

RULES

CLASS F3K - RADIO CONTROLLED HAND LAUNCH GLIDERS

5.K.1. General

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. The jury can decide, if, due to e.g. weather conditions, less rounds than announced by the organiser (also less than five rounds) will be flown and will be considered as the final result.

In principle, the organiser should provide a sufficient number of well-trained, official timekeepers in order to allow enough simultaneous flights at all time. If this is not possible, the organiser may ask competitors not involved in flying or helping another competitor to operate as official timekeepers. The official timekeeper is not allowed to assist the competitor and his personal helper in any way. The personal helper has to write down the result of a flight attempt immediately, the competitor and his personal helper are entitled to read their results during the working time for information only. 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 of this round is 0 points.

Each competitor is allowed one personal helper who is not allowed to become physically involved in the flight, except for retrieving the airplane, if it is landed outside the start and landing field (ref. 5.K.2.). The personal helper as well as an official timekeeper have to stand close to the competitor during the working time on the start and landing field. Team managers are not allowed to stand inside the start and landing field, they have to position themselves outside the start and landing field.

Disabled persons may ask for assistance at launching and retrieving (catching) their model airplane. 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. During a competition with only one class, the competitors of less than 1.5 m height may be assisted for launching-catching.

If junior and senior classes are scored separately, the limit is 18 years of age for juniors.

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

5.K.2. Definition of model airplane.

Model airplane are gliders, with the following limitations.

Wingspan max. 1500 mm

Weight max. 600 g

Radius of the nose, min. 5 mm in all orientations (see F3B nose definition for measurement technique).

The model airplane 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 is not allowed.

The model airplane can be equipped with holes, pegs or reinforcements, which allow better grip of the model airplane by hand. The pegs must be stiff and remain a firm part of the model within the halfspan of the wing, neither extensible nor retractable. Devices, which do not remain a part of the model during and after the launch, are not allowed.

If the flying model loses any part during the flight, the flight is scored zero according to 5.3.1.7. If this happens during the landing (ref. 5.K.6.) of the model, the flight is valid.

The competitor may change his model airplanes at any times as long as they confirm to the specifications and are operated at the assigned frequency. Five model airplanes in total are allowed for each competitor; it is allowed to change parts between these five models. The organiser has to mark the five models and all interchangeable parts of each of the five models. The competitor may only change model airplanes during the working time, if both models are within the start and landing field. All spare models have to be positioned outside the start and landing field and can only be brought into the start and landing field for an immediate model change.

If the competitor lands outside the start and landing field, the model has to be retrieved back to the start and landing field either by the competitor or his personal helper, who is the only person allowed to help the competitor on the start and landing field; no other person, including the team manager is allowed to retrieve the model. If a model change is planned, the outside landed model also has to be retrieved back to the start and landing field before the model change can be done. A third person is not allowed to retrieve the model. While retrieving the model, it is not allowed to fly it back to the start and landing field. If a model change is planned, the outside landed model also has to be retrieved back to the start and landing field before the model change can be performed.

Each competitor must provide a min. of two frequencies on which his model airplane 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 assigned frequency of a competitor during the event. Only if a separate fly-off is flown, the organiser may re-assign frequencies to competitors for the duration of the complete fly-off.

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

5.K.3. Definition of the flying field: The flying field should be reasonably level and large enough to allow several model airplane to fly simultaneously. The main source of lift should not be slope lift. The organiser must define the start and landing field before the start of the contest and all starts 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 position themselves outside the start and landing field for flying their model, but starting, landing, and catching the model is allowed within the start and landing field only.

The starting and landing field should be big enough, so that each competitor has adequate space to conduct his starts and landing, at least 30 m distance to any person in the start direction. As a rough estimate, the organiser should consider about 900 m² per competitor, i.e. a square of 30 m x 30 m. This results in about 100 m x 54 m for 6 competitors in a group, 120 m x 60 m for 8 competitors in a group and about 150 m x 72 m for 12 competitors.

