttle settings and/or propeller speeds. Judges cannot be expected to have retained an exact impression of the sound produced by all aeroplanes likely to be modelled. Judges should therefore consider how closely the sound produced by the model demonstrates what would be the typical sound produced by a prototype in the same category and powered by a similar means of propulsion to that which the model is attempting to replicate.

Special consideration should be given where the model demonstrates any particular characteristic sounds of the full size aeroplane. Competitors are encouraged to advise judges if such characteristic sounds can be reproduced and where they will occur in the flight. E.g. Excessive propeller noise at high power setting or noise produced by the airframe during high ‘g’ manoeuvres.

Speed of the model..... ..... K = 9

This should be an assessment of the scale speed of the model, calculated from the speed of the full size aircraft (as indicated on the score sheet and documentation) divided by the scale of the model. Models invariably fly faster than scale speed and marks should be deducted accordingly. For example, a model that appears to be flying at twice scale speed should score no more than half marks, a model flying at three times scale speed, or faster, should score zero.

Smoothness of flight ..... …. K = 9

The model should be well trimmed and show no signs of instability. Judges should assess the smoothness of control taking into account the prevailing weather conditions. They should also judge the attitude of the model in flight, i.e. any nose-up or nose-down tendency.

Notes:

1 Any model which flies with wheels down, whereas the prototype actually featured retractable landing gear shall have the total flight score reduced by 10%.

2 If the pilot of the prototype is visible from the front or from the side during flight, a dummy pilot of scale size and shape shall be equally visible during flight in the model. If such a pilot is not fitted, the total flight score shall be reduced by 10%.

ANNEX 6d

6.4.11 JUDGES GUIDE FOR SCALE FREE FLIGHT FLYING SCHEDULE

Applicable to sections

6.4 Scale Outdoor F/F I/C Piston Engine Powered Class

6.5 Scale Outdoor F/F Rubber Class

6.6 Scale Indoor F/F Rubber Class

6.7 Scale Outdoor F/F CO2 / Electric Class

6.10 Scale Indoor F/F CO2 / Electric Class

6.15 Scale Indoor Kit Scale Class

6.4.11.1 Flight Characteristics

Models should at all times fly in the same manner as the prototype. The following notes describe an average aeroplane; judges should use their own personal judgement to decide on an appropriate flight style for the prototype submitted and mark the flight accordingly. Competitors may submit a description of the prototypes flight characteristics (originated by a competent authority), which should be used to judge the flight.

6.4.11.2 Take-off

The model should slowly accelerate from rest, leaving the ground after an appropriate ground run. The take-off run should be straight, and transition to flight should be smooth.

Errors

The take-off should be penalised if: the ground run is too short, too long or assisted, the tail or nose wheel does not leave the ground before the main wheels, the wing drops or the run is curved. Note that a swing may occur as the tailwheel leaves the ground; this is normal and should not be penalised unless it is excessive.

6.4.11.3 Initial Climb

The model should smoothly rotate to a climbing attitude, and commence a gentle straight or curved climb. The climb should be smooth and appropriate to the prototype.

Errors

The climb should be penalised if: too steep, too shallow, too highly banked, wing drop or wing rock occurs or nose attitude is too high or too low. Note that a high bank steep spiral climb is normal for a Pitts but that a Bleriot should hardly leave ground effect.

6.4.11.4 Realism in Flight

The model should mirror the flight characteristics of the prototype in speed, flight attitude, stability and balance. The model may fly in a straight line or turn in either or both directions. Turns should display an appropriate amount of bank. The flight should be smooth and continuous, especially the transitions between take-off, climb, cruise, descent and landing approach. Due allowance must be made for the prevailing wind conditions.

Errors

Realism in flight should be penalised if: the model flies too slowly or too fast, the nose attitude is too high or too low, the model stalls, or shows fugoidal flight path, has persistent wing drop or wing rock, flies an out of balance turn or pitches harshly on engine failure. A stall or wing drop may occur if the model hits turbulence or its own slipstream. If the recovery to stable flight is smooth, this should not be penalised. A grossly out of balance turn, left turn with right bank for instance, or a flat turn should be penalised.

6.4.11.5 Transition to Descent

The model's flight path should smoothly change between cruise and descent. The change may be abrupt, after an engine failure, or prolonged as the power slowly reduces. The direction of flight may or may not change.

Errors

The transition should be penalised if: the model stalls as the engine fails, wing drop or wing rock occurs or an excessive pitch change is apparent.

