RADIO CONTROL PYLON RACING

1. OBJECTIVE.

421-Form I: To run multiple-plane races that will recapture the spirit and thrills of the great air races of the past and present, and that will be interesting for spectators as well as challenging for the contestants.

422-Q-40: To provide closed-course racing that will encourage participation by the sport flier and novice racing enthusiast.

423-1/2 A: To provide a racing event which employs relatively small, inexpensive, and easily constructed radio controlled model aircraft. To encourage the average flier to participate in basic pylon racing type competition.

424-Q-500 Sport: To provide a low-cost, entry-level event for pilots new to racing, and a fun event for experienced pilots, with nationwide standardized rules that limit engine horsepower to levels that keep the event speed reasonably low. (Any engine may be declared illegal if it can turn a standard 9 x 6 commercially available, unaltered propeller faster than 16,500 RPM.)

428-Q-500: The purpose of the Q-500 pylon racing event is to provide an entry-level event for pilots who are new to racing and to provide a fun event for experienced pilots.

2. GENERAL.

2.1. All events: Consideration of safety for spectators, contest personnel, and other contestants are of the utmost importance. Any unsportsmanlike conduct or hazardous flying over a controlled spectator area will be cause for immediate disqualification of that flight.

Where it is not feasible to have all contestants or officials off the course, it is recommended that you exercise appropriate caution. When using a two-pylon race course it is recommended that officials be located off the course. An absolute minimum number of individuals should be present on the course. Judges and other officials should be protected by the use of barricades or cages, except in momentary instances where exposure outside the safety protection is absolutely necessary in order to perform their duties.

<u>All course workers and event participants must be briefed on the safety aspects of their involvement on the event and instructed in the proper performance of their tasks and use of all safety devices.</u>

Individuals in protective cages or behind barriers must be cautioned to remain well clear of the surface of the barrier. It is recommended that cages constructed of chain link fencing or similar material should have an adequate number of fencing to frame fasteners, with spacing of approximately six (6) inches. (It is recommended that fencing be welded to the outer frame.)

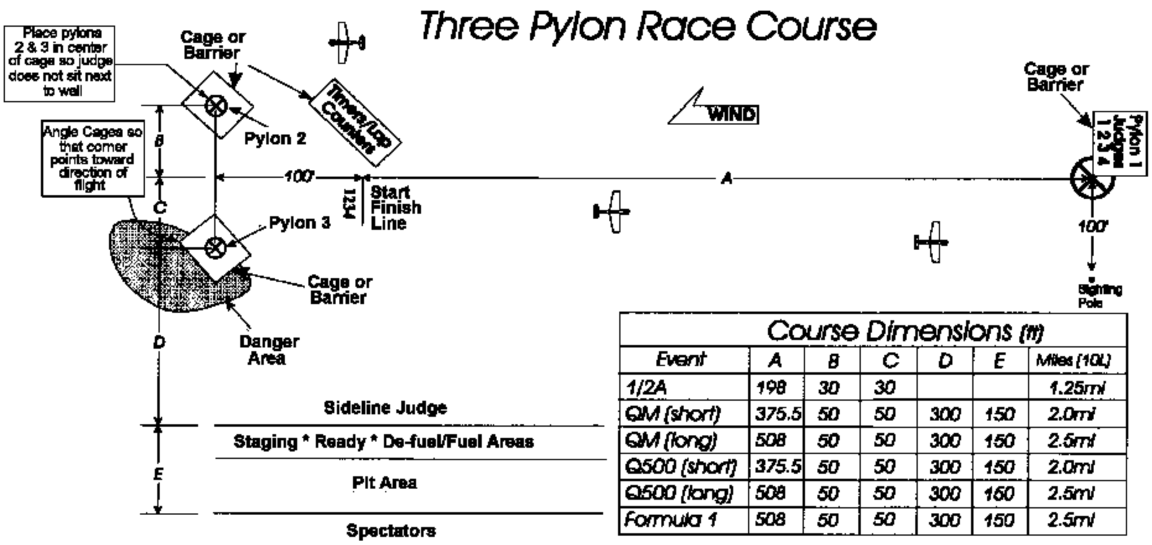
Composite or multilayered barriers are encouraged. This may be chain link fencing plus Lexan, or Kevlar, or two staggered layers of chain link. Where feasible, the materials used should not overly obstruct the officials' vision.

Place a warning sign of appropriate size on the cages facing to the inside.

WARNING

STAY CLEAR OF WALLS AND CEILING WHILE PLANES ARE IN FLIGHT

•All radio control pylon racing events listed in this book, with or without deviations, must adhere to the safety regulations in force at the time of the occurrence of the event. This includes, but is not limited to, the use of properly constructed cages and/or nets to protect workers on the course. Every organized racing event requires that all officials, callers, and contestants must properly wear helmets which are OSHA, DOT, ANSI, SNELL, or NOCSAE approved while on the racing course. In addition, all officials occupying safety cages must wear protective eyewear. The phrase "on the course" is interpreted to



Course Dimensions (ft)						
Event	A	B	C	D	E	Miles (10L)
1/2A	198	30	30			1.25mi
QM (short)	375.5	50	50	300	150	2.0mi
QM (long)	508	50	50	300	150	2.5mi
Q500 (short)	375.5	50	50	300	150	2.0mi
Q500 (long)	508	50	50	300	160	2.5mi
Formula 1	508	50	50	300	150	2.5mi

This layout is authorized only when the pit/spectator areas are on the #1—#3 pylon side of the course. If wind and/or field problems require the pit/spectator areas to be on the opposite side of the course, a minimum distance of 550 feet is required between a line connecting the #1 and #2 pylons and a parallel spectator line.

mean withing the designated area between the staging or ready areas and the actual course where the flying takes place, as indicated on the charts on pages 94 and 101 in this book, as well as on the actual course where the flying takes place.

Further, all individuals within that area be required to sign a 'Waiver of All Claims, Release of Liabilities and Indemnity Agreement for Radio Control Pylon Events.' These waivers shall be filed with the Academy of Model Aeronautics as part of the event sanctioning procedure by the Contest Director. If the appropriate waiver forms are not provided to the Contest Director as part of the sanction package, they may be obtained from either the Competition or Special Services department at AMA Headquarters.

2.2. All events: Alcoholic beverages shall not be allowed on the race course. Any pilot or competition official who consumes alcoholic beverages during a competition shall be removed from the competition.

2.3. All events: In all pylon meets of two days or more, the Contest Director is not allowed to compete. Meets that are two different one-day contests do not fall under this ruling.

421-422-Form I & Q-40: All AMA regulations (see sections titled Sanctioned Competition, Records, Selection of Champions, and General) and FCC regulations covering the RC flier, his plane, and equipment, shall apply to this event, except as noted herein. There shall be no limitation on the type of equipment fitted to the plane, or the number of controls. The contestant shall be allowed two (2) entries in this event, both operating on the same frequency. All aircraft must be safety inspected by the CD or his appointed official prior to competition.

423-1/2-A: All AMA and FCC regulations covering the RC flier, his aircraft, and equipment, shall apply except where noted herein. Each contestant will be allowed two (2) planes in this event. The second or alternate aircraft may be used only after it has been determined by the CD, or his designated assistant, that the first aircraft is no longer safe to fly. Only the contestant who has entered the aircraft may pilot it in this event. No alternate pilots will be permitted. Any unsportsmanlike conduct, such as repetitive unsafe flying, any attempt to gain an unfair advantage, or actual rule violations, shall be cause for disqualification of the contestant at the discretion of the CD. The decisions of the CD or his designee relating to interpretation of these rules shall be final and binding on all contestants.

424-Q-500 Sport: Two categories of competitors are to be established by level of ability. These classes are to be called Standard and Expert. Standard class shall consist of competitors who are beginners and/or less experienced pilots. Designation of a competitor's status shall be determined by heat times established locally or regionally. Expert class will consist of experienced pilots who have established heat times at least twice below the designated minimum. These times shall be amended as required.

