

NATIONALLY AGREED Q500 RULES

5.3.5.1 Engine

The engine must be a commercially available, front-intake, side-exhaust. The engine shall be stock, except for modifications as listed below.

5.3.5.1.1 Displacement

Maximum displacement is 7.6cc (0.46 cubic inches).

5.3.5.1.2 Exhaust System

The engine shall be equipped with an expansion chamber muffler or zero-boost muffler as provided by the engine manufacturer for that particular model.

The muffler shall be stock, except for modifications as follows:

- (a) Replacement of bolts, or screws and welding or gluing to improve reliability is permitted.
- (b) The muffler may be tapped for a pressure fitting to supply pressure to the fuel system. Tuned mufflers and tuned pipes are prohibited.

5.3.5.1.3 Intake

The carburettor as supplied by the manufacturer shall be used and must be capable of reducing the engine speed to idling. The carburettor and any associated remote needle valve shall be stock, except for longevity-enhancing modifications as follows:

- (a) Adjustment screws and idle needle valves may be held in place with commercially available thread locker, epoxy, or other adhesives and safe tied with rubber bands, wire, or plastic ties.
- (b) Barrel retaining screws or pins may be replaced with commercially available screws or pins of harder material and may be held in place with commercially available adhesives. Barrels may be de-burred for smoother movement and may be safe tied with rubber bands, wire, or plastic ties.
- (c) Throttle arms may be modified or replaced.

5.3.5.1.4 Fuel Feed

Other than muffler pressure, no fuel system pressurization is permitted.

5.3.5.1.5 Modifications

The following parts may be substituted for the original engine parts and may come from any source:

- Backplate mount (provided the crankcase volume is not varied)
- Bearings
- Gaskets
- Glow plug
- Head and crankcase bolts
- Propeller nut (spinners may be used)
- Propeller washer

The head clearance of the engine may be altered from the manufacturer's setting by adding or removing head shims.

5.3.5.1.7 Approved Engine List

Sample engines are tested and a list of permissible engines is published annually by the relevant pylon racing governing bodies. Criteria include purchase price and power output in both the normal takeoff rpm range and the presumed in-air ("unloaded") rpm range. See [Annex 1](#) for current engine approval list.

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5.3.5.2 Wings

5.3.5.2.1 Area

Minimum 3225 cm² (500 square inches).

5.3.5.2.2 Wing Span

Minimum 1270mm (50 inches), maximum 1321mm (52 inches) projected.

5.3.5.2.3 Chord

Constant for at least 1207mm (47-1/2 inches) of span.

5.3.5.2.4 Airfoil Thickness

Minimum 30mm (1-3/16 inches) for at least 1207mm (47-1/2 inches) of span.

5.3.5.3 Fuselage

5.3.5.3.1 Depth

Minimum 89mm (3-1/2 inches) at its deepest point, which must occur within the wing chord.

5.3.5.3.2 Width

Minimum 73mm (2-7/8 inches) at its widest point, which must occur within the wing chord.
Width and depth points need not coincide.

5.3.5.3.3 Cross Section

The fuselage shall have a simple, rectangular "box" cross-section with a maximum radius of 6.5mm at the corners. Diamond-shaped cross sections are prohibited. Fillets or fairings between the fuselage and wing are prohibited. Canopies and turtle decks are acceptable but shall not be included in width or depth measurements. The front firewall shall be a rectangular, flat plate measuring at least 57mm by 57mm inches. The perimeter of the front firewall may be rounded to a maximum radius of 6.5mm.

5.3.5.3.4 Engine Installation

The engine and engine mount shall be fully exposed. No cowling or streamlining of the engine is permitted. A back plate type radial engine mount that replaces the stock engine back plate may be used so long as it displaces the same crankcase volume as the stock back plate assembly. Corners and edges of the engine mount may be rounded to a maximum radius of 6.5mm.

5.3.5.4 Weight

The weight of an assembled aircraft, ready for flight, but less fuel shall be a minimum of 1580grams (3-1/2 pounds) and a maximum of 2040grams (4-1/2 pounds).

5.3.5.5 Landing Gear

The landing gear shall be fixed, with at least 2 main wheels of a diameter not less than 57mm. The main wheels shall be at least 178mm apart, measured parallel to the wing span. No wheel pants, wheel spats, or strut fairings shall be used to streamline the main landing gear. Struts shall be either round wire, at least 3mm in diameter, or flat stock no more than 3mm thick. Flat stock may be filed or otherwise shaped to an airfoil cross-section but must have a blunt leading edge. Nose or tail wheels, if used, may be streamlined or enclosed.

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5.3.5.6 Propeller

5.3.5.6.1 Material

Propellers shall be made from glass fibre reinforced nylon by an injection moulding process. Propellers containing continuous filament carbon fibre are not permitted.

5.3.5.6.2 Dimensions

Minimum diameter 10 inches. Nominal pitch 6 inches, as indicated by the manufacturer's stamp or packaging.

5.3.5.6.3 Modifications

Propellers shall be stock and commercially available. One blade may be modified for balancing.

5.3.5.7 Fuel

The organisers shall supply fuel to a standard formula for glow plug motors containing 80% methanol and 20% castor oil.

5.3.5.8 Special Provisions

5.3.5.8.1 Inspections

Routine inspections are encouraged: The CD or the CD's designee may elect to check the top 3 finishers engines for legality at the end of the contest.

5.3.5.8.2 Rule Variations

The engine rules specified have been used to limit the cost and power output of engines used in this event. Any variations from the rules specified above should be noted in all pre-contest publicity. Note: Any variation that results in the use of engines larger than 0.46 cu. in. displacement, tuned mufflers, or tuned pipes will result in the aircraft not being sanctioned as Quickie 500.

5.3.5.9 Pylon Course Layout

Either the FA1 course (Refer to rule 5.3.1.7) or the QM course (Refer to rule 5.3.3.11) may be used.

The contest organisers should advise in pre race publicity which course is to be used.

5.3.5.10 General Rules

The Australian Safety & General Pylon Racing Rules shall apply (Including all Paragraphs contained therein) unless otherwise stated in the Q500 Rules above.



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Annex 1. Approved Engines for Q500

The following engines are approved for use in Q500.

AMPRA Championships, National Championships

Thunder Tigre .46, OS 46AX, OS 46FX, Super Tigre G45