6.4.11.6 Descent and Landing Approach

The descent should be smooth, continuous and stable. It may be straight or curved. The angle of descent should be consistent with that of the prototype either engine on or engine off. As the model nears the ground it should adopt a landing attitude consistent with that of the prototype. Allowance must be made for prevailing wind conditions.

Errors

The descent and landing approach should be penalised if: the model stalls, drops or rocks the wings, shows too steep a glide or does not change to a landing attitude. Note that the glide angle may change significantly with engine on or off.

6.4.11.7 Quality of Landing (Indoor Only)

After adopting the landing attitude, the model should descend slowly to the floor, and touch down without bouncing. The ground run should be smooth and straight, with the model coming slowly to rest. Touch down may be on main wheels only, or on tail down three points.

Errors

The landing should be penalised if: the model bounces, the ground run is curved, the model does not stop, it ground loops or touches down too hard. Landings in a nose down attitude, or on the nose wheel, should be penalised.

ANNEX 6e

6.8.6 JUDGES GUIDE TO SCALE PEANUT AND PISTACHIO.

6.8.6.1 General

Prior to commencement, the judges should review as many as possible of the models entered in the competition in order to establish a standard for the Workmanship and Complexity of Colour and Markings scores. The entries should be studied in relation to each other from a superficial aspect only. This may be achieved by a casual walk around the flying area looking at as many models present as possible.

As an aid to ensuring that marks are awarded in proportion for all entries, as marking progresses a list should be compiled on a single sheet of paper of marks awarded to each model. Marks given are then easily compared. Judges should not be afraid to change marks awarded to an earlier entry if they feel that they have misjudged the initial standard.

Finally, before commencing judging, check the size of the model - you may be able to eliminate a model early and save yourself a considerable amount of time.

6.8.6.2 Peanut or Pistachio

Pistachio models are, of necessity, a lot less complex than their brother, the Peanut. For example, no penalty should be given for single surface covering - even if this gives the impression of a thinner finish. Take care also to note the number of total marks allocated under each heading, there exists quite large differences between the two classes.

6.8.6.3 Documentation

Models should be disqualified if less than the minimum documentation is submitted, or if the documentation does not fall within the requirements of the rules.

6.8.6.4 Workmanship

Complexity of the subject model must not be taken into account under this heading. Marks for complexity of subject are allocated under separate headings later.

Models should be checked for quality of workmanship and marked accordingly. In particular, the following should be assessed if appropriate: the filling of grain, the sharpness of line and edge (including that of the colour scheme), the fit of components and the general finesse if the model. The propeller should not be assessed.

6.8.6.5 Complexity of Colour and Markings

Full marks should be given to the most complex subject that has been accurately portrayed. Marks should be awarded to other models in proportion with the lowest mark being appropriate to the simplicity and standard of the poorest, simplest subject. In all cases, the authenticity of the markings should also be taken into account.

When assessing complexity, take account of the following: curved rather than straight lines, number of different colours and size and relative position of markings.

In particular, when assessing authenticity look at the relative size and position of the markings as well as the completeness. This would include such items as colour break lines in camouflage patterns.

6.8.6.6 Authentic Details

Marks should be allocated according to the amount of authentic detail on the model. Complex subjects that show a lot, but not all, of the detail should be given a higher mark than a simple subject that has all the detail; present, providing that the detail on both models is accurate and authentic and that the more complex model has more detail on than the simple one.

6.8.6.7 Flying Surfaces

The type of covering should not be taken into account. For example, a wing covered on both sides whether in balsa, tissue or foam is still double covered.

6.8.6.8 Surface Finish

Consideration should be given to the weight and depth of colour on the model when deciding on the marks allocation under this heading. As a guide, the lighter covering material and thinner finish should be given less marks than the heavier covering material and/or heavy (solid) paint finish.

6.8.6.9 Other Complexity of Subject Marks

Take care when making an assessment under each heading to ensure that marks are allocated according to the relative complexity of each subject when compared to the others in the submitted group of models. For example, if one particular model had a grossly complex fuselage cross-section then the dividing line between a 'square' and 'other than square' fuselage could be moved to give this particular model the correct relative mark. Thus, a 'square' fuselage with a curved turtle deck could be classed as 'square' in one group of models and 'other than square' in another.

Marks should not be given twice for any one feature. For example, if given the premium that applies to a floatplane, no marks should be awarded for the landing gear, unless separate landing gear exists besides the floats.

