



SPORT 40 AIR RACING ASSOCIATION (SARA)

RC. PYLON RACING

2007 Edition

Effective January 1, 2007

RENO 300 RULES MODEL SPECIFICATION

1. AIRFRAME DESCRIPTION

Models to be based on full size World War 2, or aircraft used in Reno racing. To be of semi-scale appearance. Dimensions to be within 10% of scale except for dimensions covered by other rules.

1.1. Engine

The engine must be SARA Approved. It must be used as it is supplied from the manufacturer and not modified or reworked in any way. The engine must be of the reciprocating piston type (with front induction and side exhaust). Engines to be up to .38 cu inch with standard silencer or up to .25 cu inch with mini pipe.

Approved Engines

Engines of Chinese origin i.e. Leo, Magnum, Thunder Tiger. SC, etc. Irvine, MDS, MWS, OS32 and West 25 only.

Other engines must be notified to the Technical committee for approval

A full list of SARA Approved engines is available on request.



1.1.1. 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 attitude.

1.1.2. Silencer

The engine shall be fitted with a silencer as supplied by the manufacturer of the engine. The exhaust outlet shall have a maximum diameter of 6.5mm. The external appearance of the silencer must remain unchanged.

1.1.3. Propeller

Only fixed propellers may be used. The propeller must be commercially available, two blade composite resin continuous fibre construction. Reworking is allowed for balance purposes only. The extreme leading and trailing edges of the propeller may be sanded smooth in the interests of safety. Carbon props are not permitted.

1.1.4. Propeller Spinner

A scale-like rounded nose spinner must be used on all models. The nose of the spinner shall be at least 5mm radius.

1.1.5. Fuel

The organizers will supply fuel to a standard formula for glow plug engines. It shall have a maximum content of 10% nitro-methane. Where possible the fuel used will be Irvine Contest 10.

1.2. Fuselage

1.2.1 Cross-section

The fuselage shall have a minimum height of 5.5 inches (140 mm) and a minimum width of 3 inches (76 mm). These measurements are to be of the fuselage body, excluding any fins, attachments or spacers. Both minimum dimensions must occur at the same cross-section location excluding fillets. Fillets are not considered part of the fuselage or lifting surfaces.

1.2.2. Landing Gear

Landing gear is optional but if fitted a rudder is required for steering on the ground. Models will be hand launched during racing.



I .2.3.Canopy

A cockpit or canopy profile must be evident. The canopy need not be transparent and a pilot need not be fitted, but must be highlighted in a contrasting colour to the surrounding area of fuselage.

1.3. Lifting Surfaces

1.3.1 Area

Total minimum projected area of the lifting surface of main plane will be 300 sq inches (1935.5 cubic centimetres)

1.3.2. Wing Span

Minimum wingspan shall be 38 inches (965 mm).

1.3.3. Wing Thickness

Wing thickness of the root shall be at least 22 mm. Wing thickness may decrease in a straight line taper from root to tip (excluding tip radius) 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 the wing from fuselage.

1.4. Airframe Weight

Weight less fuel, but including all equipment necessary for flight shall be at least 1.20kg (2lbs 12 oz) and not more than 1.70kg (4lbs). If ballast is used it must be permanently and safely affixed.

1.5. Radio Control

All aircraft must carry at least 3 servos to operate elevator, ailerons, throttle and rudder if undercarriage is fitted. The use of gyros, automatic pilots or other non- aerodynamic stabilisation aids is not permitted.

2. RACE COURSE SPECIFICATION

2.1. Race Course Description



The course is 10 laps with an individual lap length of 340 m. Total distance travelled in a race is 3.4km. The race starts at the start-finish line. All take-offs will be by hand launch. No mechanical device will be used to assist the aircraft. The race is terminated at the start-finish line 10 full laps later. All officials should be at least 45m (preferably 90m) from the course. Pits and spectators should be positioned behind this line of officials. The racecourse specifications 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.

See Fig 1.

For Reno 300 the course length will be 150 metres all other dimensions will be the same.

Fig 1. Sport 40 Pylon Race Course Layout

3. CONDUCT OF PYLON RACING CONTESTS

All officials and competitors on the racecourse must wear a crash helmet. The helmet must be able to withstand the impact of a flying pylon model aircraft.

