

## General Scale Rules

For the classes: F4D, F4E, F4F, and Pistachio

### International Indoor Fly In

Version: 2017



*Nijmegen, Netherlands*

#### Remark:

Our thanks go out to the BMFA for allowing us to use their rule system. The rules as presented are extracted from the BMFA rule book. Everything that was not applicable to the four indoor scale classes has been deleted for clarity. Where the original rules referred to BMFA this has been substituted. Please note that the original numbering and lettering has been maintained in order to keep it clear what rules we have omitted!

## 6.1 General

### 6.1.1 GENERAL SCALE RULES

These rules apply to all scale classes unless stated otherwise in the class rules.

#### 6.1.1.1 Definition of Scale Models

A scale model aircraft shall be a reduced scale reproduction of a full size aircraft. The full size aircraft which has been modelled must have flown and models of pilotless aircraft or drones are not permitted. N. B. Throughout these rules the word "subject" is used to refer to the specific full size aircraft that has been modelled. The aim of scale contests is to accurately recreate the appearance and realism of the full-size aircraft both on the ground and in flight.

#### 6.1.1.3 Builder of the Model Rule

Scale models must be constructed and finished solely by the competitor, team entries are not permitted. The Competitor must also prepare the model for flight. Commercially available components, machined parts, components manufactured using a computer aided process, die or laser cut parts and prefabricated airframe components manufactured by a third party, whether specifically for the model or supplied as part of a kit' may be used in the construction of scale models. However details of these items must be entered on the Competitors Declaration and will be taken into account during static judging. If the competitor has produced any airframe components or canopies which required the use of any moulds or plugs which were manufactured by a third party then the details must be entered on the Competitor's Declaration. The only exceptions to this rule are for models entered in R/C Stand-Off and all Flying Only competitions.

#### 6.1.1.5 Name and Scale of Model

The exact name and variant or mark number of the subject aircraft shall be written on the entry form, score sheets, the Competitors Declaration and in the 'proof of scale' documentation. The scale to which the model is built is optional, but must also be stated on both static and flight score sheets.

#### **6.1.1.6 Competitor's Declaration**

The Competitor must complete and sign a declaration that his model conforms to the current requirements and rules appropriate to the class of model. Because rules may be subject to change on an annual basis the declaration must be made on the current proforma.

Declaration forms for Free Flight classes are available from the Scale Competition Secretary or the forms can be downloaded from the Scale Technical Committee website at [www.scalebmfa.co.uk](http://www.scalebmfa.co.uk). Any components of the model including any moulds or plugs used to produce such components and also including components produced using a computer aided process, which are NOT entirely manufactured by the competitor, must be listed on the Competitors Declaration. The only exceptions are Engines, electrical/electronic equipment and fixings e.g. nuts, bolts, screws etc which need not be declared.

#### **6.1.1.8 Judges**

The organiser shall appoint at least two flight judges and where appropriate at least two static judges

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 but judges should be aware of their generic differences.

Static Judges must discount any prior or special knowledge of the subject aircraft and the scale accuracy of the model must be assessed solely on the documentation submitted by the competitor.

As soon as practicable after each flight, the flight scores should be calculated and made available to the competitors. Static judges will retain the static score sheets until all BMFA Scale Rules Effective January 2017 5 models have been static judged and only then will the scores be calculated and released to the competitors. Competitors are not permitted to question their marks with judges or officials during the event, unless submitting a formal protest.

After the results have been announced and subject to the agreement of the judge or judges in question, competitors are free to discuss any aspect of their model and their flight performance.

#### **6.1.1.9 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.
- (f) If the written protest or the appeal is upheld, the protest fee will be returned.

#### **6.1.1.10 Scoring System**

The order of merit for scale competitions is decided on a final score which is normally made up from flying and static elements in equal proportions. This is achieved by ensuring that the number of Flight judges is equal to the number of Static Judges, but in the event that this is not possible the CD is responsible to ensure that the scores are suitable factored.

Exceptions to this rule are detailed in the appropriate class rules and certain events identified as 'flying only' which do not have a static element in the final score.

All scoring is to be on the prescribed score sheets which are available from the Contest Director.

Static and Flight judges shall award **marks** from 0 to 10 inclusive for each item or manoeuvre using increments of 0.1 of a mark

Where a coefficient (K-factor) is noted, the **score** for each item is then calculated by multiplying the marks awarded by the K-factor.

#### **Static Score**

The static score shall be the sum of the scores awarded by all Static Judges.

The Static Score can only be used in the calculation for the final competition result when the model aircraft has completed an official flight.

#### **Flight Score**

The flight score shall be the sum of the scores awarded by all the Flight Judges.

The scores in an official round can only be used in the final competition result if all competitors had an equal opportunity for a flight in that round.

#### **Final Scoring/Competition Results**

Unless otherwise stated in the class rules, the final score shall be the sum of the static score and the average of the two best flight scores.

If only one round is flown, the single flight score will count.

