

FÉDÉRATION AÉRONAUTIQUE INTERNATIONALE

**SPORTING CODE
SECTION IV**



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VOLUME F3D – R.C. PYLON RACING

F3D-PYLON RACING

VOLUME F3D

SECTION 4C –MODEL AIRCRAFT AIRCRAFT – F3D (PYLON RACING)

Part Five – Technical Regulations for Radio Controlled Contests

5.2 Pylon Racing Model aircraft

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¹ FAI Statutes, Chapter 1, para. 1.6

² FAI Sporting Code, General Section, Chapter 3, para 3.1.3.

³ FAI Statutes, Chapter 1, para 1.8.1

⁴ FAI Statutes, Chapter 5, para 5.1.1.2; 5.5; 5.6 and 5.6.1.6

⁵ FAI Bylaws, Chapter 1, para 1.2.1

⁶ FAI Statutes, Chapter 2, para 2.3.2.2.5,

⁷ FAI Bylaws, Chapter 1, para 1.2.3

⁸ FAI Statutes, Chapter 5, para 5.1.1.2; 5.5; 5.6, 5.6.1.6

⁹ FAI Sporting Code, General Section, Chapter 3, para 3.1.7

¹⁰ FAI Sporting Code, General Section, Chapter 1, paras 1.2. and 1.4

¹¹ FAI Statutes, Chapter 5, para 5.6.3

¹² FAI Bylaws, Chapter 1, para 1.2.2

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VOLUME F3D

PART FIVE – TECHNICAL REGULATIONS FOR RADIO CONTROL CONTESTS

5.2. CLASS F3D: PYLON RACING MODEL AIRCRAFT

5.2.1. Definition of Radio Control Pylon Racing Model aircraft:

Model aircraft in which the propulsion energy is provided by a piston type motor and in which the lift is obtained by aerodynamic forces acting on the supporting surfaces which except for the control areas must remain fixed in flight.

The model aircraft must be of conventional design with forward wing and an aft empennage with the general lines of a full size aircraft. Unusual or unconventional features must be justified with three view drawings or photographs of similar features used on full size aircraft.

Para B.3.1. of Section 4b (Builder of the Model aircraft) is not applicable to class F3D.

A pylon team shall consist of a pilot and a mechanic/caller.

All pilots must be accompanied by a caller/mechanic for reasons of safety. The caller can be the team manager, another competitor from the same team or a third party. In all cases the caller must be the holder of an FAI licence not necessarily issued by the NAC of the pilot, and must have paid an entry fee.

Each pilot and mechanic/caller shall be registered as a team from the beginning of the competition through to its end.

5.2.2. Motor(s)

Motor(s) must be of the reciprocating piston type, with a maximum total swept volume of 6,6 cm³

5.2.3. Shut-off

The engine shall be equipped with a positive radio controlled engine shut-off. The pilot must be able to shut off his engine by radio control, on the ground, or in the air, within five seconds of command, irrespective of aircraft altitude.

5.2.3.1. Silencer

The motor(s) shall be fitted with a silencer. Within its length there shall be an expansion chamber of not less than 30 mm diameter and 100 mm length; the exhaust outlet's total area shall not be more than 80 mm²

5.2.4. Propeller

Only fixed propellers may be used. Two-bladed wooden or two or more blade composite resin continuous fibre construction propellers may be used.

5.2.5. Propeller Spinner

A rounded nose metal spinner of at least 25 mm diameter must be fitted.

5.2.6. Fuselage

5.2.6.1. Cross-section

The fuselage shall have a minimum height of 175 mm and a minimum width of 85 mm, the measurements to be of the fuselage body and are to exclude any fins, attachments or spacers. Both minimum dimensions must occur at the same cross-section location. The fuselage at this point will have a minimum cross sectional area of 100 cm² excluding fillets and competitors will be required to provide templates to prove this. Fillets are not considered part of the fuselage or lifting surfaces.

5.2.6.2. Cows

The motor or motor(s) must be enclosed, with the exception of the silencer, cylinder head and controls which must be manipulated during operation of the motor. The cylinder head for this purpose is defined as the top (or outer) 1 centimetre of the motor, excluding ignition plug or compression screw.