424-428-Q-500 Sport, Q-500: In general, the operation of the race will be according to the AMA Formula I rules except as noted below. Starting order will be determined by the Contest Director. The CD may modify the race procedure as he deems necessary. Safety rules, midair collisions, landing areas, and the lap counting system should be discussed with all pilots and callers in a prerace briefing. AMA safety rules pertaining to aircraft and race operation must be obeyed.

• 2.4. All events: In the interest of safety, contest directors are encouraged to use variations on, or alternatives to, the basic course layout shown on these pages so long as such variations or alternatives are noted in all pre-contest publicity. AMA specifically endorses the use of telemetry, where shown feasible, and any other available means of reducing or eliminating the need for officials and contestants to be physically present on the race course.

3. MODEL AIRCRAFT REQUIREMENTS.

3.1. 421-Form I: Models must be a replica of the 190 cubic inch class of full size Formula I aircraft. It is the contestant's responsibility to supply judges with a three-view scale drawing of a 190 class airplane that has been flown (any three-view drawing taken from any publication will be considered acceptable) and/or at least two (2) photographs that show the aircraft clearly.

3.2. 421-Form I: Major components may not be interchanged between primary and alternate models. The contestant may have someone else fly his model in competition if he desires to do so; however, if this is done, they shall be entered as a team. Both the owner and the pilot shall have current AMA sporting licenses.

• 422-Q-40: Models entered in this event shall be semiscale or recognizable replicas of full-scale piloted propeller-driven aircraft that either raced in or were built for closed course, speed record attempts or cross country racing. No deltas and/or tailless type aircraft shall be allowed.

All designs, past and future inclusive, shall not be entered in competition until three accurate views or photos of the model and the full-scale aircraft have been submitted to a five member sub-committee of the RC Racing Contest Board and approved by an affirmative vote at least three members thereof. Such an approval may be given orally, but must be recorded for future reference. In the case of unusual or little known designs, the flier shall produce documentation to clarify that such a plane or special design did exist. A model shall be considered eligible for competition if it meets all dimensional requirements of these rules, and in addition, does not vary significantly from the approved three-views or photos of the same design.

The five member committee shall be appointed by the Chairperson of the RC Racing Contest board, and may consist of any five members, including the Chairperson, who do not have a financial interest in any kit manufacturing business that produces airplane kits for this event. In the event a design has been disapproved by the five member sub-committee the designer will have the right for the entire Contest board to review the design.

421 & 422-Form I & QM: The builder-of-the-model rule shall not apply to these events.

3.3. 423-1/2-A: The model need not resemble a full-scale racing plane. Canopies, cockpits, pilots' heads, wheel pants, cowlings, etc., are not necessary.

3.4. 423-1/2-A: Any type of RC equipment may be used provided that only two (2) control surfaces are actuated, i.e., aileron and elevator, or rudder and elevator.

3.5. 424-Q-500 Sport: Contestants are allowed to enter two aircraft. More than one contestant may not enter the same airplane. The airplane must be of conventional design with forward wing and aft empennage. The engine must be fully exposed between the engine lugs and the top of the cylinder head. No cowling or streamlining of the engine is permitted. The CD is the final authority as to airplane legality and all other matters which may arise during a contest.

3.6. 424-Q-500 Sport: The airplane must be equipped with a radio having four separate channels to independently operate the engine throttle, rudder/v-tail mixer, ailerons and elevator. In-flight needle valve adjustment by radio is not permitted.

3.7. 428-Q-500: Contestants are allowed to enter two (2) airplanes. More than one (1) contestant may not enter the same airplane. The airplane must be of conventional design with forward wing and aft empennage. The engine and engine mount must be fully exposed. No cowling or streamlining of the engine is permitted. The CD is the final authority as to airplane legality and all other matters which may arise during a contest.

3.8. 428-Q-500: The airplane must be equipped with a radio having four (4) separate channels to independently operate the engine, plus the roll, pitch and yaw attitudes of the aircraft. In-flight needle valve adjustments by radio is not permitted.

4. ENGINES.

All events: The language "shall be available" is defined as: once an engine is declared legal for competition, it shall always be legal. The following discussion will help interpret the words and intent of the rule book provisions. In general, the engine qualification rules that exist are aimed at encouraging competition through equipment availability and uniformity. It is not the intent of the rules to discourage equipment development, production, distributing, reworking or sales, or to exclude anyone from participating in any of these phases of the industry.

4.1. Any person, group of persons, or business entity may declare themselves to be a manufacturer under the applicable rules. Such a manufacturer does not have to fully or partially fabricate complete engines or engine parts, but need only be a source for specific products. The manufacturer (source) of a specific engine or part must also fully comply with any and all applicable quantity and availability requirements applicable to the event(s) the engine is qualified to be used in.

4.2. Parts that are specified under the rules to be production products made by a manufacturer may be sourced by other than the manufacturer (fabricator) so long as the manufacturer (source), as declared under the rules, provides the specific product in conformance with prescribed quantity and availability requirements. In other words, any complete engine, partial assembly or individual part may qualify under the rules so long as the original source of the exact hardware configuration that the consumer ultimately purchases can meet the quantity and availability requirements applicable to the competitive event.

4.3. The term, "normal retail outlet" may be any source from which any consumer can purchase a product for a price which is independent of who the consumer is. "Commercial availability" shall be construed to mean, available from any retail outlet as previously described. This may include fabricating manufacturers, wholesalers, retailers, mail order houses, blueprinters, reworkers, importers, assemblers or second sources. Where the rules specify "normal retail channels throughout the United States," this shall mean that any consumer within the United States has direct access to a source or sources, within or without the United States that will supply the material as a "normal retail outlet" defined earlier.

4.4. Where alterations are limited to the use of a separate part with a specific engine from the same manufacturer, this shall require the separate part be available from and cataloged by the original source of the specific engine. This does not preclude the same identical parts from subsequently being second sourced by another manufacturer (source).

4.5. Where there is an availability period prior to competition usage specified, the period shall begin with the receipt of an acceptable notification by AMA Headquarters from the product source that certain specified products are in compliance with certain competition event rules. If there is no period specified, then approval for use shall be granted upon receipt of an acceptable notification.

4.6. An acceptable notification shall contain a list of all uniquely identifiable engine assemblies, subassemblies or parts for each applicable competition event. The list shall contain any pertinent part, assembly or product identification numbers plus source approved or recommended replacement, alternative or modified part associations. Furthermore, the notification shall state that the listed products conform to the current AMA rules for competition events of interest.

4.7. Once a notification is forwarded to the Contest Board Chairman and approved or disapproved by him, a reply shall be prepared by him stating the approval status. In addition, a copy of the notification and reply, if approved, shall be sent to Model Aviation for publication and to any recognized special interest group associated with the applicable competition event.

4.8. 421-Form I: Maximum total nominal displacement shall be .4028 cubic inch (6.60 cubic centimeters). Engines must be production units assembled from factory available production parts. Engines and parts must have been produced in quantities greater than 500, and all must be available through normal retail outlets in the United States. Alterations shall be limited to catalog listed parts produced in quantities greater than 500 units and available commercially to anyone from the manufacturer of the engine being altered. Engines may only be altered by removing parts, or material from parts, except liners may be rechromed. No other material or part may be added, except as noted in following paragraphs under this section.

4.9. 421-Form I: The "engine" is defined as the complete unit, ready to run, needing only prop, fuel, and starting voltage, except that the glow plug, carburetor, shutoff, exhaust extension, gaskets, head and crankcase bolts, drive washer, front washer, and prop nut need not be considered part of the production unit. These parts are not subject to the rules regarding quantity or source because engine manufacturers may or may not produce these parts which help make up the complete production engine.

