

## 16.2. Event 424: Sport Quickie

### 16.2.1. Airframe

16.2.2. The airframe specifications for this event are identical to those for Super Sport Quickie (Event No. 426).

#### Notes:

- Weight of the model where electric power is used shall be 3.75 lbs with battery in place, and must represent the model flown in competition.
- Starting procedures for combined events:
  - For contests with both IC and electric powered models a 60 second clock shall be used. Electric pilots are allowed to walk back into position any time after confirming their models is operational and ready for the heat. Caller must perform the launching duties similar to the IC callers where the model is secured behind the starting line and is launched with the appropriate launching sequence.
  - For contests with Electric models only, EF1 starting procedures shall be used.

### 16.2.3. Power plant

#### a. Engine

- 1) Maximum displacement 0.464 cubic inch.
- 2) Configuration Stock, commercially available, front-intake, sideexhaust.
- 3) Intake A single carburetor or venturi, as supplied by the manufacturer of the engine being used, with a maximum inner diameter of 0.325 inch. The carburetor shall be fully functional and 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 or safetied 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 deburred for smoother movement and may be safetied with rubber bands, wire, or plastic ties.
  - (c) Throttle arms may be modified or replaced.
  - (d) Carburetor barrels may be fixed with a linkage tied to an engine mounting lug or mount if a separate servo actuated fuel shutoff is utilized to stop fuel flow to the engine on command by the pilot.
- 4) Exhaust system The engine shall be equipped with an expansion chamber muffler or zero-boost muffler as supplied by the manufacturer of the approved engine being used and specified on the Event 424 approved engine list. The muffler must have a single exhaust outlet with a maximum outlet area of 0.0829 square inches (equivalent to the area of a round hole measuring 0.325 inch in diameter). The distance from the center of the piston to the centerline of the muffler shall not exceed 2-3/4 inches. The overall length of the muffler shall not exceed 7-1/4 inches, measured from the front of the header to the back of the exhaust outlet. The outside diameter shall not exceed 1-

3/4 inches. No modifications to the muffler are permitted except that the muffler may be tapped for a pressure fitting to supply pressure to the fuel system and the threaded fasteners which hold the muffler assembly together may be replaced with an alternate threaded fastener. If the alternate threaded fastener has a different thread configuration, the holes in the muffler may only be reamed or rethreaded to accept the alternate threaded fastener and no larger. Tuned mufflers and tuned pipes are prohibited.

- 5) Fuel feed Other than muffler pressure, no fuel system pressurization is permitted.
- 6) Power output Sport Quickie is intended as an entry-level event for pilots who are new to racing. Sample engines are tested via committee and a list of permissible engines is published and updated as necessary, annually. Criteria include purchase price and power output in both the normal takeoff RPM range and the presumed in-air (unloaded) RPM range. Any engine with a tuned muffler is strictly prohibited. The cost of the engine must be per paragraph 16.3.2.a.6)(a) in Event 426 Super Sport Quickie. If engines more powerful than this are to be used at a contest, the contest should be sanctioned as Quickie 500 (Event No. 426), not Sport Quickie.
- 7) Prior approval of engines. a. Procedure: All engines, past and future inclusive, shall not be entered into competition until a five member subcommittee of the RC Racing Contest Board has approved the engine by an affirmative vote of at least three members thereof. Such approval may be given orally, but shall be recorded for future reference. An engine shall be considered eligible for competition if it meets all requirements of section 16.3.2.and, in addition, does not hinder the state of this entry level event as determined by the aforementioned five-member committee. The committee is appointed by the Racing Contest Board Chairman and will not include any member with a vested interest in the sale or manufacturing of an engine for this event. In addition, any engine can be removed from the list by an affirmative vote of at least three members thereof.
- 8) Electric Motor: Power System Same as EF1. EF1/424 is intended to be enjoyed by the maximum number of potential participants. Therefore, all power system components, including motor, ESC, BEC, battery and connectors shall be off-the-shelf and readily available to the general public in reasonable quantities and at reasonable prices. Only the components listed below are allowed, with the exception of: (a) An arming switch, plug, or fuse to disconnect the motor battery without accessing the battery compartment; and (b) A separate battery of not more than nominal 7.4 volts to power only the receiver and servos.
  - (a) Motor
    1. The motor shall be a direct-drive, 3-phase, brushless electric motor with magnets fastened to a rotating outer housing and a fixed armature, with wound copper wire, at the center, commonly known as an "outrunner" style motor. The motor shall be commercially available and in stock configuration as provided by the manufacturer and not modified in any way other than the addition or substitution of items identified in (d) below.
    2. All motors shall be approved for use by the EF1 Committee prior to their being entered in competition. All motors eligible for approval shall be substantially

similar in power and performance to the E-Flite Power 25 1250kv - 60A outrunner motor. Manufacturers wishing to have a motor approved for competition shall submit a minimum of three (3) production examples accompanied by a full set of technical specifications and drawings and a detailed distribution plan to the EF1 Approval Committee.

