Provisional rules
Class F3I – Glider Duration/Speed

5.I.1 - General

5.I.1.1 - Definition of an aerotow soaring contest

An aerotow soaring contest is made of successive rounds comprising a speed and a duration task. The gliders are towed up to 200 m altitude by a model aeroplane tug.

The two tasks of any round must be performed with the same glider, without any change of component; the model weight must be identical for the two tasks.

The models must be flown by radio by a pilot staying on the ground.

The competition must take place on a reasonably flat and horizontal airfield with very low probability of slope or wave lift.

As soon as the model is hooked to the tug aircraft, the competitor must use his radio equipment by himself. He is entitled to one helper in the course of any task from the beginning of the take-off run.

5.I.1.2 - Models and equipment

5.I.1.2.1 - Aerotow gliders

a - The models shall have an appearance similar to full-size gliders.

b - The fuselage shall have a transparent canopy, similar to the ones in use on full-size gliders.

c - Aerotow glider characteristics:

- Maximal mass in flight order ..... 5.0 kg
- Minimal wingspan ..... 3.50 m
- The fuselage width at the master cross-section, not including the wing fillets, must be at least equal to 3.2 % of the glider's wingspan (example: 400cm x 3.2 % = 12.8 cm).
- The fuselage height measured at the master cross-section must be at least equal to 4% of the glider wingspan (example: 400 cm x 4 % = 16 cm)

d - The variable geometry models must be in accordance with the rules in any configuration.

e - Any change of geometry or area must be done by radio control.

f - The glider must be fitted with a towing device working with a simple nylon loop and located not more than 10 cm behind the model's forward point.

g - The glider must be fitted with a wheel providing a minimum of 1 cm clearance at take-off, measured with the glider on a horizontal surface.

h - Prefabrication of the model aircraft. Paragraph B.3.1. of Section 4, Part 2 (builder of the model aircraft) is not applicable to this class. The only models allowed are those built by the pilot from ready-made parts and in which he installs the equipment.

i - Technical control : every competitor shall declare that his models conform to the Sporting Code. If the competitor uses a glider which is not in accordance with the rules, he shall be disqualified

5.I.1.2.2 - Aerotow model aircraft tug

a - The organiser shall make tugs and pilots available to tow the gliders up to altitude. The tugs shall be able to tow the gliders up to 200 m of altitude in less than 90 s. The tug model aircraft shall be in accordance with the Sporting Code and the pilots shall have the required qualification and accreditation.

b - The towing cable must be 25 metres long and must be fitted with a nylon loop at each end. A red pennant is attached to the cable to improve visibility.

c - The tug must be fitted with an altimeter.

d - The tugs' altimeters must be calibrated at the contest's opening and at the beginning of every day of contest. In the course of the day, the Contest Director may ask the tug pilots to perform a calibration flight in order to verify that releases are done at identical altitude.

5.I.1.2.3 - Radio equipment

a - Every competitor must have at least two different frequencies available with a minimum 20 kHz spacing. The contest director decides which frequency shall be used by the competitors in order to establish flight groups of four pilots (or a minimum of three).

5.I.1.3 - Officials required for an F3I contest

For organisational purpose, an Official may simultaneously hold several functions.

a - **Contest Director** : He runs the contest, manages the officials, ensures the smooth running of the good running of the contest in all respects, especially regarding compliance with the rules and safety.

b - **Timekeepers** : They time the tasks and flights duration.

c - **Field Marshall :** He watches the models takeoff and landings (tugs or gliders). He manages the whole runway security./safety

d - **Aerotow pilots** : They are in charge of towing the gliders up to release altitude.

5.I.2 - Contest technical and sporting rules

5.I.2.1 - Definition of a round

a - A round is made of two tasks, each of them scored as a percentage of the task winner's 1000 points.

- A speed flight task over a 1,000 metres distance made of four 250 m legs between two parallel imaginary vertical planes 250 m apart.
- A duration task : an 8-minute flight ending with a precision landing in a rectangular landing box 20 metres wide and 40 metres long.

5.I.2.1.2 - Organisation of a round

a - The tasks may take place in any order within a round.

b - The previous round must be completed before beginning a new round.

c - The competitors starting order is established by a draw before the beginning of any round.

d - The aerotow tugs release the gliders at 200 metres altitude. This altitude is automatically measured by an onboard altimeter.

e - The competitors are allowed two models during a contest. The two tasks of any round must be done with the same glider, without any change of elements, except in the case of a collision with another model in flight. However, the pilot can assemble a model made of components from the two gliders, provided the resulting model conforms to § 5.I.1.2.1. The competitor must inform the Contest Director whenever he changes to another model. This change must be registered in the results list.

f - While on the ground, the only changes allowed are switching radio frequency, model wing and empennage angle of attack and centre of gravity position.