6.8.6.10 Negative Points for Deviation From Scale to Assist Flying Performance

Any deviation from scale that has not already been penalised and would, in the judges opinion, assist stability or help increase endurance should be penalised by deducting two marks from the static score.

Apart from the listed headings, judges should look for the following, grossly increased distance between propeller and nose block, widening of fuselage, clear or other trim tabs that are not authentic, gross washout on wings, gross deviations in wing section, etc..

ANNEX 6f

JUDGES GUIDE TO SCALE INDOOR KIT SCALE

6.15.6 General

Kit Scale is intended as a class both to encourage newcomers to participate in judged indoor flying and to allow experienced competitors to build and fly models of prototypes that may not be suitable for the 'open' classes due to lack of documentation or complexity. The philosophy is different from other scale classes in that models are judged against authenticity and accuracy to the kit plan rather than absolute accuracy to photographs and 3 views.

6.15.6.1 Flying Schedule

Flying is to be judged in accordance with the guide at Annex 6d.

6.15.6.2 Static Judging

Ideally all models entered in the competition should be assembled in the same area for judging to allow the judges to establish a standard for the Workmanship and Overall Character scores. The entries should be studied in relation to each other from a superficial aspect only. Alternatively, this may be achieved by a casual walk around the flying area looking at as many models present as possible. As an aid to ensuring that marks are awarded in proportion for all entries, as marking progresses a list should be compiled on a single sheet of paper of marks awarded to each model. Marks given are then easily compared. Judges should not be afraid to change marks awarded to an earlier entry if they feel that they have misjudged the initial standard.

You only need to check the size and weight of a model if you suspect that it may exceed the specified limits.

6.15.6.3 Documentation

Documentation requirements are minimal. The kit plan, or a photocopy, MUST be produced to confirm that the model is built from a kit and to authenticate its accuracy. It is only necessary to provide one photograph, drawing or painting to authenticate colour and markings. If none is provided, the model will not be disqualified but will score zero for that element of the marking.

6.15.6.4 Workmanship

Models should be judged for accuracy against the kit plan and the quality of workmanship and marked accordingly. In particular, the following should be assessed if appropriate: the filling of grain, the sharpness of line and edge (including that of the colour scheme), the fit of components, lack of warps and the general finesse if the model. The propeller should not be assessed. It is expected that sections such as trailing edges and wing tips shown unfinished on some, typically older, plans will be sanded to produce a more realistic appearance. Deviations are allowed to accommodate a different power source and to replace the original propeller and wheels with more efficient variants. Credit may be given where this is particularly neatly done.

6.15.6.5 Authenticity of Colour Scheme & Accuracy of Markings

This should be judged against the documentation provided. This need not necessarily represent a particular aircraft or prototype but must be appropriate for the era and type of aircraft modelled (eg WW1 military fighter, civilian tourer etc). Markings may be painted, cut from tissue or applied as transfers supplied with the kit. Any covering material is permissible and may be pre-coloured or painted but see 6.15.6.7 with respect to deductions. Some credit should be given for complexity of colour scheme and markings but this is not overriding: a well-rendered simple scheme should still score well.

6.15.6.6 Overall Character

This is the judges' opportunity to assess the 'appeal' of the model and how well it captures the spirit of the prototype.

6.15.6.7 Deductions

This class is intended to enable relative beginners to be competitive against more experienced modellers. Kit-based models are often 'improved' by builders to make them more accurate or to gain complexity marks in the 'open' or Peanut classes. Such alterations are not prohibited in Kit Scale but will result in a reduction in marks in this class. Judges should use their discretion over the total deductions made, particularly as some manufacturers offer alternate options on the plan for such things as separate control surfaces. As a guide, the following should each attract a 5 mark deduction:

(a) Fully painted surface finish (including light airbrushing).

(b) Separate control surfaces where these are not shown on the plan. Note that 5 is the maximum deduction; a lower figure may be awarded for a single-surface infringement.

(c) Significantly increased, or reduced, dihedral (unless already penalised under 'workmanship').

(d) Addition of a significant amount of detail (other than a pilot, which is not penalised).

(e) Installation of artificial aids to stability other than manually adjustable trim tabs.

Annex 6g

6.15 SCALE TEAM SELECTION PROCESS (F4C and F4B)

6.15.1 Rules to be Used

Team trials will be run to the FAI rules that will be in force in the year of the international competition for which the selection is taking place. The current FAI F4B and F4C rules are available from either the BMFA Head Office or from the FAI/CIAM website: Hwww.fai.org/aeromodelling/documents/sc4H.

