

5.7. CLASS F3K - 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.

Official timekeepers may position themselves anywhere inside or outside the start and landing field in order to observe the flight. They must at all times ensure that they do not impede any pilot or model.

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 during his working time.

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, then the score for the round will be 0 points.

5.7.1.3. Transmitter Pound

The organiser should consider the need for a transmitter pound with reference to Volume ABR Section 4B, B11.2 - B.11.6. ||

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, 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. Losing a part of the model glider

If the model glider loses any part during the flight, then the flight shall be scored zero. If the model glider loses a part as a result of a mid-air collision or during the landing; that means after the first contact of the model glider with the ground, any object or person, then the flight is valid.

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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.

Each competitor may only have one model glider in the start and landing field at any moment during the working time. Only the model gliders that are in a spare model area or in the start and landing field at the start of the working time may be used during the working time. To change model gliders, the 'old' one must be placed in the same spare model area as the 'new' one, before the 'new' one is taken out.

5.7.2.4. Retrieving of model glider

If the competitor lands the model glider outside the start and landing field during his preparation and working time, then it has to be retrieved back to the start and landing field either by the competitor or his helper. Other people are not allowed to retrieve the model glider. Illegal retrieving of the model glider by another member of his team will be penalised by disqualification in that round. If a person other than a competitor or his helper (such as spectator) accidentally moves or retrieves a competitor's model, that competitor will be entitled to a new working time.

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 will be penalised with 100 points that will be deducted from the final score.

5.7.2.5. Radio frequencies

Each competitor not using a Spread Spectrum Technology Transmitter 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 metres distance to any person in the start direction. The organiser should consider about 900 m² per competitor, (square of 30 m x 30 m).

The border line defining the start and landing field is part of the start and landing field.

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.

Areas for storage and changing of spare models must be defined outside but within 2 meters of the start and landing field. About 4 square metres must be available for each competitor in a group in each area.

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5.7.4. Safety**5.7.4.1. Contact with a person**

In order to guarantee the highest level of safety, any contact between a model glider being launched or a flying model glider and any other person (except the competitor) either in or outside the start and landing field has to be avoided. This includes contact that happens while the glider is flying or while the glider is being handled by the competitor between landing and launching.

If such contact happens on the start and landing field during the preparation time, working time or landing window, the competitor will receive a penalty according to paragraph 5.7.4.3. In addition, if the contact happens during the preparation or 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 outside of the start and landing field, for protecting people and objects. The organiser must ensure that the safety areas are well defined, clearly marked and permanently monitored.

Contact of the model glider:

- i) with an object, including the ground, within the defined safety area will be penalised by deduction of 100 points from the competitor's final score.
- ii) while airborne with a person (except its pilot) within the defined safety area will be penalised by deduction of 300 points from the competitor's final score.
- iii) while airborne with a person (except its pilot) anywhere outside the defined safety area will be penalised by deduction of 100 points from the competitor's final score.

Each flight attempt may only incur a single penalty. If multiple safety infractions happened during the same flight attempt only the highest penalty will be applied. For example, if during the same flight attempt a competitor's model contacted a person and an object inside the safety area, the 300 points penalty will be applied.

In all of the above cases, if the infractions occurred as a result of a mid-air collision, no penalties will be levied, according to 5.7.4.2.

Penalties shall be listed on the score sheet of the round in which the infringement(s) occurred.

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 notification 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 not following this way the flight shall be scored zero.

For major events the declaration of forbidden airspace should only be used as a last resort if a field cannot be found that will allow the contest site to be set out free of such constraints.

5.7.5. Weather conditions

The maximum wind speed for F3K contests is 8 m/s. The contest has to be interrupted or the start delayed by the contest director or the jury if the wind speed exceeds 8 m/s measured for at least one minute at two metres above the ground at the start and landing field. In the case of rain, the contest director must immediately pause the contest. When the rain stops, the contest starts again with the group that was flying, which receives a re-flight.

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.

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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 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 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.

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.

5.7.9. Definition of a round**5.7.9.1. Groups and round scores**

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 and truncated down to the whole seconds according to 5.7.7. The normalised scores within a group are calculated by using the following formula: $\text{normalised score} = \text{competitor's score} / \text{best competitor's score} \times 1000$. The normalised scores are rounded to whole numbers.

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.

For all Tasks except Task C (All up), a 30 seconds landing window will begin at the end of the working time. Any model gliders still airborne must land before the end of the landing window. If a model glider lands later, then that flight will score zero.