4.10. 421-Form I: The following parts may be purchased from sources other than the standard manufacturer providing they meet certain specifications.

a. Piston and cylinder.

b. Rod.

c. Wrist pin.

d. Head.

These parts must be "copies" of the stock parts in that they are metallurgically and dimensionally similar. The "no material may be added" rule still applies. Metallurgically, aluminum must be replaced by aluminum, etc. These parts must be commercially available and are subject to the availability rules of paragraphs 4.1.-4.8.

4.11. 421-Form I: Two-piece or "button" heads are allowed only to the extent that they can be manufactured from commercially available heads. The use of a two-piece head to provide additional material for modifications not possible with a one-piece head is strictly prohibited.

4.12. 422-Q-40: Engines used in this event must be •unmodified, commercially available, front intake, side exhaust, muffler-equipped as supplied by the manufacturer for the engine being used, and shall be available through normal retail channels throughout the United States. Total displacement shall not be over .403 cubic inches.

423-1/2-A: The maximum total displacement shall be .0519 cubic inch. Engines must be production units, assembled from factory available parts, and must be of stock configuration. The engine, original component parts, and manufacturers factory replacement parts, or parts equivalent to unreworked manufacturers replacement parts, must have been produced in quantities greater than 500 units, and must be available through normal retail outlets in the United States or from the manufacturer.

4.13. 424-Q-500 Sport: Engines used in this event must be unmodified, commercially available, front intake, side exhaust with an operable radio controlled carburetor and muffler as supplied by the manufacturer of the engine being used. Schneurle porting and ABC/AAC or similar technology piston/sleeve metallurgy is not permitted. Maximum total displacement is .403 cubic inches.

4.14. 424-Q-500 Sport: The CD or his designee may elect to check the top three engines for legality at the end of the contest. (Stock unaltered carburetor with a maximum bore of .325 inches and a stock/unaltered muffler with a maximum outlet of .400 diameter.)

4.15. 428-Q-500: Engines used in this event must be unmodified, commercially available, front intake, side exhaust with a carburetor with a maximum bore diameter of 9mm (.3543) and muffler as supplied by the manufacturer for the engine being used. Maximum total displacement is .403 cubic inches.

4.16. 424-428-Q-500 Sport, Q-500: If the CD has reason to doubt that an engine is "stock," the burden of proof is on the person using the engine to show that it is legal. No modification is permitted except that screws, bearings, glow plugs, gaskets, prop washers and prop nut may come from any source. A rounded spinner or AMA safety prop nut shall be used.

4.17. 428-Q-500: Backplate type radial engine mounts which replace the the stock engine backplate may be used provided they displace the same volume as the stock backplate assembly.

4.18. 428-Q-500: The CD or his designee may elect to check the top three (3) engines for legality at the end of the contest. Carburetor bore, muffler outlet diameter and aircraft weight of all heat winners should be checked immediately after the heat and before the airplane is returned to the pit area.

5. ENGINE INSPECTION:

421-Form I: Any competitor at a contest may have another competitor's engine inspected for compliance with the rules by posting $25.00. The engine will be inspected by the Contest Director and someone selected by the CD. If declared legal, the owner is not disqualified and receives the $25 protest fee for his trouble. If declared illegal, the owner is disqualified and the $25 fee is returned to the protester. The CD may, at his discretion, request an engine inspection prior to the trophy or award presentation without the above $25 fee.

6. ENGINE SHUTOFF.

421-Form I: The pilot must be able to shut off his engine by radio control with the plane in upright position, on the ground or in the air, without affecting flight path in any direction, upon official command. The engine must stop within five (5) seconds of command.

422-Q-40: The pilot must be able to shut off his engine by radio control utilizing a dedicated, operable servo. The engine must shut down within five seconds of command.

423-1/2-A: The aircraft must be equipped with a means to shut down the engine upon radio command by the pilot. All aircraft must land within five (5) minutes after the launch signal. Failure to so land will result in a zero (0) score for the offending contestant for that heat. A rigid fuel tank pickup tube, which requires that the plane be rolled inverted to stop the engine, is accepted.

424-428-Q-500 Sport, Q-500: Engine idle or cutoff sufficient to land must be accomplished by radio control without affecting normal flight characteristics.

7. MUFFLER/EXHAUST EXTRACTION

7.1. 421-Form I: An exhaust extension may be used, providing its sole purpose is to carry exhaust fumes and residue out of the cowling.

7.2. 421-Form I: Rear exhaust engines may use an adapter not over one and one-half (1-1/2) inches long, (measured along center line and from face of piston) followed by a constant inside diameter pipe which increases the total length of the complete extension to not over five (5) inches as measured from face of piston to extreme exhaust end.

7.3. 421-Form I: Side exhaust engines may use a curved adapter not over two and one-half (2-1/2) inches long (measured along center line and from face of piston) followed by a constant inside diameter pipe which increases the total length of the complete extension to not over five (5) inches, as measured from face of piston to extreme exhaust end. Any part of the exhaust extension may continue outside of the cowl.

• **7.4. 422-Q-40; 428-Q-500** The engine must be equipped with a silencer as provided by the manufacturer for the engine being used, and having a single exhaust outlet with a maximum diameter of .312 (5/16th inch). The maximum distance from the center of the piston to the center line of the silencer must not exceed 2-3/4 inches. The maximum length shall not exceed 7-1/4 inches, measured from the front of the header to the back of the exhaust outlet. The maximum outside diameter may 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.

423-1/2-A: Straight exhaust extensions will be allowed. At the discretion of the CD, and as notified in advance publicity prior to the contest, mufflers may be required depending on local operating conditions and restrictions.

424-Q-500 Sport: Muffler is not to increase RPM more than 300 in the range of 11-17,000 RPM.

424-428-Q-500 Sport, Q-500: The engine must be equipped with a stock expansion chamber muffler as provided by the manufacturer for the engine being used and having a single exhaust outlet only. Flow-through mufflers, tuned pipes and minipipes are not permitted. 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.

8. CARBURETOR

422-Q-40: An RC carburetor or venturi shall be used with maximum diameter of 9mm (.3543). Carburetors or venturis may be modified and are not subject to availability rules. Fuel system pressurization is limited to muffler pressure only.

423-1/2-A: No throttle shall be required.

9. FUEL

422-Q-40: The fuel shall be commercially available, containing not over 15 percent nitro, 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 supply container when the pilot brings the plane to the ready box.

423 1/2-A: No pressurization of the fuel system, except atmospheric pressure, shall be allowed. Fuel is limited to a maximum of 50 percent nitro content. All fuel must be purchased commercially mixed. No homemade fuel will be permitted. At the discretion of the CD, fuel may be supplied at the contest for all contestants.

9.1. 424-428-Q-500 Sport, Q-500: Muffler pressure supplied to the fuel tank vent is the only type of fuel system pressure permitted. Crankcase pressure and fuel pumps are not permitted.

424-Q-500 Sport: Commercially available fuel containing 10-15% nitromethane shall be provided by the contest organizers. The fuel tank must be transparent and may not contain baffles or sponge material. The airplane must be constructed with a removable hatch or clear plastic window so that the entire fuel system is visible for inspection during fueling. Fueling will be supervised by contest management in order to determine that the fuel tank is properly emptied and refilled before each flight.

9.2. 428-Q-500: The fuel shall be commercially available, brand advertised with any contest advertisements, containing not over 15% nitromethane and shall be supplied and dispensed by the host organization. The dispensing operation shall include draining tank of any existing fuel and then refilling from supply container when the pilot brings the plane to the ready box.

10. PROPELLER

421-Form I: Only wooden, fixed-pitch, two-blade propellers shall be permitted.

422-Q-40: Only fixed-pitch, two-bladed, non-laminated wood propellers shall be allowed.

423-1/2 A: Only commercially available wood or plastic props may be used. Aside from removing flashing or burrs, or for balancing, these props are not to be modified in any way. Handmade props are expressly forbidden.

