

5.7. CLASS F3K - RADIO CONTROLLED HAND LAUNCH GLIDERS

5.7.1. General

This event is a multitasking contest where RC gliders must be hand-launched and accomplish specific tasks. In principle the contest should consist of at least five rounds. The organiser may announce more rounds to be flown before the start of the contest. In certain situations (for example bad weather conditions) the jury may decide that fewer rounds than initially announced will be flown. In these cases, the number of rounds may be fewer than five and all the rounds shall be considered as the final result.

5.7.1.1. Timekeepers

The organiser should provide a sufficient number of well-trained, official timekeepers in order to allow enough simultaneous flights at all time. The official timekeeper is not allowed to assist the competitor or his helper in any way. The competitor and his helper are entitled to read their results during the working time.

5.7.1.2. Helper

Each competitor is allowed one helper who is not allowed to become physically involved in the flight, except for retrieving the airplane, if it has landed outside the start and landing field. The helper is the only person allowed to help the competitor on the start and landing field. Team managers are not allowed to stand inside the start and landing field.

After the end of the working time the competitor and the timekeeper must sign the results of the round. If the result is not signed by the competitor, the score for the round will be 0 points.

5.7.1.3. Start Helper

Disabled persons may ask for assistance at launching and retrieving (catching) their model glider. This start helper has to be different in every round, meaning that every start helper can only be used once. The competitor has to touch the start helper before each launch of the model glider. During a competition with only one class, competitors of less than 1.5 m height may be assisted for launching and/or catching.

5.7.1.4. Transmitter Pound

The organiser should provide a transmitter pound where all transmitters and/or antennas are kept in custody while not in use during a flight or the corresponding preparation time.

5.7.2. Definition of model glider

5.7.2.1. Specifications

Model gliders are gliders with the following limitations:

Wingspan maximum 1500 mm

Weight maximum 600 g

Radius of the nose must be a minimum of 5 mm in all orientations. (See F3B nose definition for measurement technique.)

The model glider must be launched by hand and is controlled by radio equipment acting on an unlimited number of surfaces.

The use of gyros and variometers onboard the model glider is not allowed.

The model glider may be equipped with holes, pegs or reinforcements, which allow a better grip of the model glider by hand. The pegs must be stiff and an integral part of the model glider within the half-span of the wing, and be neither extendable nor retractable. Devices, which do not remain a part of the model glider during and after the launch, are not allowed.

5.7.2.2. Unintentional jettisoning

If the model glider suffers any unintentional jettisoning during the flight, then the flight shall be scored zero according to 5.3.1.7. If, during the landing, any unintentional jettisoning occurs (ref. 5.7.6.) after the first touch of the model glider with ground, any object or person, then the flight is valid.

5.7.2.3. Change of model glider

Each competitor is allowed to use five model gliders in the contest. It is permissible to change parts between these five model gliders. The competitor may change his model gliders at any time as long as they conform to the specifications and are operated on the assigned frequency. The organiser has to mark the five model gliders and all interchangeable parts of each of the five model gliders. All spare model gliders must stay outside the start and landing field and one of the spare model gliders may only be brought into the start and landing field for an immediate change. If changing the model gliders during the working time, then both model gliders must be in the start and landing field.

5.7.2.4. Retrieving of model glider

If the competitor lands the model glider outside the start and landing field, then it has to be retrieved back to the start and landing field either by the competitor or his helper. Other people, including the team manager, are not allowed to retrieve the model glider.

While retrieving the model, it is not permissible to fly it back to the start and landing field. Launching outside the start and landing field in this situation is penalised by 100 points that will be deducted from the final score.

5.7.2.5. Radio frequencies

Each competitor must provide at least two frequencies on which his model glider may be operated, and the organiser may assign any of these frequencies for the duration of the complete contest. The organiser is not allowed to change the frequency assigned to a competitor during the event. The organiser may re-assign frequencies to competitors only if a separate fly-off is flown and only for the duration of the complete fly-off.

5.7.2.6. Ballast

Para B3.1 of Section 4b (builder of the model airplane) is not applicable to class F3K. Any ballast must be inside the model glider and must be fixed safely.

5.7.3. Definition of the flying field

5.7.3.1. Flying field

The flying field should be reasonably level and large enough to allow several model gliders to fly simultaneously. The main source of lift should not be slope lift.