g - In flight, lifting area, angle of attack and centre of gravity may be altered by remote control.

h - Any in-flight altitude measuring device (altimeter or variometer) is forbidden.

i - During aerotow a competitor may chose any flight path he wants and instruct the tug pilot, provided the safety guidelines set by the Contest Director are followed.

j - Any competitor not taking part in a round receives a zero score for that round

5.I.2.1.3 - Timing

a - The flight's timing shall be done by one timekeeper with two stopwatches used simultaneously.

b - An official times a 2 minutes preparation time, starting the moment the competitor is called for his flight

5.I.2.1.4 - Processing

a - The weight of the models must be checked at random before and after the speed and duration flights of each round. The processed gliders are chosen by mean of a draw. The selected competitors are instructed at the end of a flight that they have to bring their glider to the weighing station. A minimum of 20% of the gliders must be checked during each round.

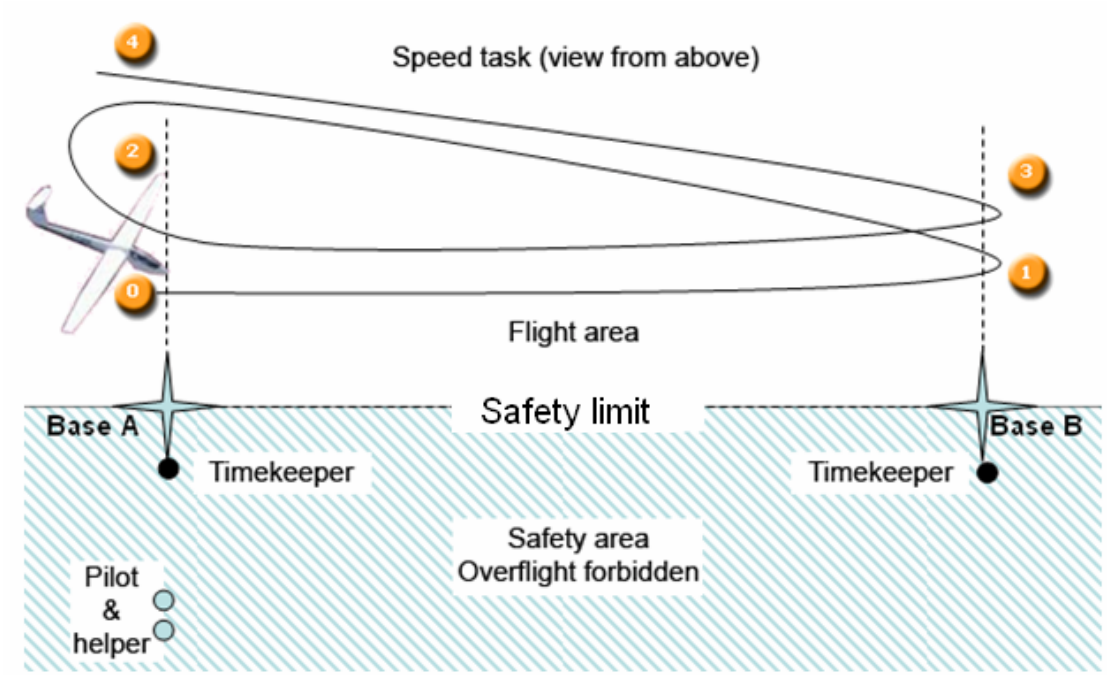
5.I.2.2 - Speed task

5.I.2.2.1 - Definition of a speed task

a - The speed task is flown over four legs between two parallel, vertical planes (“A” & “B”) 250 m apart The glider must cross the virtual planes 5 times from initial entry to final exit for the flight to be valid.

b - Speed flight definition The glider crosses the start plane (A) toward (B), crosses the (B) plane, flies back to plane A, , crosses this plane to complete a first lap and flies back to complete a second lap. The flight is complete at the moment the glider crosses plane “A” out of the course at the end of the second lap. The flight is valid, even if the glider touches the ground during the timed part of the flight. A plane is deemed to have been crossed when the nose of the glider has flown through.

c - At each turning plane a sighting device is used to assess the moment the glider nose crosses the plane. An acoustic or optical system signals the crossing to the pilot. A virtual safety plane perpendicular to the turning planes limits the flight space. Flights must on the safety plane side defined by the Organiser and nobody shall be allowed on that side. If any part of the model crosses the safety plane in flight, the flight is scored zero.



5.I.2.2.2 - Speed task organisation

a - The competitors are allowed a 2-minute preparation time before take-off from the moment they are called for their flight. The attempt shall be deemed to have taken place if the end of the preparation time, the model is not ready to take off.

b - Only timekeepers are allowed to tell the glider's position relative to the starting plane at the competitor's request.

c - The glider must cross the starting plane “A” towards plane “B” between 10 and 120 seconds after release from the tug. The timed part of the flight begins when, after release, the glider crosses the starting plane for the first time towards plane “B” and ends when the glider crosses the starting plane out of the course when completing the second lap.

d - A timekeeper times the flight and may inform the competitor of the remaining working time.