3.1 Competitors

The pilot of the model aircraft is the competitor. All competitors must be assisted by a caller/mechanic for safety reasons. The pilot or mechanic of one team may act as the mechanic/helper in one or more other teams. The caller can be another competitor, or a third party. All competitors must have BMFA membership and insurance.

3.1.1. Entry Fees

Each competitor must have paid an entry fee, and shall be registered from the beginning of the competition through to its end.

3.1.2. Frequencies

For meetings where no other r/c disciplines are being flown any 35mhz frequencies may be used. At BMFA events or where other r/c disciplines are being flown each competitor must introduce a frequency selected from the channel numbers 71, 73, 75 and 77, which he must be able to use on all model aircraft he has entered in the contest. Also, a spare frequency selected from the above must be available in case of clashes in finals run at the meeting.

3.2. Officials



3.2.1. Contest Director (CD)

The CD is responsible for the organization and safe conduct of the race meeting. Any queries regarding the rules are to be put to the CD, whose decision is final. The CD has the right to direct any competitor to demonstrate the airworthiness of his model aircraft and/or his ability to fly the aircraft around the course. If during the race, the CD considers any model aircraft to be flying erratically or dangerously, he may

disqualify the competitor from that heat or from all heats and require the model aircraft to be landed immediately.

3.2.2. Race Starter

The Race Starter is in charge of each heat, and will ensure that all competitors and race officials are ready to commence.

3.2.3. Timekeepers

Each competitor shall be assigned an official timekeeper/lap counter during each heat. The timekeeper will time his competitor's aircraft, starting the stopwatch at the appropriate drop of the starters flag and stopping it once his competitor has completed 10 laps. Whilst timing, he will count the laps flown and advise the pilot when he has completed the necessary 10 laps by raising the appropriate coloured flag. He will keep the recorded time on his timing device until the time is entered on the score sheet under the supervision of the official scorer.

3.2.4. Pylon I Judges

Each competitor shall be assigned an official pylon I judge. An electrically activated light signal of the appropriate colour will be positioned at the number 1 pylon. The pylon I judge shall operate his light to signal his competitor that his aircraft has passed the number 1 pylon. The pylon judges will be located as described in the course specification drawing. The judges will have their signals off as the aircraft reach mid course 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.

3.2.5. Pylon 2/3 Judges

No. 2 and No. 3 pylons judges will place themselves in a position at least 45m (90m where possible) off the course and at an angle of 45 degrees to the pylon, to enable them to judge cuts on that pylon.

3.2.6. Sideline Judge



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Pylon Racing

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. 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 Officials of any infringement by any competitor.

3.2.7. Scorer

The scorer is responsible for the collation and calculation of a competitor's results. The scorer is to do all calculations in accordance with the rules in Para 3.5.

3.3. Heats

For every race, competitors shall be arranged in accordance with the radio frequencies in use to permit simultaneous flights. A maximum of 4 model aircraft per heat will be allowed. All laps are to be flown counter-clockwise with turns to the left. No minimum altitude is required for racing, but persistent flying below the top of the pylons may be considered dangerous.

3.3.1. Starting

Starting positions in all heats will be determined by draw, with the No.1 position being closest to No. 2 pylon. Each competitor will be assigned a colour (red, green, yellow, or blue) depending on where they are on the start line. Prior to the start of each race, the starter will arrange for the participating model aircraft to be identified by the pylon 1 judges and the timekeepers. The starter will ensure that each competitor has checked radio operation of his aircraft prior to engine start. The starter is to advise the competitors when he starts his one-minute start countdown. All engines must be running by the end of this minute, at which point the race will commence. A competitor whose engine is not running at the end of one minute will be disqualified from that heat. Model aircraft will be released from the start line on the appropriate flag drop, at one-second intervals. No competitor shall be permitted to take off once the first model aircraft has passed abeam the start/finish line heading from No. 1 to No. 2 pylon on the first lap, and will be disqualified from that heat.