424-Q-500 Sport: Only commercially available 9-6 fixed-pitch, two-blade, fiber-filled nylon propellers are allowed. One blade may be sanded on top side only for balancing. The prop shaft hole may be enlarged if necessary. No other modifications are permitted. No carbon fiber, Kevlar, wood or fiberglass resin material allowed.

428-Q-500: Only commercially available wood, fixed-pitch, two-blade, non-laminated propellers are allowed. One blade may be sanded on the top side only for balancing. The prop shaft hole may be enlarged if necessary. No other modifications to the propeller are permitted. In addition, APC propellers with a minimum diameter of eight and three-quarters (8-3/4") inches packaged for '40 Pylon' and containing a D-1 designation on the outside hub, are also allowed.

11. SPINNER

421-Form I: A rounded spinner of at least two (2") inches diameter is required on all Formula I aircraft.

422-Q-40: A rounded spinner or AMA prop nut shall be used.

12. FUSELAGE

12.1. 421-Form I: At the pilot's cockpit, a minimum depth of seven (7") inches and a minimum width of three and one-half (3-1/2") inches is required. Note: Fillets and cheek cowl fairings are not considered part of of the fuselage.

12.2. 421-Form I: The engine shall be cowled at least to the extent that no more than the head fins project beyond the fuselage outline. The exhaust side of the cowl may be shaped to clear the exhaust exit.

• **422-Q-40:** The fuselage must be at least three (3") inches wide. At the deepest point, the fuselage must be at least six (6") inches deep (including windshield, canopy, pilot's head, or headrest). The width and depth points need not coincide. At some point, the cross sectional area of the fuselage shall be at least twelve and one-half (12.5) square inches, and the contestant shall be required to furnish templates to prove this. Fillets, cheek cowls, tail surfaces, dorsal and sub fins, tail skids and non-scale protuberances are not to be part of the measurement. Profile representations of any significant feature of the full-scale prototype are prohibited. Cross-sectional contours at the height and width measurements and at stations determining the likeness to the original aircraft shall maintain the integrity of the contours in the original aircraft. The only exception permitted shall be in the engine compartment for maintenance purposes. Removable cowls, if used, must allow the engine head and cylinder to protrude at least three-quarters (3/4") inch, not including the glow plug, and require the muffler to protrude at least one-half its diameter for its entire length. Cross-sectional contours at cheek cowls, canopy, and belly scoop, if any, must have a minimum of five-eighths (5/8") inch radius on their outermost surfaces. (A 1-1/4 inch diameter ball should fit inside, tangent to the outer surface.)

423-1/2-A: The fuselage, including canopy and cowlings but excluding fillets, shall have a minimum height of three and one-half (3-1/2") inches and a minimum width of two and one-fourth (2-1/4") inches. These dimensions need not occur at the same cross-section, but must occur in that length of the fuselage bounded by the wing root chord. Profile canopies and cowlings are prohibited. Canopies and cowlings must be at least one (1") inch wide at their base and must have a cross section like that found on an ordinary full-size aircraft in order to count as part of the overall fuselage height and width.

424-428-Q-500 Sport, Q-500: The fuselage shall be a basic box cross section (rectangular) with a minimum height of 3.5 inches and a minimum width of 2.875 inches measured within the chord of the wing. Minimum width does not have to occur at the same point as the minimum height. Diamond shaped cross sections are not acceptable. Canopies, turtle decks and fairings are acceptable but will not be used to satisfy minimum measurements. All fuselage corners must have a maximum radius of one-fourth (1/4") inches. Wing fillets/fairings or any type of radius between the fuselage and wing is not allowed. The front firewall must be a rectangular flat plate with minimum dimensions of 2.25 inches by 2.25 inches.

13. WINGS

13.1. 421-Form I: The minimum area shall be 450 square inches including the area displaced by the fuselage but not including fillets or stall strips. Flaps are permitted but wing area is to be figured with flaps retracted. There is no restriction on span.

13.2. 421-Form I: The wing shall be at least one (1) inch thick at the centerline. Thickness may be measured with wing on or off the aircraft. If the wing is not removed for measurement, a "no-go" gauge set at seven-eighths (7/8") of an inch shall not "go" less than three (3") inches from the wing centerline. The wing from centerline (and/or outside fillet) to tip, must have a straight line taper on both top and bottom surfaces. (However, the wing may have a convex taper.)

• **422-Q-40:** No minimum wingspan required; maximum span shall be 56 inches. The minimum area shall be 400 square inches including the area displaced by the fuselage but not including fillets or stall strips. Flaps are permitted but wing area is to be figured with flaps retracted. The wing shall be at least one (1) inch thick at the centerline of the wing. Thickness may be measured with wing on or off the aircraft. If the wing is not removed for measurement, a "no-go" gauge set at seven-eighths (7/8") of an inch shall not "go" less than three (3") inches from the wing centerline. The wing thickness shall either remain a constant thickness or decrease steadily from root to tip unless the full-scale prototype had a different progression, in which case the progression on the model may be similar.

423-1/2-A: The wing area shall be a minimum of 200 square inches, including that area displaced by the fuselage. The minimum airfoil thickness, at the root chord, shall be three-quarters (3/4") inch.

424-428-Q-500 Sport, Q-500: The airplane shall have a constant chord wing with a minimum area of 500 square inches. The overall span shall be a minimum of 50 inches and a maximum of 52 inches measured from wingtip to wingtip. The minimum wing thickness shall be at least one and three-sixteenths (1-3/16") inches for at least 47-1/2 inches of span.

14. LANDING GEAR

421-Form I: At least two (2) wheels of two and one-quarter (2-1/4") inch diameter or larger must be used. Where applicable, a third wheel of any size may be used. A positive means of steering on the ground shall be provided. (A moveable rudder fulfills this requirement) Retracting of any landing gear shall not be permitted.

422-Q-40: The landing gear shall be fixed and resemble that of the prototype machine as to location on the airframe and the number of wheels used. The minimum diameter of the wheels shall be 2.250 inches. A positive means of steering on the ground shall be provided with a dedicated operable servo. A moveable rudder fulfills this requirement.

423-1/2-A: Landing gears or wheels are not necessary.

424-428-Q-500 Sport, Q-500: The airplane must have two (2) wheel fixed main landing gear with two (2) wheels, each having a minimum diameter of two and one-fourth (2-1/4") inches. Wheels must be at least eight (8") inches apart measured parallel to the wing span. Strut fairings and wheel pants are not permitted.

15. WEIGHT

421-Form I: Planes shall be weighed immediately after an official flight with whatever amount of the fuel that remains and before being returned to the pit or ready area. Weight at this time shall be not less than five (5) pounds nor more than six and one-half (6-1/2) pounds.

422-Q-40: Ready to fly weight, less fuel, shall be four (4) pounds minimum and six (6) pounds maximum. Weight is to be measured at the completion of each heat.

423-1/2-A: Weight, less fuel but including all equipment necessary for flight, shall be no less than 20 ounces nor more than 32 ounces.

424-Q-500 Sport: Aircraft weight of all heat winners should be checked immediately after each heat before the airplane is returned to the pit area.

424-428-Q-500 Sport, Q-500: Minimum weight shall be three and one-half (3-1/2) pounds without fuel.

424-428-Q-500 Sport, Q-500: The CD may elect to weigh airplanes at the end of heats with residual fuel to expedite processing.

16. REGISTRATION NUMBERS

421-Form I: Registration numbers are the entrants AMA numbers. If the entrant desires, they may use the last two (2) or three (3) numbers and the initial of their last name such as N204D instead of 26204. The registration number is required on the upper right wing panel. The minimum height of the numbers on the wing will be two (2") inches. The letter "N" will precede the registration numbers. An alternate method will be placing a minimum of one (1") inch registration numbers preceded by the letter "N," along each side of the fuselage behind the trailing edge of the wing.