5.2.6.3. Landing Gear

The landing gear may have two or three wheel design with the main wheels having a minimum track of 150 mm. The minimum diameter of the main wheels shall be 57 mm and the minimum width of the wheel or wheel spat or wheel pant shall be 12 mm for at least 1/3 of the diameter. A tail skid may be used in lieu of a tail wheel. A positive means of steering on the ground shall be provided, rudder control acceptable.

5.2.6.4. A cockpit or canopy profile must be evident and capable of enclosing a pilot's head 50 mm from the chin to the top of the head. The canopy need not be transparent and a pilot need not be fitted.

5.2.7. Lifting Surfaces

5.2.7.1. Area of Surfaces

Total projected area of the lifting surfaces (wing and horizontal tail combined) shall be a minimum of 34 dm². With a biplane, the smaller of the two wings shall have at least 2/3 of the area of the larger wing. No delta or flying wing type aircraft are allowed.

5.2.7.2. Wing Span

Minimum wing span shall be 1150 mm for a monoplane and 750 mm for the largest wing of a biplane.

5.2.7.3. Wing Thickness

Wing thickness of the root shall be at least 22 mm for a monoplane, and 18 mm for a biplane. On a biplane with different size wings, the smaller wing must be at least 13 mm thick at the root. Wing thickness may decrease in a straight line taper from root to tip as viewed from the leading or trailing edge.

Note: Root shall be defined as the innermost wing section, not counting fillets, that may be measured without removing wing from fuselage.

On a completely exposed wing, such as on a parasol monoplane or the top wing of most biplanes, the root is that section of the wing that is intersected by a projection of the outline of the fuselage as seen in the top view, i.e. the root section would be 50 mm from the centreline of an exposed wing on a model aircraft with a 100 mm wide fuselage.

5.2.8. Weight

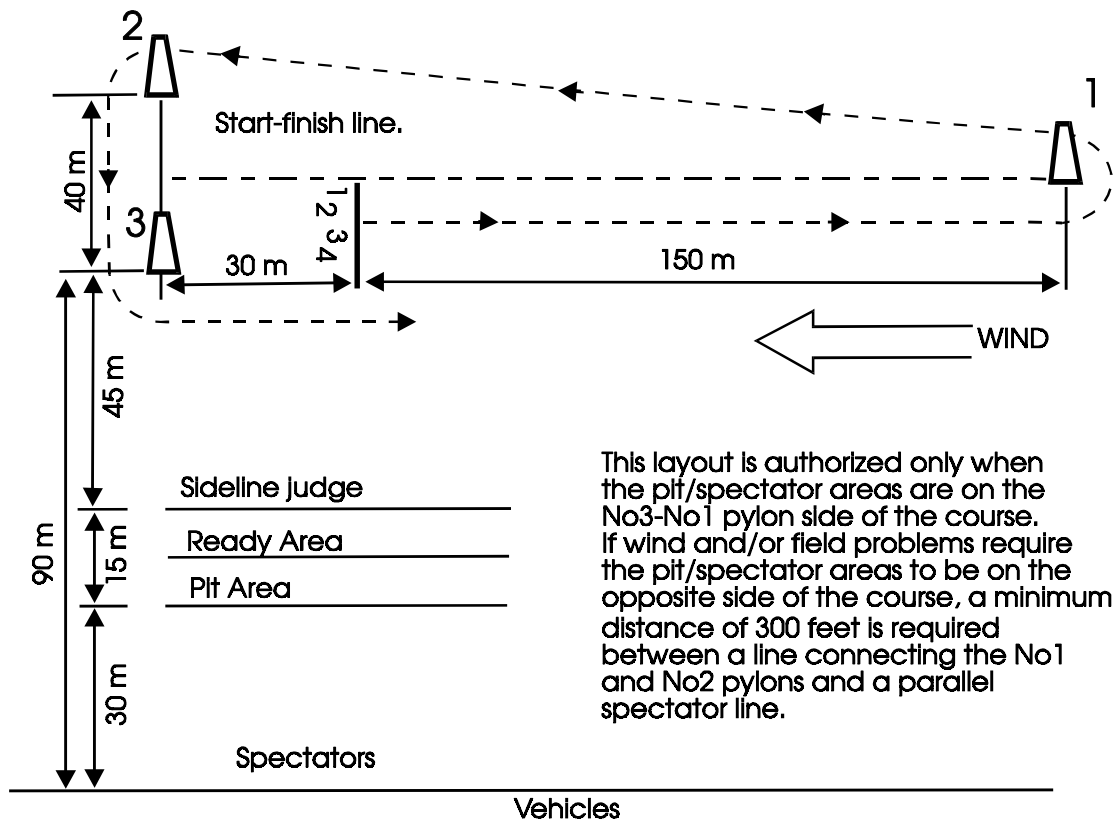
Weight less fuel, but including all equipment necessary for flight shall be at least 2200 g and not more than 3000 g. If ballast is used it must be permanently and safely affixed.

