F5-J & F5-J400 RULES

EUROCUP 2011 - 2014

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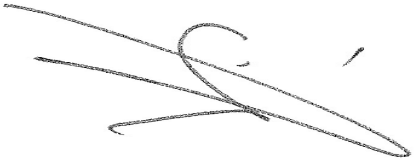
Israel	Israel Ofek	
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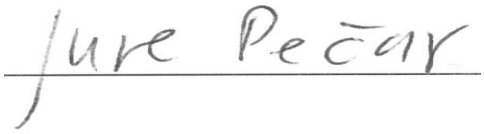
Slovenia	Jure Pečar	

1. Objective:

To provide a man-on-man contest for competitors flying radio-controlled thermal duration soaring gliders with electric motor. In the contest, several qualifying rounds are flown. For each qualifying round, competitors are divided into groups. The scores in each group are normalized to give them meaningful scores irrespective of changing weather conditions during a round. The competitors with the top aggregate scores in the qualifying rounds then fly at further fly-off rounds as a single group to determine the final placing. The scheduled number of fly-off rounds shall be announced by the Contest Director before the start of the contest.

2. General Rules

2.1. Definition of a Radio Controlled Glider

A model aircraft which is provided with the electric motor as launch aid and in which lift is generated by aerodynamic forces acting on surfaces remaining fixed in flight, except control surfaces. Model aircraft with variable geometry or area must comply with the specification when the surfaces are in maximum and minimum extended mode. The model aircraft must be controlled by the pilot on the ground using radio control. Any variation of geometry or area must be actuated at distance by radio. Batteries that supply power to the electric motor and radio must be inside the model and must not have any kind of connection with the ground or other flying object. Use of solar panels charging the batteries during flight is not allowed.

2.2 Prefabrication of the Model aircraft

No limits, as long everything complies with the rules.

2.3 Characteristics of Radio Controlled Gliders

- Maximum Surface Area: 150 dm^2, Maximum Flying Mass: 5 kg, Loading: 12 to 75 g/dm^2
- Propulsion batteries are assembled from any kind of cells.
- No fixed or retractable arresting device (i.e. bolt, saw tooth-like protuberance, etc) is allowed to slow down the model aircraft on the ground during landing. Tail and propeller are excluded from this rule.
- The radio shall be able to operate on allowed frequencies in the 35MHz or 40MHz range or in 2.4GHz range.
- Allowed transmitted information from the model to the pilot include receiver battery voltage and signal strength. Any other device for transmission of information relevant to competition is prohibited. Any use of telecommunication devices (including transceivers and telephones) in the field by competitors, helpers or team managers is not allowed.
- The competitor may use two model aircraft in the contest.

- The competitior may not use a model aircraft which was already used in the contest by other competitor.
- The competitor may combine the parts of the model aircraft during the contest, provided the resulting model aircraft conforms to the rules and the parts have been checked before the start or during of the contest.
- For the sake of randomness of the starting order among the successive rounds, each competitor must enter two different transmitter frequencies with 20 kHz minimum spacing. The competitor can be called to use either of these frequencies during the contest, so long as the call is made at least 1/2 hour prior to the beginning of a round in written form to the pilot (or team manager when applicable).
- All ballast must be carried internally and fastened securely within the airframe.
- Any kind of active device or substance which would be used to cool-down or heat-up the motor, battery, or any part of the model aircraft is prohibited. Passive cooling components and construction elements, which are an undetachable part of the model aircraft, are allowed.

2.4 Categories by propulsion

2.4.1 F5J

No limitations on the motor type. Propulsion battery can have maximum nominal voltage of 12V or any number of cells, as long as the battery pack is not heavier than prescribed limit. Battery wrap, cables and connectors are part of the battery pack weight. Limit for seasons 2011 and 2012 is 300g and for seasons 2013 and 2014 is 250g.

2.4.2 F5J-400 "Outrunner"

Models of this category can conform to either of these rules:

- standard F5J-400
  - unmodified 400 motor without metal ring
  - 8x NiCD/NiMH or 2x LiPO
  - minimum model weight 500g
- Outrunner
  - outrunner with 28x26mm outside dimensions, 22x9mm stator dimensions, direct drive, unmodified (must conform to factory spec) (example: axi 2208)
  - power source 2 LiPO cells
  - smallest propeller diameter is 250mm (10")
  - minimum model weight 500g

2.5 Competitors and Helpers

- The competitor (pilot) must operate his radio equipment himself.

- Each competitor is allowed one helper.

