

# Judges Guide For Static and Flying Judging

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

International Indoor Fly In

Version 2017



Nijmegen, Netherlands

See: Remark in General Rules

## 1. STATIC JUDGES GUIDE

Applicable to the following classes:

**SCALE FREE FLIGHT CLASSES and partial relevance to PEANUT, PISTACHIO & KIT SCALE**

Relevant Rules - BMFA Rule Book - Section 6.1.2

### 1.1 General

The static evaluation is broken down in accordance with rule 6.1.2.4 and each item is marked out of 10 in increments of 0.1 of a mark. Judges must work as a team and attempt to reach agreement on the marks to be awarded for each item. Although each judge retains the right to differ, any degree of difference should be minimal.

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.

Before any static judging commences, the judges should make a general survey of as many as possible of the models entered in the competition in order to establish a standard for the complexity aspects. All the models should be studied in relationship to each other from a superficial aspect only. Judges are encouraged to make use of analysis sheets and electronic or other archive devices to achieve this comparison.

If the model aircraft has completed a scoring flight before being static judged in the same competition, any damage sustained during that flight shall be ignored by the static judges provided it is practical to do so and the model is intact.

Static Judging should ideally be carried out under cover or indoors, however if this is not possible or practical, it is important to ensure that the quality of lighting is consistent.

With the possible exception of the Stand-Off Classes, where models can be judged when they are on the ground, the contest organisers should have made provision for the models to be supported by their undercarriage, at a height which allows the judges to comfortably view the centreline of the model and large enough to allow the model to be rotated in the horizontal plane.

The competitor must be available throughout the static judging process in case the judges need to question the competitor on any aspect of the model or the documentation.

Depending upon the size of the model, additional handlers should also be available to position the model as directed by the judges. Direct measurement of the model is not permitted and with the exception of all the indoor classes, models should not be handled by the judges. I

It is important that the judges retain all the score sheets until all the models have been judged in case any corrections are necessary.

### **1.2 Competitors' Declaration and the 'Builder of the Model rule'**

Judges must carefully examine the Competitors Declaration to ensure that it has been correctly completed and that there are no conflicting statements.

The purpose of the declaration questionnaire is to assist the static judges to determine the method of construction and the extent to which any components not manufactured by the competitor have contributed towards the scale accuracy.

The Builder of the Model rule effectively means that if the competitor did not make it, then he gets no marks for it ! This is particularly important when the overall outline is dependent upon the use of moulded major airframe components. The onus of proof of the manufacture of such components lies with the competitor and where commercially available parts have been used in the construction of the model, the "Scale Accuracy" marks, "Craftsmanship" marks and "Scale Detail" marks must be reduced accordingly.

If the competitor claims that the model is based on commercially available mouldings which he has modified to improve the scale accuracy, then unless these modifications are comprehensively documented, the marks awarded must reflect the origin of the mouldings.

### **1.3 Documentation**

The model is judged by comparison with the proof of scale documentation presented and judges should only award marks based on the quality of this documentation. It follows therefore that if the documentation is missing or of poor quality then this must be reflected in the marks which can be awarded. The minimum documentation requirements are stated in paragraph 6.1.2.2 of the rules and the penalties for not providing this minimum are specified in paragraph 6.1.2.3 of the rules.

Paragraph 6.1.2.4 provides advice on how the documentation should be presented and good presentation should be rewarded, but there is more to 'quality of documentation' than how it is presented. Good presentation is no guarantee that it is fully comprehensive and Judges must ensure that a competitor does not benefit by default when the documentation is incomplete or of poor quality.

#### **1.3.1 Photographs.**

Photographs are the prime means of determining the outline accuracy, surface texture and realism of the model relative to the full size aircraft and must always take precedence over drawings if there is any doubt when assessing these aspects of static judging.

Photographs submitted as evidence of outline accuracy should show the complete aircraft. photographs should be in focus, with a good depth of focus and ideally free from distortion, e.g. proximity related distortion from being taken too close to the subject or perspective distortion resulting from the use of a wide angle lens.