6.15.2 Minimum Standard of Qualification:

The Scale Tech. Committee has for a number of years set a minimum qualification standard of 70% for Team selection. It is therefore expected that all successful participants shall achieve total scores (based on 2 judges) of at least 2800 points.

6.15.3 Static Qualification:

Separate arrangements will be made at the dedicated Team Trials for Static judging. This will normally require it to be a two-day event.

6.15.4 F4B Flight Qualification:

The flight aspect of F4B team selection shall be based solely upon flying performance at the dedicated Team Trials event.

6.15.5 F4C Flight Qualification:

The flight aspect of F4C team selection shall be based upon flying performance at the Team Trial, the UK Nationals and BMFA Centralised events throughout the season in the year preceding the international contest in question. These events shall be nominated at the start of each season and comprise at least 4 suitable venues including the Nationals. In addition, there shall be a dedicated Team Trials event held each year towards the end of the season to finalise team selection.

The highest two flight scores achieved by each competitor at any two qualifying events throughout the season may count towards selection. These two scores shall be averaged and carried forward to comprise half the final qualifying flight score at the dedicated Team Trials event. The remaining half of the flight qualification will be the best flight score achieved at the actual Team Trials event. If weather precludes flying at the Trials, then the score achieved from the season's qualifying events will be adjusted to count as the sole flight element. Should there be a tie, the static scores shall be used to determine placings.

To achieve consistency across the various venues and conditions experienced during the season, the qualifying scores mentioned above will be normalised in terms of the highest scoring competitor at each event, e.g. the highest flight score will be 100% with the remainder expressed as a percentage of this.

It is accepted that any scale model complying with the current F4C weight limit may be used to attain qualifying flight scores during the season. The actual model intended for the international event must however be the one entered for static assessment and flown at the dedicated Team Trials event. Any further substitution of model prior to the international event shall be subject to individual approval by the Scale Technical Committee. This shall be based on evidence at BMFA Scale contests the following year, proving the new model to be equal to or better than the one used at the Trials.

Annex 6h

ANNUAL SCALE TROPHIES

6h.1 Official BMFA Trophies

These trophies are administered by the BMFA Records Officer and are awarded at the AGM Dinner.

6h.2 BMFA National Championships

6h.2.1 Scale R/C classes

(a) Radio Modeller Scale Trophy (57)

winner of the F4C event.

(b) Radio Modeller II Trophy (65)

winner of Scale R/C "Flying Only" class.

(c) Clubman Trophy (108)

winner of Scale "Clubman" class.

(d) Handley Page Trophy (122)

awarded to the highest scoring multi-engined model competing in the F4C, Clubman and all Free Flight classes at the Nationals. Scoring is based upon each model's percentage score of the maximum available for its class.

(e) Radio Modeller Trophy Number I (Number to be advised)

awarded to the highest placed competitor in the "Flying Only" class who has not competed in a previous Scale RC class at the National Championships. This trophy may be awarded at the AGM dinner but does not qualify for a free dinner ticket.

6h.2.2 Scale C/L Classes

(a) Knokke No 2 Trophy (18)

winner of the Scale C/L event.

6h.2.3 Scale F/F (outdoor)

(a) Superscale Trophy (19)

winner of Scale F/F Power event.

(b) Model Flier Trophy (97)

winner of Scale F/F Rubber event.

(c) Knight & Pridham Trophy (104)

winner of Scale F/F CO_2/Elec event.

6h.2.4 Scale Indoor Nationals

(a) Hotham Trophy (58)

winner of Scale Open Rubber event.

(b) Doug Sheppard Trophy (101)

winner of Scale CO_2/Elec event.

(c) Butch Hadland Memorial (75)

winner of Scale Peanut event.

(d) Mike Goldby Memorial Trophy

Winner of the Kit Scale event.

6h.3 Official BMFA Trophies at Other Events

(a) Ripmax Trophy (47)

winner of Scale R/C at an event nominated each year by the Scale Technical Committee

(b) Eric Coates Memorial Trophy (131)

Awarded each year across all Scale disciplines to the model that, in the opinion of the Scale Technical Committee, best captures the spirit and endeavour of Scale modelling.

6h.4 Scale Technical Committee Trophies

These trophies are administered by the BMFA Scale Technical Committee and are not eligible for AGM Dinner awards.

