SAMPRA

South African Miniature Pylon Racing Association Rules

1. Official Classes

There will be five official classes of Pylon Racing in South Africa:

1.1 Sportsman
1.2 Standard Quickie
1.3 Hot Quickie (F3R)
1.4 Q40 (F3T)
1.5 F.A.I / F3D
1.6 Club 2200

2. Operation of racing Meeting

2.1 All race meetings will be run according to the F.A.I. sporting code in force at the time (see F.A.I. sporting code section 4)
2.2 Timing, course specifications and operation of the races for all classes will be as per "sporting code section 4, sub section 5.2.1 and 5.2.2"

3. SAMAA Membership

All competitors must be paid up SAMAA members to qualify for participation in any competition. For participation in International competitions a valid F.A.I. license is required. Membership cards will be required to be shown at all official race meetings.

4. Airframe and radio specifications for Sportsman Class

4.1 Airframe

The airframe must be of a conventional design with forward wing and empennage. Any general sport plane (including ARF's) for 40 – 50 size engines (EG. Scanner, LA Racer, Ugly Stick etc.) may be used. Airplanes designed specifically for racing (i.e. Quickies) are not allowed. Aircraft permitted to fly in this class must be of Balsa and/or Plywood Construction.

4.2 Motors

Any .40 to .55 size commercially available "sport" motor such as OS Max, ASP, Magnum, SC etc. High performance motors such as "Jett" motors are specifically excluded. Refer to the pylon committee for information on specific motors. No tuned pipes are allowed, only the motor manufacturer's standard muffler.

4.3 Radios

Minimum four function - elevator, ailerons, rudder and throttle. Both sides of the wing must be fitted with operating ailerons.
No ball links on ailerons or elevator allowed.

Only SAMAA approved frequencies to be used where 2.4Ghz is not used.

4.4 Fuel

Fuel will be supplied and will be a mixture of methanol with 15% nitro and 20% oil. Synthetic/Castor mix may be used with a minimum of 5% Castor oil.

5. Airframe and Radio specifications for all Quickie classes.

5.1 Airframe

Airframe must conform to the minimum dimensions as per paragraph 5.2. Expensive imported composite airframes are not permitted in the Standard Quickie Class.

5.2 Fuselage

The fuselage must be of a conventional design with forward wing and empennage. Must be of a box type construction, minimum height of 89mm (was 87) and minimum width of 73mm. Both measurements need not to coincide at the same point, but must occur within the chord of the wing. Firewall 57mm x 57mm. A 6.5mm radius curve on all corners allowed. Engine cowlings are not allowed. There will be no restriction on the fuselage length. The tail may be of any shape and area, with a minimum thickness of 5mm.

Fillets or fairings between the fuselage and wing are not permitted.

5.3 Wing

The wing area will be a minimum of 500 square inches. Wingspan minimum 1270mm (50 inches) projected. Maximum 1320mm (52 Inches) projected. The chord and thickness of the wing must remain constant. Wing is to be straight, (no swept back wings) and may have dihedral. Measurement of 30mm thickness to remain constant for a minimum of 1200mm, thereafter a shaped wingtip of 35mm each side is allowed.

NB - High wing configuration to be secured with metal or nylon bolts only (no plastic bolts).

5.4 Undercarriage

Undercarriage of fixed wire, alloy or fiber reinforced landing gear in traditional tail dragger configuration. Wheels may be either fuselage mounted or mounted in the wings by means of wing blocks.

Any wheels with a minimum diameter of 57mm may be used.

5.5 Radio's

Minimum four function - elevator, ailerons, rudder and throttle. No mixture control. Both sides if the wing must be fitted with operating ailerons. No ball links on ailerons or elevator allowed.

Only SAMAA approved frequencies to be used where 2.4Ghz is not used.

5.6 Weight

Minimum weight excluding fuel must be 1700 grams with a maximum weight of 2200 grams.

5.7 Fuel

Methanol with 15% nitro and 20% oil Synthetic/Castor mix may be used with a minimum of 5% Castor oil.