422-424-428 Q-40, Q-500 Sport, Q-500: Registration numbers are the entrant's AMA numbers. If the entrant desires, he may use the last two (2) or three (3) digits of his AMA number preceded by the letter "N" and followed by the initial of his last name, e.g., N204D or N04D instead of 26204. The registration number shall be at least one (1) inch high and must be placed on both sides of the fuselage or on an upper wing surface.

423-1/2-A: ID markings will consist simply of the contestant's AMA number, or as an alternate, the letter N, followed by the last two (2) or three (3) digits of the AMA number, followed by the contestant's last name. The location and size of the ID is not important.

17. MATERIALS AND WORKMANSHIP

421-Form I: Workmanship must be of satisfactory standards. Contest committees are empowered to refuse permission to fly, or to disqualify, any model which, in their opinion, is not up to reasonable safe standards in either materials, workmanship, detail design, radio installation or condition as a result of damage.

422-Q-40: Workmanship must be of satisfactory standards. The Contest Director or his appointed representatives shall be empowered to refuse permission to fly, or disqualify any aircraft which, in their opinion, is not up to reasonable safe standards in either materials, workmanship, design details, radio installation or condition as the result of damage.

• 18. RACE COURSE SPECIFICATIONS

A pole, to be called the sighting pole, must be placed at least 100 feet to the right of pylon #1 at right angles to the long centerline of the course. The pole should be of such color and construction as to stand out from the background clutter when viewed from the pylon.

421-Form I: The triangular course shall be laid out as follows: The course is 10 laps with individual lap length of one-quarter (1/4) mile. Total distance traveled is two and one-half (2-1/2) miles (13,200 feet). The race starts at the start/finish line. All takeoffs shall be ROG. No mechanical device shall be used to assist the aircraft. The race is terminated at the start/finish line 10 full laps later. The race course specifications may be modified in the interest of safety or to suit existing field conditions if safety is not compromised. (See Three Pylon Course layout.)

422-Q-40: Standard two mile course length. (See Three Pylon Course layout.) Long course length per Form I rules.

424-Q-500 Sport and 428 Q-500: The race course used may be either Three Pylon Course (100 feet by 608 feet) or the AMA Quarter Midget course (100 feet by 475.5 feet).

19. OPERATION OF THE RACE

All events: fliers whose callers push off before their flag will receive a cut for that heat. A physical inspection of all aircraft should be conducted by a safety team consisting of two (2) or more competent and knowledgeable individuals appointed by the Contest Director. This inspection should include checking for such items as: adequate hinging, radio installation according to the manufacturer's requirements, and all elements of the aircraft's structural integrity. Any model deemed not safe as a result of the inspection must not be allowed to fly. Any aircraft damaged after it has been safety inspected must be reinspected before it is allowed to fly again. Aircraft with a known history of problems must be rejected unless acceptable changes have been made to eliminate problems.

Safety is the #1 concern for all RC Pylon Contest Directors. Following is a list of recommended safety procedures which should be used in the operation of the contest.

1. The pit and spectator areas should be outside the minimum distances stated in the current AMA Rule Book.

2. Protective barriers must be at all pylons and the lap counters area for the workers to stand behind. The barriers should be at least seven (7') feet high and made of at least chain link fencing or its equivalent.

3. No workers,except the #3 Pylon Judge, may be in the Danger Area near the #3 pylon (see Three Pylon Course Layout).

4. The Ready Area for the heat that is after the one flying should not be out on the race course.

5. Hard hats for all course workers.

During the course of a racing event, an unforeseen situation may arise that requires immediate controls. The Contest Director, therefore, has the authority to initiate any special procedure which he/she feels is necessary to eliminate a situation that could be considered unsafe.

Be sure the race course workers are properly instructed to keep a safe distance away from all protective screening or barriers.

During registration each aircraft should be examined. Specific items to look for are:

1. Short pieces of rubber tubing used to secure all clevises to prevent them from becoming disconnected in flight.

2. All screws holding the engine to the mount and the mount to the firewall, must be in place and be secure.

• 3. Receiver and battery pack should be protected against vibration in accordance with the radio manufacturer's recommendations.

Servos operating the elevator and aileron shall be of sufficient size for the weight and speed of the aircraft. Minimum sizes for various applications are as follows:

Application	Minimum Servo Torque	Minimum Battery Capacity
1/2A	25 oz/in (1.8kg.cm)	150 Mah
QM,Q500,F1	40 oz/in (2.9kg.cm)	250 Mah
Giant Scale	150 oz/in (10.8kg.cm)*	1200 Mah

*Two servos of 69 oz/in (5.0kg.cm) each may be used for each flight surface in place of one servo of 150 oz/in. On V Tail aircraft, the 40 oz/in requirement for the elevator may be satisfied by using two servos of 25 oz/in each.

4. Incorporating redundant battery systems by using two batteries of the capacity shown together, with an additional switch harness for added safety, is highly recommended.

5. Washers will be used on all screws holding the servos to mounting trays and also on screws holding the tray to the rails (all washers will be approximately the same diameter, or larger, as the grommets). Servos mounted directly to the rails will also have washers on the mounting screws. If screw head diameters are as large or larger than the grommet diameter of the servos being used, washers are not required.

6. In addition, all servo trays, if used, will have at least one extra safety screw (not necessarily turned down tightly) placed between the grommets on the rear or the front of the tray to prevent the tray from slipping out of the grommets in flight.

7. A keeper, or collar, will be on all pushrods that have a right angle bend that connects them to the servos. Z-bends are acceptable. If a clevis is used at both ends of a pushrod, one of the clevises must be secured so that it will not turn.

8. All control surfaces will be firm on the hinge line without excessive play (at the discretion of the safety inspector).

9. Positive, thread type, wing bolts or screws will secure the wing in place on all two-piece aircraft.

10. A positive method of holding wheels onto axles will be used and the wheels shall not bind.

11. The entire aircraft shall be inspected for any stress cracks. If any aircraft fails any of the above items, it must be repaired before it can be entered.

Race course equipment recommendations:

Option A:

Completely enclosed cages as described in "recommended safety procedures," number 2.

Option B:

Utilizing a combination of hay bales and chain link fencing whereas a barrier is built of hay bales with a chain link fence roof.

Option C:

Instead of chain link fencing, utilize steel mesh or equivalent material which is sufficient in strength to stop or capture a racing model.

*****Optional two pylon course.*** (For racing events not in the rule book.)

The purpose of the two pylon race course is to provide a course layout which does not require any personnel to be on the race course. All flying and judging is to be conducted from the sidelines. The operation of a 2 pylon race may be conducted by either of two methods.