Photographs showing the complete aircraft should also be of a reasonable size and the image size should not be less than 15cm wide. Photographs which provide evidence of scale details may be smaller but the location of the detail on the aircraft must be clearly marked.

With the ready availability of computerised photo editing software (e.g. Photoshop), Judges should be on their guard in order to spot photographs of the full size aircraft which may have been edited in order to hide errors on the model. Similarly judges must also be on the lookout for photographs of the model which have been edited to make the model appear to be the full size aircraft.

### **1.3.2 Scale Drawings.**

The specification for drawings is defined in rule 6.1.2.2(a)(ii), but this only defines minimum dimensions. Line thickness is also important and drawings which show thick outlines is often an indication that the drawing has been enlarged from a small image and will be of dubious accuracy. The line thickness of a drawing should ideally be no greater than 0.5mm.

Judges should seek to verify the origin of the drawings and be particularly aware that being labelled an Aircraft Manufacturer's GA drawing is no guarantee of accuracy. If a 3-view drawing has been divided in order to show each view of the model with the associated photographs on the same card, Judges must ensure that unless each view has been certified the original three-view should be available as proof of certification.

### **1.3.3 Proof of Colour.**

It is essential that if high marks are to be awarded, a comprehensive standard of colour documentation must be presented. Correct colour may be established from colour photographs; from published descriptions if accompanied by colour chips certified by competent authority; from samples of original paint; or from accepted published colour drawings.

Colour photographs however, can be unreliable since they can be reproduced in virtually any shade, furthermore the ambient light conditions (colour temperature and polarization) prevailing when the photographs were taken may not be the same as when the model is judged. E.g. photographs taken of the prototype illuminated with artificial light are not reliable proof of colour when the model is judged outdoors.

The optimum photographic proof of colour has to be a good quality photograph of the model and the subject aircraft posed together preferably taken outdoors or illuminated with the same balanced lighting. This ensures that any errors introduced by the photo reproduction process will be the same for the model and the full size aircraft.

Published colour chips and charts are acceptable when identified in a published written description, but judges should be suspicious when colour patches painted by the competitor are accompanied by a letter authorising authenticity, unless the patches themselves are identified and authorised by a competent authority. When the model is painted with the same paint used for the subject aircraft, the proof including batch details must be accompanied by certification from the owner of the full size aircraft. This in itself is no guarantee of colour accuracy even when the paint is from the same tin as used on the full size, because the finished colour is often influenced by what it is applied to and the surface material and preparation under the topcoat. Proof of colour must also indicate whether the finish is matt or gloss, or somewhere between.

### **1.3.4 Proof of Markings**

The markings on an aeroplane identify that particular aeroplane from another of the same type (unless of course only one was built). Comprehensive evidence showing both sides of the subject as well as the upper and lower surfaces of the wings, can be difficult to obtain and whilst photographs of a similar aeroplane may be available, judges should only award high marks for aircraft markings if the documentation provides evidence of all the markings. All too often, whilst excellent photographs are provided for the aeroplane type, only one photograph shows the subject aeroplane and judges must not make assumptions that the markings are the same on each side of the aeroplane. As a guide, if only one side elevation of the subject is submitted as evidence of markings, and there is no indicative evidence to support the remainder of the markings, irrespective of how complex they are, no more than 2.5 marks should be awarded.

### **1.4 Assessment of the Model**

Having first carefully examined the Competitor's Declaration and his Documentation, the judges can now commence assessment of the model and get some marks on the score sheet.

There are no rules governing the order in which the various aspects are marked but it is suggested that they are marked in the order they appear on the score sheet. In practice there is considerable overlap of these aspects, e.g. errors in outline are often revealed by the colour scheme and the markings or the positioning or omission of details.

Particular attention must be paid to models whose overall outline is dependent upon the use of moulded major airframe components. Unless it is obvious, or stated in the documentation, judges should question the competitor to determine precisely who is responsible for the accuracy of the moulding and marks can only be awarded for accuracy of outline when the judge is satisfied that the competitor did the work necessary to achieve it, e.g. when it can be proven that the competitor produced the plug and/or the mould.