In general the long side of the starting and landing field should be perpendicular to the predominant wind direction.

5.K.4. Safety and mid-air collisions: In order to guarantee the highest level of safety, any contact between a flying model and a person either on the start and landing field (except the competitor of the model) or outside the start and landing field has to be avoided. If a contact happens between a flying model either within the working or preparation time, the contest director assigns a penalty of 100 points on the total score of the competitor. In addition, if a contact happens during the starting phase of the model and during the working time of a round, this will result in a zero score for the whole round.

If the competitor is disabled, his start helper is also allowed to touch the model during start and landing, e.g. catching the model.

In cases of collisions of two or more models in the air, no re-flights or penalties for the involved competitors are granted, even if the models land outside the start and landing field, which results in a zero score of the affected flight.

5.K.5. Weather conditions: The max. 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 at two metres above the ground at the start and landing field for at least one minute. The contest director should consider to interrupt the contest in case of rain.

5.K.6. Definition of landing: A landing of the model (and thereby the end of a flight) is defined as, when:

- the model airplane comes to a rest anywhere, or
- the competitor touches the model 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, if launching was made by this person).

In addition, a landing as defined above is considered valid, if:

- at least one part of the model airplane touches the starting and landing field (or any ground based object within the start and landing field), or
- the competitor (or his personal helper) touches the model for the first time, while standing on the ground with both feet inside the starting and landing field.

5.K.7. Flight time: The flight time is measured from the moment the model airplane leaves the hands of the competitor (or his start helper, ref. 5.K.1.) until a valid landing of the model as defined in 5.K.6. or the working time expires.

The flight time is official if:

- the launch happens from inside the starting and landing field and the landing is valid according to 5.K.6., and
- the launch happens within the working time of the task.

This means, that any flight is scored zero, if the airplane is launched before the beginning of the working time (acoustic signal).

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

5.K.8. Local rules: The contest director or organiser may introduce local rules.

Local rules are only possible in case of safety issues, local flying areas, but not for changes of tasks, etc.

- The organiser or contest director may define certain security zones. The organiser and contest director have to ensure, that these security zones are permanently controlled by well-trained personnel. A penalty of 100 points is assigned to a competitor, if:
 - his model lands inside the security zones or touches any ground based objects like e.g. cars or buildings,
 - the model flies below 3 meters in the security zone.
- In addition the organiser or contest director may define security zones, where flying inside the airspace above the security zone is strictly forbidden at any altitude. If a competitor flies his model inside such a forbidden airspace, a first warning is announced to the competitor. The competitor immediately has to fly his model out of the security zone as fast as possible and on the shortest way. If in the same flight the model is entering the restricted airspace again, the contest director may assign 100 points penalty to the competitor.

5.K.9. Definition of a round: The contest is organised in rounds, each of which allocates a competitor a working time defined in the task list. The start and end of the working time are announced with an acoustic device. The competitors are arranged in as few groups as possible. A group must consist of at least 5 competitors. The results are normalised within each group, 1000 points being the basis for the best score winner of the group. The result of a task is measured in seconds. The normalized scores within a group are calculated by using the following formula: $\text{normalized points} = \frac{\text{competitors score}}{\text{best competitors score}} * 1000$.

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 task "all-up-last-down"), in order to save time. After the working time including the 30 seconds landing window of the previous group is over, 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 starting and landing field as needed for checking their radio and the neutral setting of their models; other competitors not flying in the next group

are not allowed to perform test flights neither inside nor outside the start and landing field. A competitor receives 100 points penalty, if:

- he is starting or flying his model outside of the working and preparation time,
- he is starting or flying his model during the working and preparation time of a group, in which he is not assigned to fly.

At the beginning of a preparation time, organisers have to call the names and/or starting numbers of the competitors flying in the next group. Organisers may define a ready box next to the start and landing field, in which all competitors, their personal helper, and the official timekeeper can prepare themselves during the preparation time.