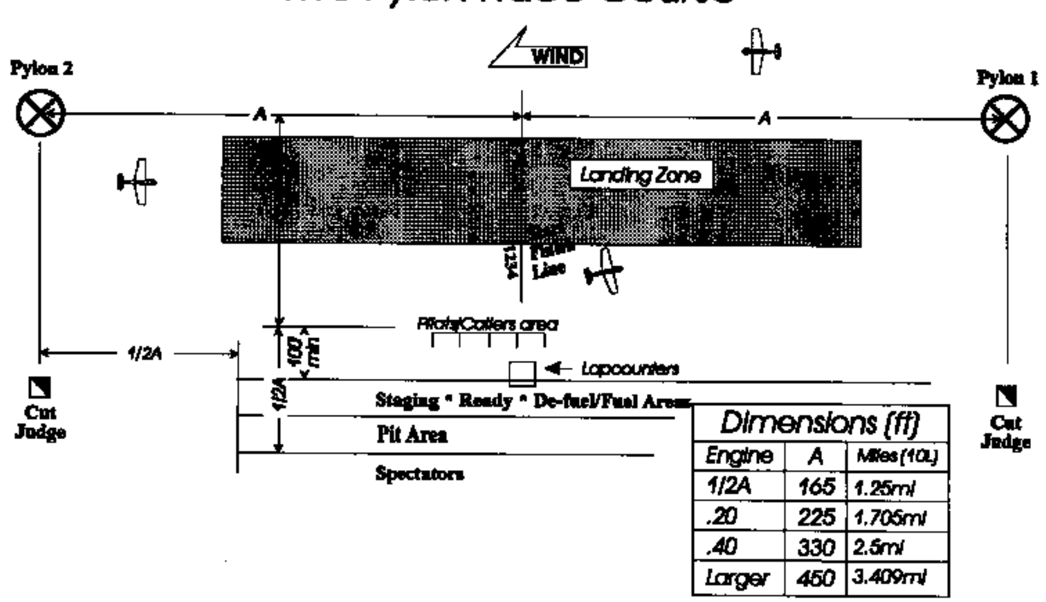
Method 1: Requires a starter, four (4) lap counters and two (2) cut judges (a minimum of seven people) all located off the course. (See 2 pylon course.) Cut judges are stationed in line with the pylons. They record cuts and relay them to the starter. Therefore, the responsibility for flying the proper distance lies solely with the flier/caller.

Method 2: Is the same as Method 1 except it requires a pair of flagmen for each aircraft, stationed off the race course, in line with the pylons. They signal (by flag, shutter or light) when each aircraft has passed the respective pylon and record cuts as in Method 1. This method requires a much larger number of workers including an extra communications person standing with each group of flagmen.

421-Form I: At the number one pylon, there will be one (1) chief judge plus an additional judge assigned to each flier in the heat. The pylon judge will stand in close proximity to the pylon. The judges will stand perpendicular to the direction of the course on the left side of the pylon as looking at number one pylon from the start line and no more than 15 feet away from the pylon.

• **19.1.** All models are to be signaled the moment they break the plane established by the number 1 plyon and the sighting pole. There will be no

Two Pylon Race Course



Dimensions (ft)		
Engine	A	Miles (10L)
1/2A	165	1.25mi
.20	225	1.705mi
.40	330	2.5mi
Larger	450	3.409mi

signals at the number 2 or 3 pylons unless a pylon is cut. There will be no pilot's helpers at any of the pylons.

19.2. At the number 2 and 3 pylons, the official judge will stand in close proximity to the pylon. The judges will use an appropriate method to notify a missed pylon to the flier in question.

19.3. A maximum of four (4) planes per heat will be allowed.

19.4. A maximum time of one and one-half (1-1/2) minutes will be allowed for starting and adjusting the engine. Any contestant not ready to have his plane released at the one and one-half (1-1/2) minutes will be eliminated from that heat.

19.5. All laps will be flown in a counterclockwise direction of rotation with all turns to the left.

19.6. Pylon height shall be a maximum of 20 feet and a minimum of 15 feet, pylons 2 & 3 being the same height. Aircraft shall not fly lower than the tops of the pylons at any time except for take-off and landing. A flier flying below the pylons shall be warned once for low flying. A further instance of low flying shall be cause for and result in disqualification for that heat. Determination of low flying shall be made by the starter and his decision shall be final.

19.7. If a pylon is cut, that lap will not be counted. Two (2) pylon cuts constitutes disqualification of that flight.

19.8. Flying outside of the designated course limits will constitute a cut.

19.9. All contestants must be given an equal number of opportunities to race.

19.10. The starter shall check that all fliers are in position and ready to control their aircraft before dropping the flag.

19.11. All entries should be divided into four (4) columns of separate frequencies or groups of frequencies so that each frequency appears in only one (1) column. Column totals should be adjusted whenever possible to be as close to an equal number as possible. Contestant numbers should be assigned according to the following matrix. If a particular column has less than the indicated number, simply skip that number. Use the matrix schedule to set up the heats for each round.

• **422-428 Q-40 & Q-500:** Contestants will have a maximum of one (1) minute to start their engines and prepare for take-off. If after one (1) minute has elapsed and the entrant is not prepared for takeoff (facing number 1 pylon with both hands on the transmitter), the entrant will not be allowed to fly or run his engine in the course area and is given a score of zero (0) points for that heat. If determined at the pilots meeting before the race, the heat may be started when all pilots and callers are ready before the one (1) minute has elapsed.

• **422-Q-40:** "Race Horse" starts shall be used unless conditions exist which are considered hazardous by the CD. Regardless of the starting method used, all timing starts at the drop of the first flag. If a CD determines conditions are hazardous, the following system shall be utilized. The order of takeoff shall be determined by a draw at the start of each heat. The aircraft shall be flagged off the line at one (1) second intervals in groups of two (2), the first group being airplanes one (1) and three (3) and the second group being airplanes two (2) and four (4).

423-1/2-A: A maximum of four (4) aircraft will be flown in each heat.

19.12. Unless advertised in advance, all launching will be by hand. Launches of all aircraft will be as close to simultaneous as possible.

19.13. Each race will consist of ten (10) complete laps of the race course.

19.14. If a pylon is cut by a contestant, that lap will not be counted. If two (2) laps are cut, the contestant will receive no score for that heat and shall pull up and out of the race until the heat is over.

19.15. No minimum altitude is required during racing.

• **19.16.** Engines must be started within the maximum time of one (1) minute after the signal to start is given. Any contestant not launched before the lead aircraft completes its first lap shall receive a zero (0) and shall not be launched. If no aircraft is launched when the starting flag is dropped, all contestants in that heat shall receive a zero (0) for that heat.

19.17. All the laps are to be flown counterclockwise with turns to the left.

424-Q-500 Sport: An alternate takeoff order, 1-3, 2-4 with starting positions determined by draw, may be utilized.

20. FLIGHT REQUIREMENTS

421-Form I: The starter is empowered to black flag any pilot whose flying is erratic and dangerous in the judgment of the starter. This decision is entirely at the discretion of the starter and is not subject to protest. Upon receiving the black flag, a flier must land his aircraft immediately.

422-Q-40: In the event of a midair or takeoff contact between aircraft, or at any other time during the heat, the starter is empowered to black flag any contestant whose flying becomes erratic or dangerous. The decision is entirely at the discretion of the starter and is not subject to protest. Upon receiving the black flag, a flier must land his aircraft immediately.

21. HANDICAP SYSTEM

421-Form I: The order of takeoff shall be determined by handicap judging as described below. Aircraft shall be flagged off the line at one (1) second intervals in groups of two (2), the first group being airplanes one and three and the second group being airplanes two and four. An alternate takeoff order shall be 1-2-3-4. In heats where the "best of show" races, the takeoff order shall be the standard 1-2-3-4. The order of takeoff shall be determined by handicap judging as described below. Aircraft shall be flagged off the line one at a time at one (1) second intervals or as rapidly as the starter can drop the flag four times in succession. The takeoff order shall be predetermined by the Contest Director.

421-Form I-Handicap system: An experienced team of judges will grade each aircraft, including back-up, and place it in one (1) of four (4) rows with the first row representing the best in craftsmanship and excellence of appearance, and row four (4) the least. These four (4) rows will determine the takeoff position to be used by the contestant with those judged "ones" as the first to be flagged off and "fours" the last. In any heat where there are two (2) or more aircraft assigned the same judging number, the takeoff order will be determined by lottery. If there is a "best finish" award, it would be selected from those aircraft judged "ones" and would take precedence over all others relative to takeoff position.

Note! An alternate handicap system is detailed in the NMPRA Procedure guide.

22. HEADGEAR.

422-Q-40: All personnel are encouraged to wear hard hats during races when in the race course area.

23. SCORING

All events: Points shall be awarded after each race as follows:

Four	(4) points for first place.
Three	(3) points for second place.
Two	(2) points for third place.
One	(1) point for fourth place.

