

# Slope Scale

## Definition

- 1 Slope Scale consists (as in power stand-off scale and F4C) of static judging, in which the accuracy of the model is assessed, and flying, in which the flying capabilities of the model and pilot are assessed.
- 2 Slope Scale is open to models of glider and power prototype aircraft, the same rules applying to both, but each competing in a separate category — Glider and PSS.
- 3 The competition is intended to reward the scratch builder while allowing the more prefabricated models to compete on an equitable basis.

**Note:** These rules are intended to be reasonably simple, to apply and to fly to, in order to encourage Slope Scale competition. The full National SOS or International F4C rules could be applied to Slope Scale with surprisingly little alteration, but general opinion seems to be that something apparently less daunting will be more acceptable at present.

## The Competition

- 4 The competition consists of one round of static judging and three rounds of flying, and each competitor's score is calculated as the total of his static score and the average of his best two flight scores.
- 5 If, as a result of adverse weather conditions, only two rounds of flying are completed, the total of the static score and the best single flight score is taken.

**Note:** For the purposes of a National Competition, at least two rounds must be completed for a result to be declared, but for other purposes, and if so decided by the organisers, the result may be calculated on the static scores plus a single flight score.

## Static Judging

### Static Documentation

- 6 Documentation must be provided by the competitor, and must state the specific prototype being modelled.
- 7 It must include a signed declaration that the entrant is the builder of the model and the degree of prefabrication of the model.
- 8 Documentation must include sufficient information about the prototype to enable the judges to assess the accuracy of the model. If details of a particular feature of the prototype are not provided then the judges cannot award any points for that feature. e.g. If NO information is provided about the platform then NO POINTS will be awarded for plan outline. (However, if photographs are provided that

indicate the planform to some degree, then the judges should award a reduced score for plan outline).

- 9 No rigid rules are laid down about what the documentation shall consist of but, to give the judges the best chance of awarding maximum marks, the following recommendations should be followed.
- 10 The documentation should include a three-view drawing (showing the fuselage at least 100mm long), and sufficient information in drawings or photographs to enable the judges to assess the model. Information in the form of drawings must have been published by a recognized source. It is recommended that all the documentation be fixed to the inside of a double A4 card folder, with no loose sheets, but additional information in the form of a book pegged open to a single page is acceptable.

## Static Scoring

- 11 The model shall be judged from a distance of 6 m and, under each category specified below, the judges shall first award a K-factor (in the range specified, and depending on the complexity of the prototype in the case of colour scheme and markings, and on the degree of prefabrication of the model in the case of outlines) and then award points from 0 to 10. The judges must confer and reach consensus on the K-factors. (It is advisable for the judges to see all the models together to assess K-factors for complexity).
- 12 The categories for static judging are —
 

a	Side outline	K = 10 - 15
b	Plan outline	K = 10 - 15
c	Front outline	K = 10
d	Colour Scheme	K = 10 - 15
e	Markings	K = 10 - 15
f	Workmanship	K = 10 - 15
- 13 The K-factors for side and plan outlines must both be the same and shall be assessed as follows —
 

a	Built from own plan	K = 15
b	Built from commercial plan	K = 14
c	Built from kit (no pre-assembly)	K = 13
d	Built from kit (main parts pre-assembled)	K = 12
e	Built from kit (main parts finished)	K = 11
f	Ready to fly except radio	K = 10

**Note:** A model not built by the competitor, but built from, say, an unassembled kit, is acceptable but should be assessed on the basis of the work done on it by the entrant, e.g K = 10 if the entrant has simply installed his own radio, or K = 12 if he has re-sprayed or refinished the model, and so on.

- 14 The K-factor for colour scheme shall be assessed by the judges on the basis of the complexity of the basic colour scheme (i.e. camouflage, sunburst, etc.), and

similarly the K-factor for markings must be assessed on the basis of the complexity of markings (i.e. lettering, flashes, roundels etc.).

- 15 The K-factor for workmanship shall be assessed by the judges on the basis of the complexity of the prototype (ignoring colour scheme and markings), and provided the complex features ARE modelled (e.g. retracting undercarriage would be considered only if the undercarriage on the model does retract).

**Commentary:** The concept of using K-factors to compensate for complexity has been used before, although it has largely been eliminated or watered down in the power field, primarily because of a desire to adhere closely to the FAI rules. The concept seems to the writer to be particularly relevant to scale gliders, which in many cases have very simple outlines and colour schemes, and so has been re-introduced in these proposals.

The idea of also compensating/penalising varying degrees of prefabrication is also not new, but certainly less well known. Again the writers feel that it is particularly relevant to gliders because there are many (very beautiful) fully prefabricated glass models of gliders, and while it is certainly not intended to discourage these models, it is felt that the modeler who does it all himself, and chooses a more complex and interesting prototype to model, should gain maximum reward for his efforts.