(a) John David Jones Painting

The original painting is awarded each year to the highest placed new model at the Scale R/C (F4C and Clubman only) and F/F National Championships based upon each model's percentage score of the maximum available for its class. The model may have been flown previously during that season but must not have flown at a previous National Championship.

In the opinion of the Scale Technical Committee, the model must be a genuinely new model and not modifications or a rebuild of an existing model. The CDs of FF and RC events will have the sole responsibility for nominating candidates for the Trophy.

(b) Aeroplane Monthly Trophy

The original painting is awarded at the BMFA Scale Indoor Nationals each year to the highest placed British civil light aircraft from the period 1919 to 1939.

(c) Modellers Den Peanut Trophy

Awarded to the winner of the Scale Peanut event at the BMFA's Autumn scale indoor event.

ANNEX 6j

FORMS FOR USE IN FLYING SCALE MODEL AIRCRAFT CONTESTS

C/L & R/C SCALE COMPETITORS DECLARATION FORM

For all models entered in Control line or Radio Control Scale Competitions this form must be completed, signed overleaf and presented to the judges on request. Competitors are to indicate YES or NO by circling the appropriate boxes below and complete the certification with a signature in the appropriate box overleaf. For competitions other than Flying Only, the Static Judging questionnaire overleaf must also be completed.

Competitor's Name	**BMFA No.**	**Model**	**Scale**

Indicate class by circling appropriate box here	**C/L (F4B)**	**C/L Flying Only**	**R/C (F4C)**	**R/C Stand Off**	**R/C Flying Only**

ALL CLASSES

If your flight schedule is to include Optional Demonstrations 6.2.7 M (C/L) or 6.3.7. P or Q (R/C) - Flight function by subject aircraft; provide full details of your manoeuvre(s) below or on a separate sheet.

ALL RADIO CONTROL SCALE CLASSES

Is your model fitted with an automatic attitude or motion stabilisation device e.g. Gyro (Rule 6.3.1 refers) ? **YES** **NO**

NON-AEROBATIC DECLARATION - Under the terms of rule 6.3.6, do you consider your aircraft to be non-aerobatic ? If YES give reasons below. **YES** **NO**

STATIC JUDGING QUESTIONNAIRE – (Not applicable to models in flying only competition

With the exception of any parts identified below, was the structure of this model researched, designed and built entirely by you ?	**YES**	**NO**
With the exception of any parts identified below, was this model built solely by you ?	**YES**	**NO**
Was this model built from a kit ?	**YES**	**NO**
If YES, state kit manufacturer's name ……:		
Indicate any of the following items supplied as part of a kit or not made by you : -		
Moulded or built up fuselage	**YES**	**NO**
Pre-formed or built up wing panels	**YES**	**NO**
Pre-formed or built up tail surfaces	**YES**	**NO**
Moulded canopy	**YES**	**NO**
Moulded or spun engine cowlings	**YES**	**NO**
Undercarriage assembly	**YES**	**NO**
Wheels	**YES**	**NO**
Tyres	**YES**	**NO**
Guns, bombs or other fittings	**YES**	**NO**
Spinners	**YES**	**NO**
Scale propellers	**YES**	**NO**
Instrument panel or cockpit interior	**YES**	**NO**
Printed or pre-cut markings or decals	**YES**	**NO**
Wire rigging or fittings	**YES**	**NO**

Insert details of any additional parts not made by you (excluding R/C equipment).

ALL CLASSES - CERTIFICATION and SIGNATURES

FLYING ONLY – I certify that the answers to the questions overleaf are correct.

Signature ……..…

R/C STAND-OFF SCALE – I certify that I applied the surface finish and the markings to this model and the answers to the above questions are correct

Signature……..……

C/L and F4C – I certify that I am the builder of this model and the answers to the above questions are correct.

Signature……

BMFA R/C SCALE FLYING SCORE SHEET

Name……………………………BMFA No…………..Event……………..………………Date………………..…..

Aircraft……………………...……………………..….Scale……..……..Cruise/Max Speed……..…...………..