6. Motors - Standard Quickie Class

6.1 Motor

6.1.1 Any **unmodified** (out of the box) .40 or .46 size front induction, side exhaust engine may be used, for example: Rossi, O.S., A.S.P. Super Tiger, Blue Bird, Magnum,

Webra Speed, Fox Sport, K & B, Enya, Picco, Irvine. These motors must be of the general sport flying variety and may not include motors built for racing, e.g.: Nelson Standard Quickie Motor, Jett Q500, Fox Q500, Rossi Standard Quickie, Webra and Super Tiger Q Standard Pylon, etc.

Any “Jett” motors are specifically excluded.

6.1.2 Any carburettor with a maximum bore diameter of 8.5mm may be used, remote needles accepted.

6.1.3 Motors must be able to idle slow enough to enable the pilot to land on request with the motor running.

6.1.4 No "pumped" engines or crankcase pressure allowed, exhaust pressure only (off the header or silencer)

6.2 Exhausts

Any exhaust (tuned pipes and tuned mufflers included) or expansion type silencer are allowed. Headers and exhausts/silencers may be hand made.

6.3 Propellers

Any commercially available propeller of minimum 9" diameter may be used. Propellers may be worked on one blade only for balancing purposes.

7. Motors - Hot Quickie Class

7.1 Motor

Any 6.6cc front induction, side exhaust motor can be used, but the motor shall be manufactured exclusively for being used in Q500 racing only. No motors that are manufactured to be used in the Q40/F3T class may be used in this class. The pilot must be able to shut off his engine, on the ground or in the air, by radio control within five seconds of command, irrespective of aircraft altitude.

The radio system used to control the aircraft shall be equipped with a fail-safe. This fail safe shall be set to shut off the engine if radio signal is lost. Any motor modifications are allowed, except no increase in capacity. I. E. motors to remain 6.6cc. No mixture control permitted.

7.2 Exhaust

Any exhaust or expansion type silencer is allowed. Headers and exhausts/silencers may be hand made.

7.3 Propeller

Any propeller that is manufactured for Q500 racing may be used. Continuous fiber or APC D1 (Q500) propellers only. Propellers manufactured for Q40 / F3T racing, may not be used. Propellers must have a minimum diameter of 8.5 inches.

7.4 Fuel

Methanol with 15% Nitro and 20% oil – Synthetic/Castor mix may be used with a minimum of 5% Castor oil.

8. Q-40 Class

The current FAI (F3T) Q40 rules will be applied, as is with the following special conditions and exceptions.

8.1 Propellers

Any propeller that is approved as safe by the SAMPRA for Q40 may be used which will include

a) Any propeller specifically approved for Q40 by the AMA

b) Any moulded carbon fiber propeller approved by the FAI/F3D rules

c) Any Wooded propeller approved for Pylon Racing use.

8.2 Fuel

Methanol with 15% nitro and 20% oil. Synthetic/Castor mix may be used with a minimum of 5 % Castor oil

9. Club 2200

Min wingspan of 800mm.

Max wingspan of 300mm,

Minimum Weight 1,020 Kg

Maximum Weight 2Kg,

Battery should be a 4cell, 2200Mah Battery

10. General

10.1 Flyer to supply his/her own protective headgear. The starter may not start a heat if the pilot or caller is not wearing protective headgear.

10.2 The starter will flag off every contestant irrespective of a no start or early take off. If the aircraft is not released by the time the next contestant is flagged off, the aircraft is to be retained until it is re-flagged in the same sequence.

10.3 F. A. I. caller rule waived for national, regional and local conditions and race meetings.

10.4 F. A. I. class flown as per F. A. I. F3D rules with the exception of above.

10.5 New pilots i.e. pilots who have not flown pylon before may not fly any class other than Standard Quickies until it has been proved that a level of competency has been reached whereby they may progress to faster classes. This will be assessed at either local or regional meetings and be decided on by an appointed safety committee of no less than three people. The committee may consist of pilots who have already reached the level of competency which allows them to fly faster classes.

Pilots should have the following SAMAA competencies to be able to fly in the different classes:

Minimum SAMAA Solo rating to compete in any class except Hot Quickies, Q40 and F3D.

Minimum SAMAA Silver rating to compete in Hot quickies (F3R).

Minimum SAMAA Pylon Gold to compete in Q40. Pilots will be tested by two Pylon Gold holders or Pylon instructors.

Pilots flying in the sportsman / standard quickie classes, and who want to participate in the upper classes, must undergo a competency test. Once the pylon competency test is passed Pylon Silver will be awarded.