3. Approved Motors:

- (i) E-Flite Power 25 1250kv - 60A outrunner motor. Product number: EFLM4025B
- (ii) Turnigy AerodriveXp 25 SK Series 35-42 1250Kv
- (iii) Arrowind 2820-07, 1300 Kv motor. Product number: BH-1834
- (iv) OS Brushless Motor OSMG9525, 1200 Kv motor. Product number: OMA-3820-1200
- (v) Great Planes Rimfire EF1 Race 35-45-1250kv Outrunner BL. Product number: GPMG4630
- (vi) Hobby King NTM Prop Drive Series EF-1 Pylon Racing Motor. Product ID NTM-EF1-1300
- (vii) OS Brushless Motor OSMG9524, 1200 Kv motor. Product number: OMA-3820-1200
- (viii) Cobra C-2826-EF1, 1200Kv moor. Product number: C-2826-EF1
- (viii) Avian EF1 Race 3545-1250kv Outrunner BL Motor, 1250Kv. Product number: SPMXAM4630

d. The following items are not considered part of the motor and may be substituted as desired:

- (i) Connectors for electronic speed control
- (ii) Drive washer or collets
- (iii) Mounting hardware
- (iv) Propeller nut
- (v) Propeller washer
- (vi) Spinner

(b) Electronic Speed Controller (ESC)

1. A commercially available brushless Electronic Speed Controller with a minimum of 60 amp rating shall be utilized and controlled by a separate throttle channel. The ESC cannot exceed the \$150 US price cap as purchased from the designated MFG distribution channels, (not including tax and shipping).
2. Speed controller may incorporate a Battery Eliminator Circuit (BEC) which would eliminate the need for a separate battery to power the receiver and servos.

(c) Battery: Battery shall be a commercially available Lithium Polymer (LiPo) battery.

1. Maximum Number of Battery Cells: Motor battery shall have a maximum of 4 cells, and all cells shall be contained in shrink tubing.
2. Maximum Battery Weight: Motor battery pack shall have a maximum weight of 335 grams including all connectors, wires and shrink tubing. It is

- recommended that batteries utilize a balancing tap to balance the individual cells as part of the charging process; however, batteries without a balancing connector are permitted and shall have a maximum weight of 315 grams.
3. Battery Retention: There shall be a means of positive retention of the battery pack within the airplane to prevent it from shifting during flight.
  4. Heater boxes Prohibited: A heater box is any electrical or mechanical device that is used to raise the temperature of your battery pack. Other means of raising the temperature of your battery that are prohibited:
    - a) Placing your battery on the dashboard or the interior of your car.
    - b) Any significant source of added heat, including concentrated or stored solar energy used to raise the temperature of your battery.
    - c) In cases where the outside temperature is below 60 degrees F, race organizers may choose to allow battery heating. If they do, it must be published prior to the event.
  5. Over Charging: Charging your batteries in such a way that the total voltage exceeds 16.9 V is prohibited. It is recommended that while the models are in the ready area, each pilot allows his battery to be checked by a course appointed representative. If a pilot's pack exceeds 16.9V this pilot will not be allowed to fly in the current heat. After the battery is checked it cannot be substituted or charged again prior to the current heat.
- (d) Wires and Connectors: Wires and connectors shall be of a sufficient capacity to accommodate the power system rating. All wires or connectors shall be fully insulated and protected. No open or unshielded wiring or connectors are permitted. Connectors shall be polarized and of sufficient size rating. Wiring for transmission of current to the motor shall be a minimum 14AWG rating. ESC wire to the receiver's throttle channel shall be a minimum 22AWG rating.
- (e) Cooling holes: Cooling holes and vents for the purposes of allowing cooling airflow to the motor, ESC and battery shall be allowed as long as they do not change the outlines of the aircraft. Any such device or feature shall not be used to meet minimum aircraft dimensions.
- b. Propeller
- 1) Material APC composite or a similar, commercially available composite.
  - 2) Dimensions Minimum diameter nine (9) inches. Nominal pitch six (6) inches, as indicated by the manufacturer's stamp or packaging.
    - a. IC propeller: LP09060 (9X6)
    - b. Electric propeller: LP09060E (9X6E)
  - 3) Availability, modification Propellers shall be commercially available and either supplied by the hosting organization or specified by brand and size in all pre-contest publicity. Propellers shall be stock, except as otherwise provided in paragraph 7.5.2.
- c. Fuel The fuel shall be commercially available, containing not more than 15 percent nitro-methane, and shall be supplied and dispensed by the hosting organization. The dispensing operation shall include draining the tank of any existing fuel and then filling from a supply container when the pilot brings the aircraft to the ready box.

#### 16.2.4. Special Provisions

- a. Rule variations permitted 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 0.464 cu. in. displacement, tuned mufflers, or tuned pipes will result in the event being sanctioned as Quickie 500 (Event No. 426) rather than Sport Quickie.