Competitors must select below (in flying order 2 to 9) EIGHT of the following manoeuvres appropriate to the subject aircraft, two of which MUST be Figure Eight and Descending Circle

		K	Flt 1	Remarks	Flt 2	Remarks
1	Take Off (including climb out and 90^0 turn)	11				
	Figure Eight ($90^0 + 360^0 + 270^0$)	7				
	Descending Circle (360^0, descent below 6m.)	7				
	Extend and Retract Landing Gear (360^0 turn, not above 15m)	7				
	Extend and Retract Flaps (360^0 turn not above 15m)	7				
	Drop Bombs or Fuel Tanks (nominate either)	7				
	Parachute Demonstration	7				
	Touch and Go (main wheels on ground for minimum of 5m)	7				
	Lazy Eight (direction away from judges, minimum bank 60^0)	7				
	Sideslip Left / Right (minimum yaw 20^0 descent below 5m)	7				
	Flight in straight line with one engine throttled (min. 100m)	7				
	Stall Turn (direction away from judges)	7				
	Immelman Turn	7				
	Inside Loop	7				
	Split 'S' (Reversal)	7				
	Cuban Eight (Variation to be specified beforehand)	7				
	Normal Spin (Three Turn)	7				
	Roll (any non-prototypical roll type to be nominated beforehand)	7				
	Inverted Flight (1/2 roll - 100m - 1/2 roll)	7				
	Derry Turn	7				
	1st Flight Function performed by subject aircraft:	7				
	2nd Flight Function performed by subject aircraft:	7				

Any of the following six manoeuvres may only be selected by subjects certified and approved as Non-Aerobatic on the Competitors Declaration Form

	Chandelle (180^0 Climbing turn)	7				
	Flight in a Triangular Circuit (sides minimum length 150m)	7				
	Flight in a Rectangular Circuit (sides minimum lengths 75m x 150m)	7				
	Flight in a Straight Line at constant height (min.100m, max Height 6m)	7				
	Wingover (direction away from judges, minimum bank to be 60^0)	7				
	Overshoot (at approx. 3m)	7				
	Procedure Turn (90° away from judges + 270°)	7				

10	Approach and Landing	11				
11	Realism in Flight:					
	Model Sound	4				
	Speed of the Model	9				
	Smoothness of Flight	9				

Remarks

Judges Signature……………………………………………..

BMFA SCALE STATIC SCORE SHEET

Name……………..………......………..BMFA NO……………… Event……………….…..……… Date……………

Aircraft………………………………………………………………………..Scale…………………………..…

MINIMUM DOCUMENTATION REQUIREMENTS If the minimum documentation is not provided penalties as listed in 6.1.12.1. may apply.	TICK IF OK
At least 3 photos (or printed reproductions) showing the whole of the full size aircraft including at least one of the actual subject aircraft modelled.	
Scale drawing(s) of full size aircraft showing at least the Side View, Upper Plan View and Front End View. Min 250 mm span / fuselage (150 mm for Indoor & F/F Max 500 mm span / fuselage	
Proof of colour (one of the following): (1) Coloured Photograph. (2) Published Coloured Drawing (3) Published description with colour chip(s)	
(a) The exact name and aircraft designation of the prototype and the scale to which the model is built. (b) A statement of prototype's airspeed. (c) A signed Competitor's declaration form confirming the competitor as the builder of the model and listing all components not made by himself. (d) Any claim for non-aerobatic eligibility (R/C events only).	

Fidelity to Scale and Craftsmanship	**K**	**Score**	**Remarks**
Scale Accuracy - side view	13		
Scale Accuracy - front end view	13		
Scale Accuracy - upper plan view	13		
Markings - accuracy	8		
Markings - complexity	3		
Colour - accuracy	3		
Colour - complexity	2		
Surface Texture and Scale Realism - texture	7		
Surface Texture and Scale Realism - realism	7		
Craftsmanship - quality	12		
Craftsmanship - complexity	5		
Scale Detail - accuracy	9		
Scale Detail - complexity	5		

Judge's signature:………….……………………….……………

R/C STAND-OFF SCALE STATIC SCORE SHEET

Name…… **BMFA No……..**

EVENT…… **Date……**

Aircraft …… **Scale ……**

DOCUMENTATION REQUIREMENTS	REMARKS
A completed and signed Stand-off Scale Competitor's Declaration form	
At least 3 photos (or printed reproductions) showing the whole of the full size aircraft, including at least one showing the actual subject aircraft .	
Adequate documentation for side view	
Adequate documentation for front view	
Adequate documentation for upper plan view	
Adequate documentation for colour and markings	

Fidelity to Scale	K	Score	Remarks
Scale Accuracy - side view	**15**		
Scale Accuracy - front view	**15**		
Scale Accuracy - upper plan view	**15**		
Originality of Model Design & Construction	**15**		
Colour & Markings Accuracy	**10**		
Colour & Markings Complexity	**5**		
Realism	**20**		
Prototype Design Complexity	**5**		
TOTAL SCORE			

Judge's signature: ……

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