Existing Hots/Q40 pilots as at November 2019 will be awarded Pylon Gold and do not have to be tested.

11. F3D Technical regulations for radio control contests

11.1 Class F3D

(This section of the SA rules has not been updated as there is a new fully comprehensive set of rules governing F3D. Please refer to the CIAM Sporting code on their web site.

11.2 Definition of Radio Control Pylon Racing Models

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 empennage with the general lines of a full size aircraft. Unusual or unconventional features must be justified with three vies drawings or photographs of similar features on full size aircraft.

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 a F. A. I. license not necessarily issued by the NAC of the pilot, and must have paid an entry fee.

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

11.3 Motor(s)

Motor(s) must be of the reciprocating piston type, with a maximum total swept volume of 6.6cm3

11.4 Shut-off

The engine shall be equipped with a positive radio controlled 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.

11.5. Silencer

The motor(s) shall be fitted with a silencer. Within its length there shall be an expansion chamber of not less than 30mm diameter and 100mm length; the exhaust outlet's total area shall not be more than 80mm^2.

11.6 Propeller

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

11.7 Propeller Spinner

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

11.8 Fuselage

11.8.1 Cross-section

The fuselage shall have a minimum height of 175mm and a minimum width of 85mm, 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 crosssection location. The fuselage at this point will have a minimum cross-sectional area of 100cm^2 excluding fillets and competitors will be required to provide templates to prove this. Fillets are not considered part of the fuselage or lifting surfaces.

11.8.2 Cowls

The motor 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.

11.8.3 Landing Gear

The landing gear may have two or three wheel design with the main wheels having a minimum track of 150mm. The minimum diameter of the main wheels shall be 57mm and the minimum width of the wheel or wheel spat or wheel pant shall be 12mm 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 is acceptable.

11.8.4 Cockpit

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

11.8.5 Lifting surfaces

11.8.6 Area of Surfaces

Total projected area of the lifting surfaces (wing and horizontal tail combined) shall be a minimum of 34dm$^{3.}$ 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.

11.8.7 Wing area

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

11.8.8 Wing Thickness

Wing thickness of the root of the root shall be at least 22mm for a monoplane, and 18mm for a biplane. On a biplane with different size wings, the smaller wing must be at least 13mm thick at the root. Wing thickness may decrease in a straight line taper from the root to the 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 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 ass seen in top view, i.e. the root section will be 50mm from the centre line of an exposed wing on a model with a 100mm wide fuselage.

11.8.9 Weight

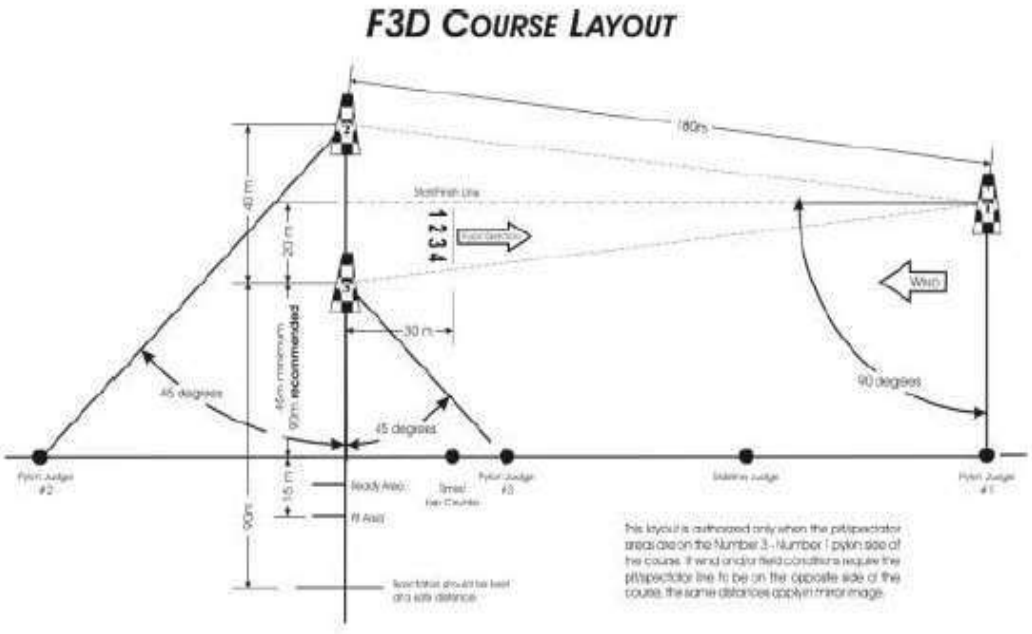
Weight less fuel, but including all equipment necessary for flight shall be at least 2250g and not more than 3000g. If ballast is used it must be permanently and safely affixed.