5.7.3.2. Start and landing field

The organiser must define the start and landing field before the start of the contest. Within the start and landing field each competitor must have adequate space to conduct his launches and landings, at least 30 m distance to any person in the start direction. The organiser should consider about 900 m² per competitor, (square of 30 m x 30 m).

All launches and landings must happen within this area. The border line defining the start and landing field is part of the start and landing field. Any launch or landing outside this area is scored zero for the flight.

Competitors may leave the start-and-landing field while flying their model glider. For starting their model glider and in order to achieve a valid landing (see 5.7.6.2) the competitor must be inside the start and landing field.

5.7.4. Safety

5.7.4.1. Contact with person

In order to guarantee the highest level of safety, any contact between a flying model glider and any other person (except the competitor or start helper) either in or outside the start and landing field has to be avoided. If such contact happens during either the working or preparation time, the competitor will receive a penalty of 100 points on the total score. In addition, if the contact happens during the working time at the launch of the model glider, this will result in a zero score for the whole round.

5.7.4.2. Mid air collision

In cases of mid-air collisions of two or more model gliders the competitors will not be granted re-flights nor will penalties be levied.

5.7.4.3. Safety area

The organiser may define safety areas. The organiser must ensure that the safety areas are permanently controlled by well-trained personnel. A competitor will receive a penalty of 100 points, if:

- (a) His model glider lands inside the safety area or touches any ground based object like e.g. car or building,
- (b) The model glider flies below 3 metres over the safety area (measured from the ground).

5.7.4.4. Forbidden airspace

The organiser may define forbidden airspace, flying inside of which is strictly forbidden at any altitude. If a competitor flies his model glider inside such a forbidden airspace, a first warning is announced to the competitor. The competitor has to fly his model glider out of the forbidden airspace immediately and by the shortest route. If during the same flight the model glider enters the restricted airspace again, the competitor will receive 100 penalty points.

5.7.5. Weather conditions

The maximum wind speed for F3K contests is 9 m/s. The contest has to be interrupted or the start delayed by the contest director or the jury if the wind is continuously stronger than 9 m/s measured for at least one minute at two metres above the ground at the start and landing field. In case of rain, the contest director should consider interrupting the contest.

5.7.6. Definition of landing

5.7.6.1. Landing

The model glider is considered to have landed (and thereby terminated its flight) if:

- (a) The model glider comes to a rest anywhere
- (b) The competitor touches the airborne model glider for the first time by hand or any part of his body (or if the competitor is disabled, the same applies for his start helper).

5.7.6.2. Valid landing

Landing is considered valid, if:

- (a) At least one part of the model glider at rest touches the start and landing field or overlaps the start and landing field when viewed from directly above (this provision includes any ground based object within the starting and landing field, as well as the tape marking the boundary of the landing field)..
- (b) The competitor (or his helper) touches the airborne model glider for the first time, while standing on the ground with both feet inside the starting and landing field.

5.7.7. Flight time

The flight time is measured from the moment the model glider leaves the hands of the competitor (or his start helper) until a landing of the model glider as defined in 5.7.6. or the working time expires.

The flight time is measured in full seconds. Rounding up is not applied.

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The flight time is official if:

The launch happened from inside the start and landing field and the landing is valid according to 5.7.6. and the launch happened within the working time of the task.

This means that if the airplane is launched before the beginning of the working time then that flight receives a zero score.

In those tasks, where maximum or target flight times are specified, the flight time is scored up to this maximum or target flight time only.

5.7.8. Local rules

Local rules may **be used only in cases of safety issues** in local flying areas, but not for changing tasks.

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5.7.9. Definition of a round

5.7.9.1. Groups

The contest is organised in rounds. In each round the competitors are arranged in as few groups as possible. A group must consist of at least 5 competitors. The composition of groups has to be different in each round.

The results are normalised within each group, 1000 points being the basis for the best score of the winner of the group. The result of a task is measured in seconds. The normalised scores within a group are calculated by using the following formula: $\text{normalised points} = \text{competitor's score} / \text{best competitor's score} \times 1000$

5.7.9.2. Working time
The working time allocated to a competitor is defined in the task list. The start and end of the working time must be announced with a distinct acoustic signal. The first moment, at which the acoustic signal can be heard, defines the start and end of the working time.

5.7.9.3. Landing window

No points are deducted for flying over the maximum flight time or past the end of the working time. Immediately after the end of the working time, or after each attempt for the task "all-up-last-down", the 30 seconds landing window will begin. Any model gliders still airborne must now land. If a model glider lands later, then that flight will be scored with 0 points.