#### **1.4.1 Outline Accuracy**

The model should first be positioned in a pose similar to that in the best photograph and checked for any obvious discrepancies. Photographs that are taken at an oblique angle can often give a false impression of dihedral and rigging angles and the drawings may provide a more accurate reference. This procedure is then repeated with other suitable photographs.

(a) Side view, for the fuselage outline, cabin or canopy shape (including significant internal structure where visible), cockpit aperture shape, engine cowling, propeller and spinner shape or rotor blade section and static droop (where applicable), outline of fin and rudder, wing and tailplane sections. Also the shape, angle and position of landing gear legs and nose/tail wheel or skid, the size of wheels and tyres. If applicable a check should be made of wing stagger, wing gap and the shape and arrangement of struts and rigging wires. Particular attention should be given to the aerofoil section and any changes of section along the wing. It will be necessary to examine both sides of the model because there are few aeroplanes where the port side is identical to the starboard side.

(b) Front-end view, for dihedral, wing thickness and taper, washout, wing struts, bracing and gap on multi-wing aircraft. Also the thickness of fin, rudder and tailplane, crosssections of fuselage and engine cowling, cowling shape and cut-outs, propeller size and blade shape or rotor blade section and static droop (where applicable), shape of cockpit canopy or windshields; size, shape, position and angle of landing gear, wheel track, tyre thickness.

(c) 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. It is usually necessary to also examine the underside of the model if there are features of the outline which are not clearly visible in any other view. The plan view assessment also provides the opportunity to check the accuracy and the position of the markings

#### **1.4.2 Markings Accuracy**

Check that the position and size of all markings are correct; that the style and thickness of all national markings, unit/serial/detail alpha-numeric characters, badges and logos are correct. Check that any trim strips or pin striping are of the correct dimensions and are correctly positioned. Check the layout of camouflage patterns.

Particular emphasis should be made to the relative positioning between markings and key features on the airframe as these often highlight errors in shape and outline and can be a good indication of scale accuracy. It cannot be assumed that the markings are the same on each side of the aeroplane and judges should only award high marks if the documentation provides evidence of all the markings.

#### **1.4.3 Markings Complexity**

Prior to commencing judging, the judges should agree the principle for awarding complexity points in relation to markings. A high mark for markings 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 also important that evidence is provided for all the markings.

#### **1.4.4 Colour Accuracy**

Judges should ensure that when judging colour accuracy, the documentation must be examined under the same ambient light conditions (colour temperature and polarization), as the model i.e. avoid placing the judges chairs in the shade or close to anything where reflected light may not be the same as the light on the model. Judges should also avoid wearing tinted or polarizing glasses.

When the evidence for colour accuracy is that the same batch of paint was used to paint the subject aircraft, it is unsafe to assume that the finished colours will be the same. Unless painted in very dark colours the nature of the surface material and the surface preparation (primer/undercoat) will affect the finished topcoat. The glossiness should also be checked.

Also check the colours used for markings, lettering and insignia including camouflage colour schemes and the correct degree of merging of the shades.

#### **1.4.5 Colour Complexity**

The system for awarding colour complexity points should be agreed before starting competitive judging. This should not be confined simply to the number of colours used, but also how they are distributed on the model i.e. the complexity of the boundary between colours and whether applied to flat or curved surfaces on fabric or solid surfaces etc. Camouflage patterns should be considered carefully, with the more complex styles involving irregular patterns and indistinct edges being rewarded accordingly.

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. 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.

#### **1.4.6 Surface Texture**

The texture and appearance of the surface of the model should be a good scale reproduction of the subject aircraft and this is one aspect that is often not clearly documented; remember the judge cannot use his own knowledge or make assumptions, based on the subject aircraft type and when it was built.

Fabric covered surfaces should be covered in material which shows the coarseness of the weave to the correct scale. The edge treatment of the fabric including rib tapes must be as documented, i.e. frayed, pinked or straight. Rib stitching should show the correct or simulated knots and inspection panels should show the correct lacing. The underlying structure, stringers and wing ribs should also show the correct degree of prominence.