5.I.2.2.3 - Speed task attempt

a - The competitor may choose to abort his flight and to make a second attempt at any time between the glider's take-off and the beginning of the timed part of the flight.

A flight is considered to have been attempted if :

b - The glider is not ready to take off at the end of the 120 seconds preparation time;

- The aerotow is interrupted for any reason due to the competitor;
- Every competitor is allowed two attempts. If the first attempt is not successful, the second attempt is the one to be validated, whatever the result.

5.I.2.2.4 - Speed task reflight

A reflight may only be allowed by the Contest Director. The flight is then repeated if:

a - The flight has not been properly timed by the timekeepers.

b - The aerotow is interrupted for any reason outside of the competitor's responsibility.

5.I.2.2.5 - Speed flight cancellation

The flight is cancelled and the task is scored 0 (zero) if:

a - The glider is not ready to take off at the end of the second attempt preparation time;

b - The glider in flight crosses the security line;

c - The glider does not complete the two laps;

d - The glider loses a part during the timed part of the flight.

5.I.2.2.6 - Speed task scoring

a - The time to complete the two laps course is recorded and rounded to the lowest tenth of second. (Example: 32.48 seconds = 32.4 seconds).

b - The best time is awarded a 1,000 points score, other times are scored as a percentage of the best score over a 1,000.0 points scale (down to one decimal).

c - If a speed task lasts two days, scores are computed separately for each day.

d - The partial score (**PS**) for each competitor's speed task is :

- **PS** = (1000 x BT / CT) - PP
- **BT** = Best time
- **CT** = Competitor's time

Example : Best time (BT) = 32.0 seconds

- The competitor timed 32.0 seconds scores 1,000 points.
- The competitor timed 32.6 seconds scores 981.60 points (1,000 X 32 / 32.6).
- The competitor timed 43.0 seconds scores 744.20 points (1,000 X 32 / 43).

5.I.2.3 - Duration task

5.I.2.3.1 - Duration flight

The aim of the duration task is to fly 8 minutes after release from the tug aircraft at 200 m altitude. Landing must be in the same direction as take-off in a rectangular landing box 40 m long and 20 m wide. The glider must not rotate more than 90° from the landing box length axis at touch down.

5.I.2.3.2 - Duration task organisation

a - Competitors are arranged in groups of 4 pilots Groups of 3 competitors, but not less, may be setup to complete the roster.

b - The aerotow duration between take off and glider release must not exceed 90 seconds.

c - The time span between the first and the last glider releases of any group must not exceed 10 minutes for a group of 4 competitors or 7 minutes 30 s for a group of 3 competitors.

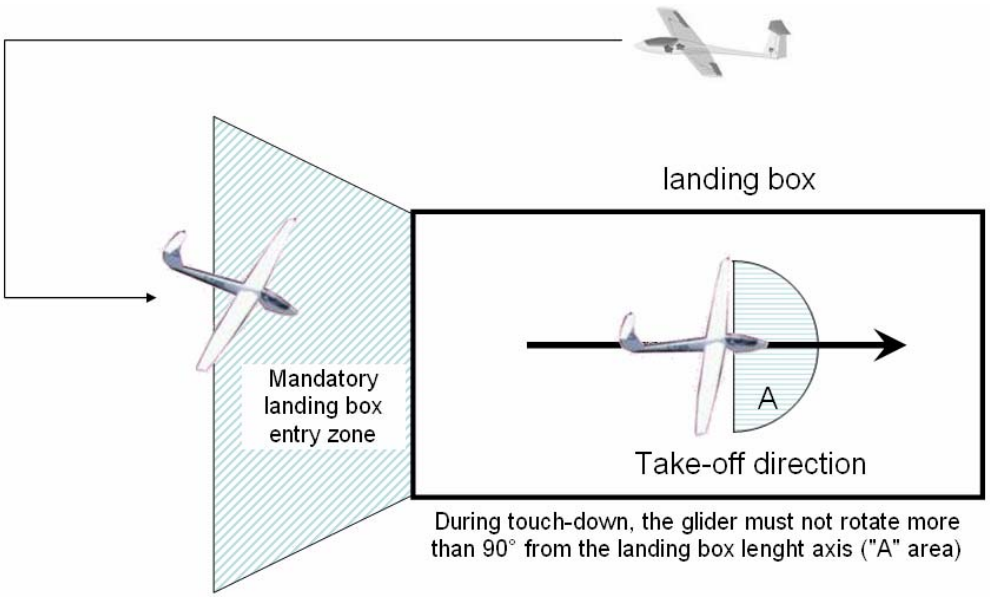
d - Definition of the landing box : A 40 x 20 m rectangle marked on the ground and with its length parallel to the runway axis.

e - Definition of the landing point : The point located directly under the model nose after landing.

f - Definition of a correct landing : The glider must approach the landing box over its downwind side (see drawing).