Each competitor has to ensure that he's finished in time with his test flights and is ready to start when the working time of the group begins. The 5 last seconds before the start of the working time have to be announced by the contest director. The first moment the acoustic signal can be heard, defines the begin and end of the working time.

An example using 10 minutes of working time is:

- 3 minutes before the working time of the previous group finishes: "call for preparation for the following competitors ..."
- immediately with the end of the working time plus the 30 seconds landing window of the previous group and using that countdown: "2 minutes flight testing begins"
- "30 seconds remaining until your working time begins"
- "10 seconds remaining until your working time begins ... your working time begins in 5, 4, 3, 2, 1, signal ... halftime, 5 minutes working time remaining ... 2 minutes working time remaining ... 30 seconds working time remaining ... 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, signal, end of working time, 30 seconds landing window ... 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, signal, landing time over"

5.K.10. Final score: At least 3 rounds have to be completed in order to get a valid final score. If 5 or more rounds are flown the lowest score is dropped, if 9 or more rounds are flown the lowest two scores are dropped. If 14 or more rounds are flown, the lowest 3 scores are dropped, if 19 or more rounds are flown, the lowest 4 scores are dropped out. If 24 or more rounds are flown, the lowest 5 scores are dropped.

All penalties points are subtracted from the final score and after the lowest scores are crossed out. Penalty points have to be shown in the final scores with an indication for the round in which they were assigned. If a competitor collected more than 300 penalty points, he will be erased from the final scores.

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

The organiser has the possibility to announce a fly-off prior to the beginning of the event in order to e.g. find a national, continental or world champion. The max. number of competitors in a fly-off is limited to 12, the min. number of competitors is 10-15 % of the total number of competitors of the preliminary rounds. A juniors fly-off can be done with a max. number of 2/3 of the seniors fly-off. A separate juniors fly-off is not mandatory.

A fly-off has to consist of at least 3 rounds and max. 6 rounds. If 5 or more rounds are flown, the lowest score is dropped.

If a fly-off is flown, the points of the previous rounds are not considered, every competitor starts in the fly-off with 0 seconds.

5.K.11. Definition 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 according working time may be reduced by decision of the organiser as defined in the task description. No points are deducted for flying over the max. flight time or for flying after the end of working time.

All competitors must land within 30 seconds after the end of the working time (acoustic signal) or for the task "all-up-last-down" after each attempt. If the model airplane lands later, the last flight will be scored with 0 points.

TASK LIST

5.K.11.1. Task B (Last flight):

During the working time, the competitor may launch the model airplane an undefined number of times, but only the last flight is taken into account to determine the final result. The max. length of the flight is limited to 300 seconds. Any additional start of the model airplane in the start and landing field annuls the previous time.

Working time: min. 7 minutes, max. 10 minutes

5.K.11.2. Task C (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.

Max. time per flight is 240 seconds for 10 minutes working time.

If the number of competitors is large, the max. flight time may be reduced to 180 seconds and 7 minutes working time.

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

Total score: 55 s + 85 s = 140 s

5.K.11.3. Task E (All up, last down, seconds):

All competitors of a group must launch their model airplane simultaneously, within 3 seconds after the signal of the organiser. Max. measured flight time is 180 seconds. The official timekeeper takes the individual flight time of the competitor according to 5.K.6 and 5.K.7. from the release of the model and not from the acoustic signal of the contest director. All competitors must start their model within 3 seconds after the signal of the contest director. Starting a model later than 3 seconds after the acoustic signal results in a zero score for the flight. The contest director or an personal helper have to control, that all competitors start within the 3 seconds after the acoustic signal.

The landing of the model in each attempt has to be done within 30 seconds after the max. flight time. If not, the flight is scored zero. The number of launches may be min. 3 and increased up to a max. of 5 and must be announced by the organiser before the contest begins.