Ply covered or wooden monocoque structures should be correctly simulated and any sag between the ribs and formers should be apparent if this is present on the subject aircraft. Many aircraft which had plywood skinning were also covered with fabric and this should be correctly reproduced.

Metal stressed skin structures should show simulation of the correct type of riveting or fixing and removable panels should show simulation of the correct type of fastening.

In all instances the appropriate surface roughness and gloss or matt finish should be correctly reproduced.

#### **1.4.7 Scale Realism**

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

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.

The quality of the documentation is of vital importance when assessing realism, and if the documentation does not contain a picture or a photograph that 'captures' the character of the prototype then this omission must be reflected in the marks awarded. The judge must be careful to avoid making assumptions based on the type of aeroplane.

#### **1.4.8 Craftsmanship Quality**

This is an assessment of the skill, ingenuity, general finesse and artistry involved in the construction and finish of the model and the principle to adopt here is that if it can be seen and is adequately documented then it can be assessed. Based on this principle, the competitor must be given the opportunity to show any features of the model which may not be immediately obvious. Access to features such as scale interior or scale structure if not visible in open cockpits must be by means of opening cockpit canopies, scale doors, hatches or wing folds etc.

Judges must consult the competitor's declaration to check for any components that are visible but have not been made by the competitor and any such items must be excluded from this assessment.

If the structural integrity of the model is dependent upon the visible use of commercially available prefabricated or engineered components, or major parts of the structure are commercially available mouldings, albeit masked by an excellent painted finish, the marks for craftsmanship must be significantly reduced.

Judges should also recognise that where components or moulds/plugs for components are produced using traditional methods, a greater level of craftsmanship is required than when CNC technology or 3D printing is used.

The model should be checked for the quality of workmanship, with particular reference to clean, sharp edges, especially trailing edges of wings and tail surfaces; correct gaps at hinge lines of control surfaces; the absence of warps in the structure; non-scale ripples in flat surfaces and inadequately filled wood grain.

Any visible non-scale items such as switches, needle valves, silencers, exhaust pipes, fuel hose, control horns, etc. with the exception of "take-off aids" (Rule 6.1.1.19 refers), must result in a loss of marks.

Non-scale joints or fixings necessary for dismantling the model and non-scale hatches or access panels used for model operation should be unobtrusive.

#### **1.4.9 Craftsmanship Complexity**

Judges should consider the overall complexity of the design awarding higher marks for more intricate shapes and structure.

Judges should also consider the variety of construction techniques and processes used in the design of the subject aircraft and whether or not these have been accurately replicated or simulated.

It is important to separate complexity from repetition and to recognize that compound curves are more difficult to reproduce than straight line or flat structures.

Special items of ingenuity and any demonstrations of functionality other than normal control function; e.g. hinged engine covers, sliding canopies, folding wings, etc. may also be rewarded under this section. The Contest Director or Organiser must allow the Competitor to use his transmitter if required to demonstrate these features.

Judges must consult the competitor's declaration and check for any components that have not been made by the competitor and adjust the marks awarded accordingly.

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

#### **1.4.10 Scale Detail Accuracy**

The documentation presented should clearly show the details that are being assessed. The marks awarded should reflect both the accuracy and the quantity of scale detail present. Judges should take care to verify that the competitor has not omitted details which are clearly visible in the documentation.

Particular attention should be paid to dummy engines and those parts of engines visible inside air intakes, air vents and around exhaust pipes and jet nozzles.

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

Hatches	Brake pipes
Handles	Landing gear springing
Footsteps	Tyre treads
Doors	Wing slots
Armament	Navigation and landing lights
Bombracks	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

#### **1.4.11 Scale Detail Complexity**

Again Judges must consult the competitor's declaration to check for any components that have not been made by the competitor and any such items must be excluded from this assessment.

A well-documented highly detailed model should score proportionately more than a model with little detail, even if the subject aircraft 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 the complexity of the subject aircraft.

## **1.5 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. The use of a summary sheet for this review is recommended.