The organiser should announce the last ten seconds of the landing window by counting down.

5.7.9.3. Preparation time

For each round, the competitors receive at least 5 minutes preparation time. This preparation time should ideally start 3 minutes before the end of the working time of the previous group (or at the beginning of the last attempt in the task "all-up-last-down" of the previous group), in order to save time.

At the beginning of a preparation time, the organisers must call the names and/or starting numbers of the competitors flying in the next group.

5.7.9.4. Flight testing time

After all the model gliders of the previous group have landed, the competitors flying in the next group receive at least 2 minutes of flight testing time, which is part of the preparation time. During this flight testing time the competitors are allowed to perform as many test flights inside the start and landing field as necessary for checking their radio and the neutral setting of their model gliders.

Each competitor has to ensure that he is finished in time with his test flights and is ready to start when the working time of the group begins. The last 5 seconds before the start of the working time have to be announced by the organiser.

Competitors who are not part of this group are not permitted to perform test flights either inside or outside the start and landing field and any competitor so doing will incur a penalty of 100 points.

A competitor will receive a penalty of 100 points if he starts or flies his model glider outside of the working and preparation time,

Competitors may test fly before the transmitter impound and after the last working time of the day.

5.7.10. Scoring

Each competitor must fly at least 3 rounds which have to be completed in order to get a valid final score.

5.7.10.1. Final score

The final score is the sum of normalised scores of rounds minus penalty points.

If 5 or more rounds are flown then the lowest score is dropped.

If 9 or more rounds are flown then the lowest two scores are dropped.

If 14 or more rounds are flown then the lowest 3 scores are dropped.

If 19 or more rounds are flown then the lowest 4 scores are dropped.

If 24 or more rounds are flown then the lowest 5 scores are dropped.

Penalty points must be shown in the results list with an indication of the round in which they were levied. The penalty points are retained even if the score of the round in which the offence occurred is dropped.

If a competitor collects more than 300 penalty points, he will be disqualified from the contest.

5.7.10.2. Resolution of a tie break

In the case of a tie break, the best dropped score defines the ranking. If the tie still exists, the next best dropped score (if enough rounds are flown) defines the ranking. If all dropped scores are used and a ranking cannot be achieved, a separate fly-off for the relevant competitors will be flown to achieve a ranking. In this case the contest jury will define one task that will be flown for the tie-break fly-off.

5.7.10.3. Fly-off

The organiser may announce a fly-off prior at the beginning of the event. The fly-off should consist of at least 3 rounds with a maximum of 6 rounds. If 5 or 6 rounds are flown, the lowest score is dropped.

The maximum number of competitors in a fly-off is limited to 12. The minimum number of competitors in a fly-off should be 10-15 % of the total number of competitors.

A junior fly-off may be held with the maximum number of competitors being 2/3 of the seniors fly-off. A separate junior fly-off is not mandatory.

If a fly-off is flown, the points of the previous rounds are not considered.

5.7.11. Definitions of tasks

Detailed specifications including the tasks to be flown for the day must be announced by the organiser before the start of the contest. The tasks of the program are defined below. Depending on the weather conditions and the number of competitors, the tasks and the related working time may be reduced by a decision of the organiser as defined in the task description.

5.7.11.1. Task A (Last flight):

Each competitor has an unlimited number of flights, but only the last flight is taken into account to determine the final result. The maximum length of the flight is limited to 300 seconds. Any subsequent launch of the model glider in the start and landing field annuls the previous time.

Working time: min 7 minutes, max 10 minutes

5.7.11.2. Task B (Next to last and last flight)

Each competitor has an unlimited number of flights, but only the next to last and the last flight will be scored.

Maximum time per flight is 240 seconds for 10 minutes working time. If the number of competitors is large, the maximum flight time may be reduced to 180 seconds and 7 minutes working time.

Example:	1st flight	65 s
	2nd flight	45 s
	3rd flight	55 s
	4th flight	85 s

Total score: 55 s + 85 s = 140 s

5.7.11.3. Task C (All up, last down, seconds):

All competitors of a group must launch their model gliders simultaneously, within 3 seconds of the organiser's acoustic signal. The maximum measured flight time is 180 seconds. The official timekeeper takes the individual flight time of the competitor according to 5.7.6 and 5.7.7 from the release of the model glider and not from the acoustic signal. Launching a model glider more than 3 seconds after the acoustic signal will result in a zero score for the flight.