The preparation time between the attempts is limited to at most 60 seconds after the additional 30 seconds for landing. Thereby the competitor has at most 90 seconds after the max. flight time of the previous attempt to retrieve or change his model, or to do repairs.

Each flight time of the 3 attempts of each competitor is to be added up and will be normalised to calculate the final score for this task.

No working time needed.

Example:	Competitor A: 45+50+35 s = 130 s = 812.50 points
	Competitor B: 50+50+60 s = 160 s = 1000 points
	Competitor C: 30+80+40 s = 150 s = 937.50 points

5.K.11.4. Task H (Increasing time by 15 seconds):

During the working time, the competitor may accomplish as many launches as he likes. Each competitor must try to complete a flight of more then 30 seconds. Once this is accomplished, the next flight times must be incremented by 15 seconds. So flight times should be more then: 30 s - 45 s - 60 s - 75 s - 90 s - 105 s - 120 s. The longest flight time is 120 seconds. To reach any specific flight time, the number of launches is unlimited. The time of all achieved max. flight times is taken into account. See the example below.

Working time is 10 minutes.

Example: (increment 15 seconds)

1 st flight	32 s	the max of 30 seconds is reached. Next flight should reach 45 seconds. Partial score is 30 points
2 nd flight	38 s	45 seconds not reached, score 0
3 rd flight	42 s	45 seconds not reached, score 0
4 th flight	47 s	the max of 45 seconds is reached. Next flight should reach 60 seconds. Partial

5th flight 81 s score is $30 + 45 = 75$ pts
 the max of 60 seconds is reached. Next flight should reach 75 seconds. But the remaining working time is only 65 seconds.

Total score of the task is $30 \text{ s} + 45 \text{ s} + 60 \text{ s} = 135 \text{ s}$

5.K.11.5. Task I (Poker - variable target time)

This task has to be flown with official helpers from the organizer. If, for any reason, the organizer does not provide official helpers, the task cannot be flown, no matter if its on the program or not. The time of the official time keeper is considered in the final scores, not the time of the helper.

Before the first launch, each competitor announces a target time to the official timekeeper. He can perform an unlimited number of launches to reach this time. If the target is reached, the target time is credited and he can announce the next target time - which can be lower, equal or higher - before he releases the model during the launch. If the target time is not reached, the announced flight time can not be changed. The competitor has to try until the end of the working time, to reach the announced flight time. Towards the end of the working time, the competitor has to announce a real time specified in minutes and/or seconds. Just calling "until the end of the working time" is not allowed. The announcement can be repeated 5 times. 5 flights with a reached target are scored. The reached target times are added up.

Working time is 10 minutes.

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

Total 262 s

5.K.11.6. Task J (3 out of 6):

During the working time, the competitor may launch his model airplane not more than 6 times. The max. measured flight time is 3 minutes. The sum of the three longest flights is taken for the final score. Max. accounted single flight time is 180 seconds. Working time is 10 minutes.

5.K.11.7. Task M (Five longest flights- two minutes max time per flight)

Each competitor has an unlimited number of flights. Only the best five flights will be added up. Max. accounted single flight time is 120 seconds. Working time is 10 minutes.

5.K.11.8. Task P (A one, two, three and four minute flight, any order)

During the working time, the competitor may accomplish as many flights as he likes. He has to achieve four different max flight times of 60, 120, 180, 240 seconds in any order. This basically means that the four longest flights flown in the working time are assigned to the four max times, so that the longest flight is assigned to 240 seconds, the 2nd longest flight to 180 seconds, the 3rd longest flight to 120 seconds and the 4th longest flight to 60 seconds. Flight seconds longer than the assigned max time are not taken into account.

Working time is 10 minutes.

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

Total score of this task would be $60 \text{ s} + 239 \text{ s} + 180 \text{ s} + 90 \text{ s} = 569 \text{ s}$