Once the glider comes to rest at landing, its nose must be inside the landing box

After landing the glider must point to the take off and landing direction and must not have rotated more than 90 ° relative to the landing box length axis.



5.I.2.3.3 - Duration flight attempt

a - A competitor may elect to abort his flight and make a second attempt at any time between his glider take off and release.

A flight is also considered an attempt if :

b - The glider is not ready to takeoff before the end of the 2-minute preparation time;

c - The aerotow is aborted for any reason due to the competitor.

5.I.2.3.4 - Duration task reflight

A reflight may only be allowed by the Contest Director. The flight is then repeated if :

a - The flight has not been properly timed by the timekeeper.

b - The aerotow is interrupted for any reason outside of the competitor's responsibility.

c - The glider collides with an other model. In this case, both models must land in order to check their structural integrity.

d - All the gliders of a group are not released within the allowed time span. In this case, the Contest Director may decide whether the entire group may start again immediately or at the end of the flight task.

e - The group starts again for a single flight with no other attempt allowed.

f - It one competitor is responsible for the group reflight, his score is the one achieved in the reflight. The other competitors from the group score the best result from the two flights.

5.I.2.3.5 - Cancellation of a duration flight

A flight is cancelled and the task scored 0 (zero) if :

a - The glider is not ready to take off for the second attempt within the allowed preparation time.

b - The glider overflies the safety areas at low altitude.

5.I.2.3.6 - Duration flight task scoring

a - The flight time recorded is rounded down to the lower full second (example : 7:59:99 score 7:59 s).

b - The timekeeper times the flight, from the glider release from the tug until :

- The moment the glider comes to rest after landing;
- The glider collides with a fixed obstacle while in flight;
- The glider disappears from the timekeeper's eyesight and it becomes obvious that it will not repear. In case of doubt, only one of the timepieces must be stopped.

c - Flight scoring :

- Only full seconds of flight are taken into account up to a maximum of 480 (8 minutes).
- Twenty additional seconds (bonus) are awarded if the landing is performed within the prescribed limits (5.I.2.3.2..d, e & f).
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d - No landing bonus is awarded if, in addition to (b) above, the glider :

- Comes to land into the landing box over a long side;
- Touches the pilot or his helper during landing;
- Comes to a rest inverted;
- Rotates more than 90° from the landing box length axis.

e - Deducted time :

- When the flight duration exceeds 480 seconds (8 minutes), 1 second is deducted for every full second of flight in excess of 480 s (a 8:10s flight scores 480 - 10 = 470 seconds).

f - Penalty points

- 200 penalty points are deducted from the score if the glider lands and comes to a rest more than 100 metres from the landing box centre.
- 200 penalty points are deducted from the score if any part of the glider comes off and falls to the ground during the timed part of the flight.

g - Calculation of the task score :

The best result from a group is awarded 1,000 points score, other results are scored as a percentage of the best score over a 1,000.0 points scale (down to one decimal).

Penalty points are deducted from the competitor's task score.

$$\text{Points} = \left[\frac{1000 \times (TC + LB)}{BTC + LB}\right] - PP$$

CT = Competitor's time
LB = Landing Bonus
BTC = Best time of the group
PP = Penalty Points

Example 1 – Group 1 : Best time is (480 + 20)

Competitor	score	Calculation	result
1	8 mn + target	1,000 x (480 + 20) / (480 + 20)	1,000.0
2	7 mn 50 s + target	1,000 x (470 + 20) / (480 + 20)	980.0
3	8 mn 10 s + target	1,000 x (480 + 20 – 10) /(480 + 20)	980.0
4	8 mn + target & loss of an element	[1,000 x (480 + 20) /(480 + 20)] – 200	800.0

Example 2 – Group 2 : Best time is (480+ 0)

Competitor	score	Calculation	result
1	6 mn + no target	1,000 x (360 + 0) / (480 + 0)	750.0
2	5 mn 50 s + target	1,000 x (350 + 20) / (480 + 0)	770.8
3	5 mn 10 s + target	1,000 x (310 + 20) / (480 + 0)	687.5
4	8 mn & landing + 100m	[1,000 x (480 + 0) / (480 + 0)] – 200	800.0

5.I.3 - Final classification

a - The score of any round is the sum of the speed and duration scores.

b - The competitor's score is the sum of the rounds scores.

c - The final score does not take into account :

- The lowest round score , if three rounds or more are flown;
- The two lowest round scores , if five rounds or more are flown;
- The three lowest round scores, if nine rounds or more are flown.

End