## The Flight Schedule

- 16 The flight schedule consists of the following manoeuvres —

a	Fast low pass	K = 10
b	Procedure turn	K = 10
c	Optional manoeuvre	K = 11
d	Optional manoeuvre	K = 11
e	Optional manoeuvre	K = 11
f	Optional manoeuvre	K = 11
g	Optional manoeuvre	K = 11
h	Rectangular landing approach	K = 10

- 17 The optional manoeuvres above shall be chosen from —

- a One loop
- b One roll (specify axial or barrel)
- c Stall turn (commencing cross-wind)
- d Split-S
- e Immelman turn
- f 180 degree climbing turn
- g Triangular flight
- h Overhead eight
- i Large circle
- j Inverted flight

- 18 A competition flight must be completed in 10 minutes but, at the discretion of the CD, the flight time may be extended.

- 19 A re-flight may be granted by the CD if, in his opinion, the competitor's flight is adversely affected for reasons beyond the control of the competitor.
- 20 A model may be relaunched if it lands for any reason before completing the flight schedule, but no additional time will be allowed.

## Manoeuvres

- 21 Except for the Rectangular Landing Approach, all manoeuvres commence and end across wind.

**Commentary:** Many aircraft are unable to perform precise aerobatic manoeuvres such as those usually expected of models. For example, many power prototypes perform a more or less shallow dive to gain speed before any aerobatic manoeuvre, and some aircraft perform loops more like an “e”. Provided the competitor advises the judges in advance that he intends to do so, the competitor may duplicate such procedures without being downgraded.

## Description of Manoeuvres

- 22 **Fast Low Pass.** The model flies straight and level (s & l) at a high speed, for a distance of at least 100 metres close to the line of the horizon.
- 23 **Procedure Turn.** The model flies s & l and turns through 90 degrees into wind (and positioned on the center line at the end of the turn), and then turns through 270 degrees in the opposite direction, then flies s & l at the same altitude but on the opposite heading to the start of the manoeuvre.
- 24 **Rectangular Landing Approach.** See #34 under Aerobatics
- 25 **One Loop.** See #29 under Aerobatics
- 26 **One Roll.** See #30 under Aerobatics
- 27 **Stall Turn.** See #33 under Aerobatics
- 28 **Split-S.** See #31 under Aerobatics
- 29 **Immelman Turn.** See #32 under Aerobatics
- 30 **180 Degree Climbing Turn.** The model flies s & l across wind and, starting at the centre line it turns through 180 degrees (away from the judges) climbing continuously at a uniform rate, and then flies s & l.
- 31 **Triangular Flight.** The model flies s & l and, when crossing the center line, turns through 60 degrees (away from the judges), flies s & l for about 100 metres, turns through 120 degrees in the same direction, flies s & l for about 100 metres (across wind, parallel to the line of the judges), turns through 120 degrees in the same direction and, at the point where the first turn occurred, turns through 60 degrees, then flies s & l at the same altitude and heading as the start of the manoeuvre.
- 32 **Overhead Eight.** The model flies s & l, turns (into wind) through 90 degrees, immediately turns in the opposite direction through 360 degrees, immediately

turns in the first direction through 270 degrees, then flies s & l at the same altitude and heading as the start of the manoeuvre. See #47 under Aerobatics — but without the half-rolls.

- 33 **Large Circle.** The model flies s & l, turns through 360 degrees (away from the judges) to describe a circle of diameter at least 100 metres, then flies s & l at the same altitude and heading as the start of the manoeuvre.
- 34 **Inverted Flight.** The model flies s & l, performs a half roll to the inverted position, flies s & l for at least 100 metres, performs a half roll, then flies s & l. See #35 under Aerobatics

## Judges Guide

- 35 In awarding scores judges should bear the following in mind:
- 36 A perfectly performed manoeuvre deserves 10 points.
- 37 An unrecognizable manoeuvre, or one that is missing an essential part (e.g. an overhead eight performed without the second circle) deserves zero. A manoeuvre that is recognizable as the manoeuvre being attempted deserves a score.
- 38 The qualities to look for in assessing a manoeuvre can be summarized as —
  - a shape of manoeuvre (eg. roundness of loops etc.)
  - b superimposition of parts (eg. second loop superimposed on first).
  - c positioning (eg. center of manoeuvre on judges center line).
  - d smoothness.
  - e heading (eg. manoeuvre performed perpendicular to center line).
  - f flight as per prototype (eg. a jet will fly very fast and smoothly).
- 39 Scores should not be assessed by simply counting defects and subtracting the number from 10, as this will frequently end up as a negative number, especially for complex manoeuvres, and this is not the intention.