#### **6.1.1.14 Helpers**

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

#### **6.1.1.16 Dummy Pilot**

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 should be equally visible during flight in the model. If such a pilot is not fitted, the total flight score shall be reduced by 10%.

The dummy pilot may be present during static judging but shall not be taken into account.

#### **6.1.1.17 Propellers**

Models of propeller driven aeroplanes may have the scale propeller/s replaced with a flight propeller/s of any shape and form.

If the model is fitted with a spinner/s when static judged, the scale spinner/s may also be replaced with a flight spinner/s but this/these must be of the same size, shape and colour as the scale spinner/s. In this event these flight spinner/s must also be presented with the model for static judging.

If a model of a multi-engine aircraft uses non-powered (windmilling) propellers, these must 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, must likewise not be changed for flying propellers.

For rubber powered aircraft the removable nose block with thrust bearing may be considered as part of the flying propeller. The flight nose block must be similar in appearance to the static nose block and should be presented with the model for static judging

Metal-bladed flying propellers are forbidden.

#### **6.1.1.18 Droppable Stores or Ordnance**

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. Explosives or incendiary devices must not be carried or released from the model.

#### **6.1.1.19 Take-off aids**

All models shall become airborne in the manner of the subject full size aircraft.

Models of seaplanes and floatplanes, in all classes, may use wheels or wheeled dollies for take-off in the absence of suitable water surface conditions. A similar consideration also applies to models fitted with skis. Deviation from scale, through inclusion of permanently-attached wheels, skids or similar non scale devices in the model structure shall, in this case, be disregarded during static judging.

Free flight models may be hand launched, in which case the take-off shall score zero.

## 6.1.2 STATIC JUDGING

These rules apply to all scale classes unless stated otherwise in the class rules

### 6.1.2.1 Proof of Scale

Proof of scale is the responsibility of the competitor.

The documentation provided should be as comprehensive as possible if a high static score is to be achieved. Any feature of the model which is not supported by documented evidence will not be marked.

### 6.1.2.2 Documentation

(a) Proof of Scale Accuracy (outline) This must be in the form of photographs or printed reproductions and drawings.

(i) Photographic evidence:

At least three different photographs or printed reproductions of a full size aircraft which must be the same type and mark number as the actual subject aircraft being modelled.

Each of these photographs or printed reproductions, which need not be originals, must show the complete aircraft, preferably from different aspects and with a minimum aeroplane image size of 150mm.

At least one photograph or printed reproduction must show the actual subject aircraft modelled.

Photographs of the model are not permitted unless the model is posed alongside the subject aircraft and the photo used as proof of colour.

Additional photographs used as evidence of scale detail or markings may be of any size.

Photographs based on digital files may be resized or cropped, but the use of photographs which show evidence of being enhanced or manipulated shall result in disqualification.

(ii) 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 drawing.

Unpublished drawings produced 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.

(b) 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.

(c) Proof of Markings

This may be in the form of colour photographs (which may be the same as those supplied for outline), or published colour illustrations from books or magazines. Black and white photos or illustrations are acceptable if accompanied by suitable colour samples. Published descriptions are also acceptable when accompanied by examples of markings used on similar types. Evidence of all the markings including their position on the subject aircraft must be provided to avoid loss of marks.

**6.1.2.3 Penalties for inadequate documentation**

Failure to provide sufficient or adequate proof of scale documentation will result in a reduction of marks as follows:

(a) Fewer than 3 full photos of prototype:

ZERO points for Scale Accuracy	(6.1.2.5.1)
Likely downmarking of Realism	(6.1.2.5.4)
Likely downmarking of Craftsmanship	(6.1.2.5.5)
Likely downmarking of Scale Detail	(6.1.2.5.6)

(b) Missing or unauthorised drawings:

ZERO points for Scale Accuracy	(6.1.2.5.1)
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(c) No photo of subject aircraft:

ZERO points for markings	(6.1.2.5.2)
Likely downmarking for Realism	(6.1.2.5.4)

(d) Incomplete colour documentation:

ZERO points for Colour	(6.1.2.5.3)
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#### 6.1.2.4 Presentation of Documentation

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 and 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. Sheets or boards should not be smaller than A4 and not larger than A2. 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, Surface Texture, Scale details etc.

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

#### 6.1.2.5 Judging for Fidelity to Scale and Craftsmanship

Each of the following will be awarded a mark out of 10 in increments of 0.1 of a mark by each Judge:

1a. Scale accuracy	Side view	K = 13
1b. Scale accuracy	End view	K = 13
1c. Scale accuracy	Plan view	K = 13
2. Markings	Accuracy	K = 8
	Complexity	K = 3
3. Colour	Accuracy	K = 3
	Complexity	K = 2
4. Surface Texture and Scale Realism	Surface Texture	K = 7
	Scale Realism	K = 7
5. Craftmanship	Quality	K = 12
	Complexity	K = 5
6. Scale Detail	Accuracy	K = 9
	Complexity	K = 5
	Total K	K = 100