23.1. The above example is utilized where the race matrix is set up for four (4) planes per heat. In cases where the entire matrix is set up for three (3) planes per heat, the scoring shall be: three (3) points for first, two (2) points for second and one (1) point for last. The same theory will be followed in a two (2) plane matrix whereas two (2) points are awarded to the winner and one (1) point to the loser.

23.2. The winner of the event is the contestant who has accumulated the most points after the conclusion of all heats.

23.3. If time permits, and there is no frequency conflict, ties shall be broken by a flyoff race. Otherwise, the best single race time shall be considered in determining final placings.

23.4. In the event of a dead heat, where the finish order of a heat is disputed, or equipment failure occurs and a clear-cut decision cannot be made for a particular position, only the airplanes in question for a particular position will refly. The other (unaffected) places will maintain the scores from the original heat race. The airplanes that are reflown will only be in contention for the undetermined positions and neither of the scores can be worse than if they had received an adverse ruling in the original heat race, however, reflown planes must complete 10 laps without cutting out to receive a score. Any reflown plane that does not complete 10 laps or double-cuts will be awarded a zero (0) for that heat.

24. ADVERTISEMENTS

422-Q-40: Advertising of the event through any media should include the following information: Long or Form I course and brand of fuel to be used.

25. RACING NUMBERS

421-Form I: Racing numbers may be obtained from the National Miniature Pylon Racing Association Secretary. The use of these numbers is highly recommended, but not mandatory. The numbers are located on the upper left and lower right hand wing panel facing toward the left side. The number will be right side up with the model in a left bank. The numbers will be at least three (3) inches on the wings. Area letters will be one-half (1/2) inch high.

422-Q-40: Racing numbers (optional) shall be at least one-and-one-half (1-1/2) inches high and placed in scale racing positions.

26. RACING NUMBER AREA LETTERS

There will be a letter of a minimum height of one-half (1/2) inch following the owners racing number. This letter will be on all racing numbers with the bottom racing number letter on the wing optional. The assigned letters are as follows:

A—Northern California.

B—Central California, Hawaii.

C—Southern California.

D—Nevada, Utah, Arizona.

E—Oregon, Washington, Idaho, Alaska.

F—Colorado.

G—Montana, Wyoming, South Dakota, North Dakota, Nebraska, Kansas.

H—I—New Mexico, Oklahoma, Texas, Arkansas, Louisiana.

J—Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island.

K—L—M—New York, New Jersey.

P—Ohio, Pennsylvania, West Virginia.

Q—R—Maryland, Virginia, North Carolina, Delaware, Washington D.C.

S—T—Tennessee, Mississippi, Alabama, Georgia, Florida, South Carolina.

U—V—Missouri, Illinois, Indiana, Kentucky.

W—Minnesota, Wisconsin, Michigan, Iowa.

An example of this number system is; 76E or 14C.

Q-15 (SUPPLEMENTAL)

For event 425.

1. Objective. To provide closed course racing that will encourage participation by the sport flier and novice racing enthusiast.

2. General. All AMA regulations (see sections titled Sanctioned Competition, Records, Selection of Champions, and General) and FCC regulations covering the RC flier, his plane, and equipment, shall apply to this event, except as noted herein. The contestant shall be allowed two (2) aircraft entries, both operating on the same frequency. All aircraft must be checked by the Contest Director or his appointed official prior to the competition.

2.1. Consideration of safety for spectators, contest personnel, and other contestants is of the upmost importance in this event. Any unsportsmanlike conduct or hazardous flying over a controlled spectator area will be cause for immediate disqualification of that flight.

2.2. Alcoholic beverages shall not be allowed on the race course. Any pilot or competition official who consumes alcoholic beverages during a competition shall be removed from the competition.

3. Model Aircraft Requirements. Models entered in this event shall be semi-scale or recognizable replicas of full-scale, piloted, propeller-driven aircraft that have competed in closed course, speed record attempt, or cross country racing. No deltas and/or tailless type aircraft shall be allowed. In the case of unusual or little known designs, the flier shall produce documentation to verify that such a plane or special design did exist. The Builder-of-the-model rule shall not apply to the QM-15 event.

4. Engine(s) Specifications.

4.1. Total displacement shall not be over 2.50 cubic centimeters (.1526 cubic inches).

4.2. Production. At least 500 engines (with an RC carburetor or venturi) shall be available through normal retail channels throughout the United States. The language "shall be available" is defined as: Once an engine is declared legal for competition, it shall always be legal.

The following discussion will help interpret the words and intent of the rule book provisions. In general, the engine qualification rules that exist are aimed at encouraging competition through equipment availability and uniformity. It is not the intent of the rules to discourage equipment development, production distribution, reworking, or sales, or to exclude anyone from participating in any of these phases of the industry.

Any person, group of persons, or business entity may declare themselves to be a manufacturer under the applicable rules. Such a manufacturer does not have to fully or partially fabricate complete engines or engine parts, but need only be a source for specific products. The manufacturer (source) of a specific engine or part must also fully comply with any and all applicable quantity and availability requirements applicable to the event(s) the engine is qualified to be used in.

Parts that are specified under the rules to be production products made by a manufacturer may be sourced by other than the manufacturer (fabricator) so long as the manufacturer (source), as declared under these rules, provides the specific product in conformance with prescribed quantity and availability requirements. In other words, any complete engine, partial assembly, or individual part may qualify under the rules so long as the original source of the exact hardware configuration that the consumer ultimately purchases can meet the quantity and availability requirements applicable to the competitive event.

The term "normal retail outlet" may be any source from which a consumer can purchase a product for a price which is independent of who the consumer is. "Consumer availability" shall be construed to mean available from any normal retail outlet as previously described. This may include fabricating manufacturers, wholesalers, retailers, mail order houses, blueprinters, reworkers, importers, assemblers, or second sources. Where the rules specify "normal retail channels throughout the United States," this shall mean that any consumer within the US has direct access to a source or sources, within or without the US, that will supply material as a "normal retail outlet" defined earlier.

Whereas alterations are limited to the use of a separate part with a specific engine from the same manufacturer, this shall require the separate part be available from and cataloged by the original source of the specific engine. This does not preclude the same identical parts from subsequently being second sourced by another manufacturer (source).

Where there is an availability period prior to competition usage specified, this period shall begin with the receipt of an acceptable notification by AMA Headquarters from the product source that certain specified products are in compliance with certain competition event rules. If there is no period specified, then approval for use shall be granted upon receipt of an acceptable notification.

An acceptable notification shall contain a list of all uniquely identifiable engine assemblies, sub-assemblies or parts for each applicable competition event. The list shall contain any pertinent part, assembly or product identification numbers plus source approved or recommended replacement, alternative or modified part associations. Furthermore, the notification shall state that the listed products conform to the current AMA rules for the competition events of interest.

Once a notification is forwarded to the Contest Board Chairman and approved or disapproved by him, a reply shall be prepared by him stating the approval status. In addition, a copy of the notification and reply, if approved, shall be sent to Model Aviation for publication and to any recognized special interest group associated with the applicable competition event.

4.3. Carburetor. An RC carburetor or venturi shall be used. Any carburetor or venturi used must have a circular intake not exceeding 0.24 inch diameter. Carburetors or venturis may be modified and are not subject to availability rules.

4.4. Fuel system pressurization is allowed.

5. Exhaust Extraction. Local conditions shall determine muffler usage.

5.1. Mufflers. When required, mufflers shall be stock commercially available units. Only modification to the muffler inlet for the sole purpose of mounting to the engine shall be permitted.

5.2. Exhaust Extractors. When used, exhaust extractors shall be of consistent inside diameter, the total length of which shall not exceed 12.7 centimeters (5 inches) measured from the piston face to the extreme exhaust end including any attached adapter.

6. Only fixed-pitch, two-bladed wood or compression molded continuous-fiber glass-strand plastic propellers shall be permitted. Injection molded propellers are not allowed.