3. The Flying Site

1. The competition must be held on a site having reasonably level terrain, which will minimize the possibility of slope and wave soaring.
2. The flying site shall include 6m wide marked launch corridor with a central launch line. Launching corridor shall be arranged crosswind and shall include launch marks on the central launch line at least 15m apart, one for each competitor of a group.
3. The flying site shall include landing spots, one for each competitor in a group.
4. The centers of the landing circles must always be marked and equipped with measuring device. They should not be moved during working time of a group.
5. Safety Rules
    - No part of the model aircraft must land or come to rest within the safety area.
    - The model aircraft must not be flown at low level (below 3 meters) over the launch line.
    - The model aircraft must not be flown at low level (below 3 meters) over the safety area.
    - Organizers are entitled to define any safety objects or areas over which model aircrafts may not fly at all, or only at a defined safety height level.
    - Every single action against the safety rules will be penalized by deduction of 100 points from the competitor's final score. Penalties shall be listed on the score sheet of the round in which the infringement(s) occurred.

4. Contest Flights

- There should be a minimum of four (4), preferably more, qualification flights with 10 minutes working time.
- There should be two (2) or three (3) final flights with 15 minutes working time.
- The competitor will be allowed two attempts at each official flight.
- Before reflight the competitor is allowed to repair any damage to the model.
- In the case of a second attempt the result of that flight will be the official score.

5. Reflights

The competitor is entitled to a new working time if:

- his model in flight collides with another model in flight; competitor must immediately announce his decision to get a reflight and land immediately
- his attempt was hindered or aborted by an unexpected event, not within his control.

The new working time is to be granted to the competitor according to the following order of priorities:

1. in an incomplete group, or in a complete group on additional launching/landing spots.

2. if this is not achievable, then in a new group of several (minimum 4) reflyers. New group of reflyers can be completed by other competitors selected by random draw to the number of 4. If the frequency or team membership of the drawn competitor does not fit or the competitor will not fly, the draw is repeated.
3. if this is also not achievable, then with his original group at the end of the ongoing round.

In priority-case 2 and 3, the better of the two results of the original flight and the reflight will be the official score, except for the pilots who are allocated the new attempt. For those the result of the reflight is the official score. A competitor of this group who was not allocated the new attempt will not be entitled to another working time in case of hindering.

6. Cancellation of a flight and/or disqualification

- The flight is cancelled and recorded as a zero score if the competitor used a model aircraft not conforming to any item of rule 1. In the case of intentional or flagrant violation of the rules, in the judgment of the Contest Director, the competitor may be disqualified. Organizer or judge can inspect model at any time.
- The flight is cancelled and recorded as a zero score if the competitor or his/her helper while launching the model aircraft crossed the border line of the 6m wide marked launch area.
- The flight in progress is annulled and recorded as a zero score if the model aircraft loses any part during the launch or the flight, except when this occurs as the result of a mid-air collision with another model aircraft.
- The loss of any part of the model aircraft during the landing (coming into contact with the ground) is not taken into account.
- The flight is cancelled and recorded as a zero score if, during landing, some part of the model aircraft does not come to rest within 75 meters of the center of the competitor's designated landing circle.
- The flight is cancelled and recorded as a zero score if the model aircraft is piloted by anyone other than the competitor.
- The flight is recorded as zero score if the propeller is seen spinning as a result of pilot action after motor shutdown.

7. Organization of the Flying

7.1. Rounds and Groups

- The flying order for the initial qualifying rounds shall be arranged in accordance with the transmitter frequencies in use to permit as many simultaneous flights as possible. A minimum of 5 and preferably 8 to 10 competitors should be scheduled for each group.
- In case of any event, while some of the scheduled competitors of one group are not able to attend the competition flight, the minimum number of competitors in one group is 4.
- The flying order shall be scheduled in rounds sub-divided into groups.

- The flying order should be determined in such way that each competitor fly together with all others at least once.

7.2 Flying in Groups

- Competitors are entitled to five minutes preparation time, which is counted from the moment his/her group is called to take position at the designated launching area, to the start of the group's working time.
- The working time allowed to each competitor in a group shall be in qualification rounds of exactly ten (10) minutes duration and in final rounds of exactly fifteen (15) minutes duration
- The organizers must positively indicate the time one minute before end of preparation time and motor-silence time 20 seconds before end of preparation time.
- The organizers must positively indicate the start of a group's working time, by audible signal or even visual signals if necessary.
- Audible or visual signals must be given when eight (8) minutes of the group's working time has elapsed.
- The end of the group's working time must be positively indicated by audible signal or even visual signals if necessary, as for the start.

8. Launching

1. The Contest Director will designate a launching area. Persons, who are launching, must remain within this area whenever they are launching a model aircraft.
2. Any model aircraft launched prior to the start of a group's working time must be landed as soon as possible and relaunched within the working time in the second flight attempt. Failure to comply will result in cancellation of the competitor's score for that round. In such case competitor is not allowed to have a second attempt.