5.2.9. Fuel

Fuel to a standard formula for glow plug and spark ignition motors will be supplied by the organisers. Its composition shall be 80% methanol, 20% castor oil.

5.2.10. Racing Course Specification

The triangular course will be laid out as follows: The course is 10 laps with individual length of 400 m. Total distance travelled is 4 km. The race starts at the start-finish line. All take-offs will be ROG, no mechanical device will be used to assist the aircraft, but hand-pushing is permitted. The race is terminated at the start-finish line 10 full laps later. The race course specification may be modified in the interest of safety or to suit existing field conditions if safety is not compromised. The pylons should have a minimum height of 4 m and should not exceed 5 m height.



PYLON RACING COURSE LAYOUT

5.2.11. Organisation for Radio Controlled Pylon Racing Contests

For transmitter and frequency control see Section 4b, Para. B.8.

All officials on the race course and all competitors must wear a crash helmet with a chin strap. The helmet must be able to withstand the impact of a flying pylon model aircraft. Heats shall be arranged in accordance with the radio frequencies in use to permit simultaneous flights.

Each competitor has to introduce two different frequencies, distant of a minimum of 20 kHz, which he must be able to use on all the model aircraft entered in the contest.

5.2.12. Operation of the Race

5.2.12.1. Flight timers and lap counters: Each competitor shall be assigned one official during each heat. This official will time the competitor's aircraft for the required ten laps. In doing so he will count the laps flown and advise the pilot when he has completed the necessary 10 laps. He will keep the recorded time on his timing device until he has entered the time on the score sheet under the supervision of the starter. At the number 1 pylon there will be one Pylon Judge and an Official Signaller for each competitor in the heat. The Pylon Judge will stand in close proximity to the pylon. The signallers will stand perpendicular to the direction of the course on the right hand side of the pylon, as seen by the competitors, no more than 5 metres away from the pylon. Each signaller will have a distinctive colour allocated, and the Contest Director will arrange for each model aircraft to be identified by one signaller before the start of every heat.

Note: Signals may be by coloured flags or lights.

5.2.12.2. The signallers will have their flags in a ready position, or their lights off as the aircraft reach midcourse between No. 3 and No. 1 pylons, or earlier. At the instant the model aircraft draws level with the No.1 pylon on the correct side the signaller will briskly lower his flag, or switch his light on. There will be no pilot's helpers at any of the pylons.

- 5.2.12.3.** At the No. 2 and No. 3 pylons, the Official Judge will stand in close proximity to the pylon they are judging.
- 5.2.12.4.** A Sideline Judge will be posted in the front on the pit area on the spectator side of the racing course. The Sideline Judge will record as an infringement, any overflight of the pit or spectator areas.

The judges at No. 2 and No. 3 pylons will record a cut pylon infringement). At the end of each race the Sideline and Pylon Judges will inform the Race Starter of any infringement by any competitor.

- 5.2.12.5.** A maximum of 4 model aircraft per heat will be allowed.
- 5.2.12.6.** The Race Starter is in charge of each heat, the starter will ensure that all competitors and Race Officials are ready to commence. Each signaller will have a flag or light of a distinctive colour, the starter will arrange for each model aircraft to be identified by one signaller before the start of any heat. A radio operation check from each competitor will be made prior to starting motor(s).

A maximum of 1 minute will be allowed for starting and adjusting the motor(s), at which point the race will commence. A competitor whose engine is not running at the end of the 1-minute period will be disqualified from the heat. No competitor shall be permitted to take off once the first model aircraft has passed the start/finish line heading from No. 1 to No. 2 pylon on the first lap, and no time shall be given him for that heat.