11.8.10 Fuel

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

12. Racing Course Specifications

The triangular course will be laid out as follows: The course is 10 laps with individual length of 400m. Total distance travelled is 4km. 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 4m and should not exceed 5m height.



PYLON RACING COURSE LAYOUT

See Volume F3D Part Five – Technical Regulations for radio control contests, rule

5.2.10 at www.fai.org

13. Organization for Radio Controlled Pylon Racing Contests

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. Heats shall be arranged in accordance with the radio frequencies in use to permit simultaneous flights.

14 Operation of the Race

14.1. 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 10 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. Each signaller will have a distinctive colour allocated, and the Contest Director will arrange for each model to be identified by one signaller before the start of every heat.

14.2 The judges will have their signals off as the aircraft reach midcourse between No. 3 and No. 1 pylons, or earlier. At the instant the model draws level with the No. 1 pylon the signaller will switch his signal on. There will be no pilot's helpers at any of the pylons.

14.3 The signallers will have their lights off as the aircraft reaches midcourse between No. 3 and No. 1 pylons, or earlier. At the instant the model draws level with the No. 1 pylon on the correct side, the signaller will switch his light on. There will be no pilot's helpers at any of the pylons.

14.4 At the No. 2 and No. 3 pylons, the Official Judge will stand in close proximity to the pylon they are judging.

14.5 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 over flight of the pit or spectator areas.

14.6 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.

14.7 A maximum of 4 models per heat will be allowed.

14.8 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 light of a distinctive colour, the starter will arrange for each model 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).

14.9 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 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.

14.10 All laps are to be flown counter clock wise with turns to the left.

14.11 At the completion of 10 laps the Lap Counter/Timekeeper must immediately instruct the competitor to remove his aircraft from the course.

14.12 A penalty will be incurred if the competitor releases the model before the starting signal, cuts a pylon or flies outside the Sideline judge. Two infringements constitute a disqualification for that flight.

14.13 Starting positions in all races will be determined by draw with No. 1 position being closest to No. 2 pylon. models will be released from the starting line on the starting signal (light signal) at one second intervals with timing commencing at the starting signal for that particular model.

14.14 The Contest Director has the right to request any competitor to make a flight to demonstrate the air worthiness of his model and/or ability to fly the airplane around the course. If during a race, the Contest Director considers any model 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 to be landed immediately. Persistent flying below the top of the pylons may be considered dangerous to the Course Officials.

14.15 Each competitor may have only one helper in each race and the helper may release the model at the start and give the pilot verbal information regarding the flying course of his model and official signals. 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 teams. However, any one model may not be used by more than one team, nor may roles be interchanged in a team.

14.16 After the starting signal (Light signal) is given, any contact between two models shall be considered a collision and the models 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 air worthy or the competitor has an airworthy reserve model.

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

14.17 The loss of any part of the model after starting signal (light signal) and before the engine stops disqualifies the model for that flight except as a result of a collision where Para 12.16 applies.

15 Scoring

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

15.2 The lap counter/time keeper stops his timing device after ten laps have been completed by the competitor and records the elapsed time on the competitor's score sheet. At the completion of each heat, the pylon and side-line judges notify the starter as to which models have infringed. The starter then advises the lap counters/time keepers of those who will record the total number of infringements for each competitor on his score sheet.

15.3 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 correct time; b) If two or more infringements were incurred, cancel the flight with a 200 second score; c) Round the competitor's correct time to the nearest 1/10th of a second.

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

15.5 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 (highest) score shall be discarded. If 9 or more rounds are flown each competitor's worst 2 scores shall be discarded and if 12 or more rounds are flown the competitors 3 worst scores shall be discarded.

15.6 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 solving a tie.

16. International team selection

International team selection procedures will be published on the SAMAA website, as well as on the SAMPRA website. This will be done 6 months prior to the commencement of the team selection process .

Updated: February 2020