9. Motor runtime

9.1 First attempt

- There's no limit to the motor runtime. Competitor is free to start his motor at any time during the round.
- ompetitor is allowed to start the motor during the motor run-time multiple times if needed, until the competitor gives the MOTOR STOP sign to the time-keeper. In case the motor starts during the measured gliding time of the first flight attempt, the competitor must land and repeat the flight in a second attempt from the launching zone. Any additional start of the motor must be announced to the timekeeper immediately.
- Disabled propeller brake caused by obvious ESC failure is not considered as a motor start, if the competitor immediately announces this failure to the time-keeper. Disabled propeller brake

means the propeller can not be folded during the whole flight.

9.2 Second attempt

- If a competitor decides to restart his flight, he must notify the judge in a way that judge is aware of his intentions.
- The model aircraft must land prior to beginning the second attempt.
- In case the motor starts during the measured gliding time during the second flight attempt, the competitor is penalized with the zero score flight.
- If a competitor starts for a third time, his flight is cancelled and recorded as a zero score.
- For the second flight attempt the batteries in the aircraft may not be changed.

10. Landing

1. Before the contest commences, organizers must allocate a landing circle to each competitor. It is the competitor's responsibility to ensure that he/she always uses the correct circle for landing.
2. Officials (timekeepers) must remain in the launch area during the landing process. The pilot and one helper are allowed inside the 15 m radius circle but they must stay at least 5m away from neighboring landing spot.
3. After landing, competitors may retrieve their model aircraft before the end of their working time providing they do not impede other competitors or model aircraft in their group.
4. Competitor nor his/her helper may not touch the model until they get a sign from the timekeeper that the distance from the landing spot is measured and recorded.

11. Scoring

1. The attempt will be timed from the moment of stopping the motor until:
    1. the model aircraft first touches the ground.
    2. the model aircraft first touches any object in contact with the ground.
    3. completion of the group's working time.
    2. The flight time in seconds shall be recorded to one decimal place.
3. Each second is worth 1 point.
4. A penalty of thirty (30) points will be deducted from the flight score if pilots starts his motor during the indicated motor-silent time before the start of working time.
5. A penalty of thirty (30) points will be deducted from the flight score for exceeding the end of the group's working time for up to a maximum of one (1) minute and no bonus will be added for the landing.
6. A zero score will be recorded for over flying the end of the group's working time by more than one (1) minute.
7. A landing bonus will be awarded in accordance with distance from the landing spot marked by the organizers according to the following tabulation:

up to	points
0.2m	100 points
0.4m	99 points
0.6m	98 points
0.8m	97 points
1.0m	96 points
1.2m	95 points
1.4m	94 points
1.6m	93 points
1.8m	92 points
2m	91 points
3m	90 points
4m	85 points
5m	80 points
6m	75 points
7m	70 points
8m	65 points
9m	60 points
10m	55 points
11m	50 points
12m	45 points
13m	40 points
14m	35 points
15m	30 points

8. The distance for landing bonus is measured from the model aircraft nose at rest to landing spot allocated to the competitor by the organizers.
9. If the model aircraft touches either the pilot or his helper during the landing maneuver, no landing points will be given.
10. The competitor who achieves the highest aggregate of points comprising of flight points plus landing bonus points minus penalty points, will be the group winner and will be awarded a corrected score of one thousand points (1000) for that group. The corrected score shall be recorded to one decimal place.
11. The remaining competitors in the group will be awarded a corrected score based on their percentage of the group winner's total score before correction (i.e. normalized for that group)

calculated from their own total score as follows:

1000x(competitor's own score / highest points total score in the group) = competitor's corrected score

12. Final placing of the competitors in qualification rounds is calculated by adding up the results of qualification flights. If there is more than four (4) qualification flights, the worst flight score of each competitor is cancelled and is not counted.

12. Final Classification

1. At the end of the qualifying rounds 30% of competitors, rounded up, but a minimum of six (6) with the highest aggregate scores will be placed together in a single group to fly the fly-off rounds.
2. The working time for each competitor who qualifies for the fly-off rounds will be of fifteen (15) minutes duration. As before, audible signal will be given at the start of the group working time, at exactly thirteen (13) minutes and at exactly fifteen (15) minutes.
3. The scoring of the fly-off rounds shall be as in section 11. Scoring.
4. Final placing of the competitors who qualify for the fly-off shall be determined by scores in fly-off; their scores in the qualifying rounds being discarded. In the event that two or more competitors have the same aggregate fly-off score, final positions of those competitors shall be determined by their respective position in the qualifying rounds; the higher positioned competitor is awarded the higher final position.