The number of launches (3 to 5) must be announced by the organiser before the contest begins.

The preparation time between attempts is limited to 60 seconds after the 30 seconds landing window. During this time the competitor may retrieve or change his model glider or do repairs. If a competitor's model glider lands outside the start and landing field, the competitor may change his model glider without retrieving and bringing back the one which has landed outside the start and landing field. This is an explicit exception to 5.7.2.3 and only valid for this particular Task C.

The flight times of all attempts of each competitor will be added together and will be normalised to calculate the final score for this task.

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No working time is necessary.

Example: Competitor A: 45+50+35 s = 130 s = 812.50 points
Competitor B: 50+50+60 s = 160 s = 1000.00points
Competitor C: 30+80+40 s = 150 s = 937.50 points

5.7.11.4. Task D (Increasing time by 15 seconds):

Each competitor has an unlimited number of flights for each target flight time. Each competitor must try to complete the first flight of 30 seconds or more. Once this is accomplished, each of the next target flight times must be incremented by 15 seconds therefore flight times should be equal to or more than: 30 s; 45 s; 60 s; 75 s; 90 s; 105 s; 120 s. The longest target flight time is 120 seconds. The time of all the achieved target flight times is taken into account for scoring.

Working time is 10 minutes.

Example: 1st flight 32 s target time of 30 seconds is achieved; flight score is 30 points.
The next target flight is 45 seconds.
2nd flight 38 s 45 seconds not reached, score 0
3rd flight 42 s 45 seconds not reached, score 0
4th flight 47 s target time of 45 seconds is achieved; flight score is 45 points;
partial score is: 30 + 45 points. The next target flight is 60 seconds
5th flight 81 s target time of 60 seconds is achieved; flight score is 60 points.
The next target flight should be 75 seconds but the remaining working time is only 65 seconds therefore the next target flight cannot take place.
The total score for the task is: 30+45+60 = 135 points

5.7.11.5. Task E (Poker - variable target time)

Before the first launch, each competitor announces a target time to the official timekeeper. He can perform an unlimited number of launches to reach or exceed, this time. If the target is reached or exceeded, then the target time is credited and the competitor can announce the next target time, which may be lower, equal or higher, before he releases the model glider during the launch. If the target time is not reached, the announced target flight time can not be changed. The competitor may try to reach the announced target flight time until the end of the working time. Towards the end of the working time, the competitor must still announce a real time specified in minutes and/or seconds. Calling only "until the end of the working time" is not permitted.

The announcement may be repeated 5 times. The 5 flights with achieved targets are scored. The achieved target times are added together.

This task may be included in the competition program only if the organiser provides a sufficient number of official timekeepers, so that each competitor in the round is accompanied by one official timekeeper.

Working time is 10 minutes.

Example:	Announced time	Flight time	Scored time
	45 s	1st flight 46 s	45 s
	50 s	1st flight 48 s	0 s
		2nd flight 52 s	50 s
	47 s	1st flight 49 s	47 s
	60 s	1st flight 57 s	0 s
		2nd flight 63 s	60 s
	60 s	1st flight 65 s	60 s
	Total score is 262 s		

5.7.11.6. Task F (3 out of 6):

During the working time, the competitor may launch his model glider a maximum of 6 times. The maximum accounted single flight time is 180 s. The sum of the three longest flights up to the maximum of 180 s for each flight is taken for the final score.

Working time is 10 minutes.

5.7.11.7. Task G (Five longest flights)

Each competitor has an unlimited number of flights. Only the best five flights will be added together. The maximum accounted single flight time is 120 seconds.

Working time is 10 minutes.

5.7.11.8. Task H (One, two, three and four minute flights, any order)

During the working time, each competitor has an unlimited number of flights. He has to achieve four flights each of different target duration. The target flight times are 60, 120, 180 and 240 seconds in any order. Thus the competitor's four longest flights flown in the working time are assigned to the four target times, so that his longest flight is assigned to the 240 seconds target, his 2nd longest flight to the 180 seconds target, his 3rd longest flight to the 120 seconds target and his 4th longest flight to the 60 seconds target. Flight seconds longer than the target seconds are not taken into account.

Working time is 10 minutes.

Example:	Flight time	Scored time
1st flight	63 s	60 s
2nd flight	239 s	239 s
3rd flight	182 s	180 s
4th flight	90 s	90 s

Total score of this task would be 60 s + 239 s + 180 s + 90 s = 569 s