- 5.2.12.7.** All laps are to be flown counter-clockwise with turns to the left. No minimum altitude is required for racing.
- 5.2.12.8.** At the completion of the 10 laps the Lap Counter/Timekeeper must immediately instruct the competitor to remove his aircraft from the course.
- 5.2.12.9.** A penalty will be incurred if the competitor releases the model aircraft before the drop of the starter's flag or starting signal, cuts a pylon or flies outside the Sideline Judge. Two infringements constitute disqualification for that flight.
- 5.2.12.10** Starting positions in all races will be determined by draw with the No.1 position being closest to No. 2 pylon.. Model aircraft will be released from the starting line on the starting signal (flag drop or light signal) at one second intervals with timing commencing at the starting signal for that particular model aircraft.
- 5.2.12.11** The Contest Director has the right to request any competitor to make a flight to demonstrate the airworthiness of his model aircraft and/or ability to fly the airplane around the course. If during the race, the Contest Director considers any model aircraft to be flying erratically, dangerously, or so low as to endanger Course Officials, he may disqualify the competitor from that heat or from all heats and require the model aircraft to be landed immediately. Persistent flying below the top of the pylons may be considered dangerous to the Course Officials.
- 5.2.12.12** Each competitor may have only one helper in each race and the helper may release the model aircraft at the start and give the pilot verbal information regarding the flying course of his model aircraft and official signals. Electronic communication with the pilot shall be prohibited. The designation "competitor" may refer to an individual or team entry of no more than two persons. Any award will be made jointly to team members.

The pilot or mechanic of one team may act as the mechanic/helper in one or more other teams. However, any one model aircraft may not be used by more than one team, nor may roles be interchanged in a team.

- 5.2.12.13** After the starting signal (flag drop or light signal) is given, any contact between two model aircraft shall be considered a collision and the model aircraft involved must land immediately. The Contest Director is required to give such competitors a second opportunity to record a score in that round, provided that in his opinion the aircraft is still airworthy or the competitor has an airworthy reserve model aircraft.

In the event of a malfunction of the timing, lap counting, signalling or other such equipment which is the responsibility of the organisers, the competitor(s) affected by such malfunction shall be given the opportunity to record a score for that round.

- 5.2.12.14** The loss of any part of the model aircraft after the starting signal (flag drop or light signal) and before the engine stops disqualifies the model aircraft for that flight except as a result of a collision where Para. 5.2.12.13 applies.

5.2.13. Scoring

- 5.2.13.1.** The flight of each model aircraft shall be timed with a timing device measuring to at least 1/100th of a second) by a lap counter/timekeeper. Timing shall start when the starting signal is given to the individual competitor.

The lap counter/timekeeper stops his timing device after ten laps have been completed by the competitor and, supervised by the starter, records the elapsed time from the timing device on the competitor's score sheet.

At the completion of each heat, the pylon and side-line judges notify the starter as to which model aircraft have infringed. The starter then advises the lap counters/timekeepers of those who will record the total number of infringements for each competitor on his score sheet.

The score sheets are then processed by a scorer who will: a) if one infringement was incurred, add 1/10th of the flyer's time for ten laps to give the corrected time; b) if two or more infringements were incurred, cancel the flight; c) round the competitor's corrected time to the nearest 1/10th of a second.

- 5.2.13.2.** Points shall be awarded after each race as follows: The competitor's score is his corrected time in seconds to the first decimal place. If the competitor fails to complete his flight or is disqualified the score shall be 200.

- 5.2.13.3.** The winner of the event is the competitor who has accumulated the lowest score after the conclusion of all heats. If four or more rounds are flown, each competitor's worst score shall be discarded. If nine or more rounds are flown, each competitor's worst (highest) two scores shall be discarded.

If the time permits, and there is no frequency conflict, ties shall be broken by a fly off race. Otherwise, the best single race score shall be considered in resolving a tie.

- 5.2.13.4.** If the time permits and there is no frequency conflict, ties shall be broken by a fly off race. Otherwise, the best single race score shall be considered in resolving a tie.