For Task C (All up), the landing window for each flight attempt will begin at 3:03 and end at 3:33 after the start of the acoustic signal indicating the 3 second launch window. If a model glider lands after the end of the landing window, then that flight will score zero. If this happens between any two flight attempts of Task C, and the model glider is airborne during the special 60 second preparation time before the next flight attempt, the next flight attempt will also score zero according to 5.7.11.3. If this happens after the last flight attempt of Task C, the competitor will receive a 100 point penalty according to 5.7.9.4.

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

5.7.9.4. Preparation time

For each round, the competitors receive at least 5 minutes of 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 flight attempt in Task C (All up) 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.

Before each flight attempt of Task C (All up) there must be an additional preparation time period of 60 seconds when flying is not allowed (see Task C description in 5.7.11.3)

5.7.9.5. Flight testing time

After all the model gliders of the previous group have landed, the competitors flying in the next group receive at least 1 minute of flight testing time, which is part of the preparation time. During this flight testing time the competitors are allowed to perform test flights from the start and landing field.

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.

A competitor will receive a penalty of 100 points if he starts or flies his model glider outside of the testing time, working time or landing window of his assigned group.

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

5.7.9.6. Re-Flights

The competitor is entitled to a new working time if his attempt could not be performed correctly due to organisers fault.

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

- a) in a following group;
- b) if this is not achievable, then in a new group of a minimum of 4 re-flyers. The new group of re-flyers can be completed by other competitors selected by random draw. If the frequency or team membership of the drawn competitor does not fit or the competitor will not fly, the draw is repeated;
- c) if this also is not achievable, then with his original group at the end of the ongoing round.

In b) and c) above the better of the two results of the original flight and the re-flight will be the official score, except for the competitors (re-flyers) who are allocated the new attempt. For those, the result of the re-flight 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 an organiser's fault.

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.

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.

5.7.10.2. Resolution of a tie

In the case of a tie, the best dropped score defines the ranking. If the tie still exists, a separate fly-off for the relevant competitors will be flown to achieve a ranking. In this case the contest director will define one task that will be flown for the tie-break fly-off.

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5.7.10.3. Fly-off

The organiser may announce a fly-off prior to the beginning of the event. For World and Continental Championships, the fly-off is mandatory for seniors. The fly-off should consist of at least three (3) rounds with a maximum of six (6) rounds. If less than three (3) fly-off rounds can be completed, the result of the preliminary rounds determine the final ranking.

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 (including penalties) 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 flight time is limited to 300 seconds. Any subsequent launch of the model glider annuls the previous time.

Working time: 7 minutes or 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)

All competitors of a group must launch their model gliders simultaneously, within 3 seconds of the 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 start of the acoustic signal. Launching a model glider before or more than 3 seconds after the start of 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 end of the landing window. During this time the competitor may not perform test flights.

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.

No working time is necessary.

Example for 3 flights:

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

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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)

Each competitor has an unlimited number of flights to achieve or exceed up to five target times. Before the first launch of a new target, each competitor announces a target time to the official timekeeper. He can then 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 target time must be announced clearly in the official contest language or alternatively shown to the timekeeper in written numbers (e g 2:38) by the competitor's helper.

The target(s) (1 - 5) with achieved target times 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 target flight times, any order)

During the working time, each competitor has an unlimited number of flights. He has to achieve four flights each of different target flight times 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 flight times, so that his longest flight is assigned to the 240 seconds target flight time, his 2nd longest flight to the 180 seconds target flight time, his 3rd longest flight to the 120 seconds target flight time and his 4th longest flight to the 60 seconds target flight time.

Only the flight time up to the target flight time is taken into account for scoring.

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

5.7.11.9 Task I (Three longest flights)

During the working time, each competitor has an unlimited number of flights. Only the best three flights will be added together. The maximum accounted single flight is 200 seconds.

Working time is 10 minutes.

5.7.11.10 Task J (Three last flights)

During the working time, each competitor has an unlimited number of flights, but only the three last flights will be scored.

Maximum time per flight is 180 seconds for 10 minutes working time.

Example:	1st flight	150 s
	2nd flight	45 s
	3rd flight	180 s
	4th flight	150 s
	Total score: 45 s + 180 s + 150 s = 375 s	

5.7.11.11 Task K (Increasing time by 30 seconds, "Big Ladder")

Each competitor must launch his/her model glider exactly five (5) times to achieve five (5) target times as follows: 1:00 (60 seconds), 1:30 (90 seconds), 2:00 (120 seconds), 2:30 (150 seconds), 3:00 (180 seconds). The targets must be flown in the increasing order as specified. The actual times of each flight up to (not exceeding) the target time will be added up and used as the final score for the task. The competitors do not have to reach or exceed the target times to count each flight time.

Working time: 10 minutes.