3.3.2 Racing

Each competitor must complete 10 laps of the racecourse. A penalty will be incurred if the competitor's caller releases the model aircraft before the appropriate drop of the starter's flag, cuts a pylon or flies outside the Sideline Judge. Two infringements constitute disqualification for that flight. In each race the competitor may have only one caller, who is to release the

model aircraft at the start and give the pilot verbal information regarding official signals and the flying course of his model aircraft. Electronic communication with the pilot is prohibited.



3.3.3 Collisions

After the Starter's flag has dropped, any contact between model aircraft shall be considered a collision and for safety reasons the Starter may direct the pilots of those model aircraft involved to land immediately. The Contest Director is required to give such competitors a second opportunity to record a time 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 time for that round.

3.3.4. Safety

If the Starter stops a race for safety reasons (e.g. heavy rain), where possible the race will be rerun.

3.3.5. Landing

If a pilot needs to land while a race is underway, he must land away from all other competitors, and must under no circumstances attempt to land between the base pylons. Once a race is complete and all pilots and callers are clear of the runway, landing between the base pylons is permitted.

3.3.6. Airworthiness

The loss of any part of the model aircraft after the starting signal and before the aircraft lands disqualifies the model aircraft for that flight, except as a result of a collision where Para. 3.3.3. will apply.

3.4. Finals

Group finals will be conducted in the same manner as the heats. The final will determine the position of the top four pilots in each group for that meeting. If a collision occurs during a Group Final, those model aircraft involved may be directed to land for safety reasons, and the competitors involved will be placed based on their heat aggregate for the meeting. Finals will be used to determine the top 4 places in each group for that race meeting.

3.5. Scoring

3.5.1. Groups



Pilots are divided into two groups (A and B), based on their race meeting performance. All newcomers are automatically placed into Group B.

3.5.2. Timing

The flight of each model aircraft shall be timed with a timing device (measuring to at least 1/100th of a second) by the timekeeper/lap counter. Timing shall start when the starting signal is given to the individual competitor. The timekeeper stops his timing device after ten laps have been completed by the competitor and, supervised by the scorer, records the elapsed time from the timing device on the competitor's score sheet.

3.5.3. Infringements

At the completion of each heat, the pylon and sideline judges notify the scorer as to which model aircraft have infringed. The scorer will record the total number of infringements for each competitor on his score sheet, and then process the score sheet by doing one of the following:

- a) If there were no infringements, the uncorrected time for 10 laps is recorded.
- b) If there is a single infringement, 1/10th of the time for 10 laps is added to give the corrected time.
- c) If two or more infringements were incurred, that flight is disqualified.

3.5.4. Scores

The competitor's score for each race is his corrected time in seconds to one decimal place. If the competitor fails to complete 10 laps or is disqualified the score shall be

200.

3.5.5. Heat Aggregates

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 two scores shall be discarded. For each pilot, all scores (after discard) are added to provide the heat aggregate. The four pilots with the lowest aggregate in each group are entered into the relevant final.

3.5.6. Fair Play

All racing shall take place within the bounds of fair play. Any competitor who deliberately makes an infringement, attempts to cheat or distort these rules in order to gain an unfair



advantage will, at the discretion of the CD, be disqualified from that heat, final or entire race meeting.

3.5.7. Points

Championship Points are awarded based the number of competitors entered for that race meeting. For example, if there are sixteen entries for a particular meeting, the Group A winner for the meeting will score 16, second place scores 15 and so on. Additionally, there is a single point bonus for the fastest group time of the meeting. Any pilot can qualify for the Group A final, but only group B pilots are eligible for the B final. All Group B pilots are automatically scored in the Group A championship in order to determine overall championship placing. Championship Points for Group B are awarded as follows: In the same example, if 5 of the entrants are group B pilots, the Group B winner will score 5, second place scores 4, etc.

3.6. Protests

If a competitor wishes to protest, they may do so by depositing £10.00 with the CD (If the protest is not upheld, this deposit is forfeited), or with the SARA if a higher authority is needed. If required, the Reno 300 Technical Representative will inspect the aircraft/engine at the end of the meeting. If the protest is upheld, the deposit will be returned and the offending competitor will lose any points gained that season. The offender may also incur charges to cover the scrutiny costs. Any aircraft or engine that has been raced at a meeting may be randomly selected for scrutiny.