7. Spinners or Prop Nuts. A rounded spinner or AMA prop nut shall be used.

8. Fuselage. At a point measured within the chord of the wing, the fuselage must be at least two and three-quarters (2-3/4) inches wide. At the deepest point, the fuselage must be at least five (5) inches deep (including windshield, canopy, pilot's head, or headrest). The width and depth points need not coincide. Fillets and nonscale protuberances are not to be part of the measurement. Cross-sectional contours at the height and width measurements, and at stations determining the likenesses to the original aircraft, shall maintain the integrity of the contours in the original aircraft. The only exception permitted shall be in the engine compartment for maintenance purposes. Cross-sectional contours at cheek cowls and canopy must have a minimum of one-half (1/2) inch radius on their outermost surfaces. (A one (1) inch diameter ball should fit inside, tangent to the outer surface.)

9. Landing Gear(s). The landing gear shall be non-retractable, and wheels must be free rolling. A tail skid, if utilized, shall point to the rear of the aircraft. No brakes allowed. Minimum wheel diameter shall be one and one-half (1-1/2) inches.

10. Wing(s). No minimum span required: thickness shall be seven-eighths (7/8) inch measured outside fuselage wing fillets and progressing in a straight line taper to the tip. The wing area shall be a minimum of 300 square inches.

A biplane shall have not less than five-eighths (5/8) inch upper wing thickness, measured on a line projected vertically from fuselage side, as in a top view, at the point of fuselage and wing intersection. The lower wing shall be not less than one-half (1/2) inch thick at the projected root provided its area is not less than two-thirds (2/3) of upper wing area.

11. Weight. Ready-to-fly weight, less fuel, shall be two and one-half (2-1/2) pounds minimum and four (4) pounds maximum. Weight is to be measured at the completion of each heat.

12. Materials and Workmanship. Workmanship must be of satisfactory standards. The Contest Director or his appointed representatives shall be empowered to refuse permission to fly or disqualify any aircraft which, in their opinion, is not up to reasonably safe standards in either materials, workmanship, design details, radio installation, or condition as the result of damage.

13. Racing Numbers (Optional). Racing numbers shall be at least one and one-half (1-1/2) inches high and placed in scale racing positions.

14. Registration Numbers. Registration numbers are the entrant's numbers. If the entrant desires, he may use the last two (2) or three (3) digits of his AMA number preceded by the letter "N" and followed by the initial of his last name, e.g., N204D or N04D instead of 26204. The registration number shall be at least one (1) inch high and must be placed on both sides of fuselage or on an upper wing surface.

15. Starting Procedure. Contestants will have a maximum of one and one-half (1-1/2) minutes to start their engines and prepare for takeoff. If after one and one-half (1-1/2) minutes has elapsed and the entrant is not prepared for takeoff (facing number 1 pylon with both hands on the transmitter), the entrant will not be allowed to fly or run his engine in the course area and is given a score of zero (0) points for that heat. If determined at a pilot's meeting before the race, the heat may be started when all the pilots and callers are ready, before one and one-half (1-1/2) minutes have elapsed.

15.1. The order of takeoff shall be determined by a draw at the start of each heat. The aircraft shall be flagged off the line at one (1) second intervals (i.e., approximately as rapidly as the starter can drop the flag in succession), with the aircraft closest to the starter taking off first.

15.2. The starter shall check that all fliers are in position and ready to control their aircraft before flagging ships off the line.

15.3. Racehorse starts are permitted as long as it was announced in all prerace advertising.

16. Landing Requirement. The pilot must be able to idle engine back to 5,000 rpm or less, or shut it off completely by radio control with the plane in upright position on ground or in the air without affecting flight path in and direction upon given command.

17. Fuel. The fuel shall be commercially available, contain not over 15 percent nitro, and shall be supplied and dispensed by the hosting organization. The dispensing operation shall include draining tank of any existing fuel and then filling from supply container, when the pilot brings the plane to the ready box.

18. Race Procedure and Scoring.

18.1. Standard Two Mile Course Length (See layout on page 88). The procedure and scoring shall be in accordance with all paragraphs under Operation of the Race and Scoring of the Formula 1 RC Pylon Racing rules.

18.2. "Race Horse" starts shall be used unless conditions exist which are considered hazardous by the CD. Regardless of the starting method used, all timing starts with the drop of the first flag.

19. Aircraft Safety. In the event of a midair or takeoff contact between, or at any other time during the heat, the starter is empowered to black flag any contestant whose flying becomes erratic or dangerous. The decision is entirely at the discretion of the starter and is not subject to protest. Upon receiving the black flag, a flyer must land his aircraft immediately.

20. Head Gear. All personnel are encouraged to wear hard hats during races when in the race course area.

21. Advertisements. Advertising of the event through any media should include the following information: long or short course, muffler requirement if any, and brand of fuel to be used.

Pylon Racing Heat Matrix

Maximum Number of Entries Per Column

5

1	6	11	16	1	[illegible]	12	19	1	5	15	17	1	8	12	20	1	10	12	19
2	[illegible]	12	17	2	4	14	20	2	9	11	18	2	10	[illegible]	18	2	6	15	16
3	8	13	18	3	8	15	18	3	10	12	16	3	6	14	[illegible]	3	7	11	20
4	9	14	19	4	10	11	17	4	6	13	20	4	7	15	19	4	[illegible]	12	18
5	10	15	20	5	6	12	16	5	7	14	16	5	8	11	17	5	[illegible]	13	17

6

1	7	13	19	4	9	14	19	2	12	16	19	3	10	16	19	3	11	14	22
2	8	14	20	5	10	[illegible]	20	3	7	17	20	4	11	13	20	4	12	15	23
3	9	15	21	6	[illegible]	16	21	4	9	[illegible]	21	5	12	14	21	5	7	16	24
4	10	16	22	1	12	17	22	5	8	13	22	6	7	17	22	6	[illegible]	17	19
5	11	17	23	2	7	18	23	6	10	14	23	1	8	15	23	1	9	18	20
6	12	18	24	3	[illegible]	[illegible]	24	1	11	15	24	2	9	18	24	2	10	13	21

7

1	8	15	22	1	9	17	25	1	10	19	28	1	11	21	24	1	12	16	27	1	13	18	23	1	14	20	26
2	9	16	23	2	10	18	26	2	11	20	22	2	12	15	25	2	13	17	28	2	14	19	24	2	8	21	27
3	10	17	24	3	11	19	27	3	12	21	23	3	13	16	26	3	14	18	22	3	8	20	25	3	9	15	28
4	11	18	25	4	12	20	28	4	13	15	24	4	14	17	27	4	8	19	23	4	9	21	26	4	10	16	22
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7	14	21	28	7	8	16	24	7	9	18	27	7	10	20	23	7	11	15	26	7	12	17	22	7	13	19	25

8

1	9	17	25	4	[illegible]	15	27	2	13	19	25	2	12	20	27	6	10	21	25	3	12	24	29
2	10	18	26	5	12	18	[illegible]	7	14	20	26	3	10	21	28	7	11	22	26	4	13	17	30
3	11	19	27	8	13	20	29	1	15	21	27	4	9	22	29	8	12	23	27	5	14	18	31
4	12	20	28	[illegible]	14	21	28	8	16	22	28	5	11	23	29	1	13	24	28	6	15	19	28
5	13	21	29	6	15	22	26	3	9	23	29	6	[illegible]	24	26	2	14	17	29	7	16	20	25
6	14	22	30	1	16	23	30	4	10	24	30	7	14	17	30	3	15	18	30	8	9	21	26
7	15	23	31	2	9	24	31	5	11	17	31	8	15	18	31	4	16	19	31	1	10	22	27
8	16	24	32	3	10	17	32	6	12	18	32	1	16	19	32	5	9	20	32	2	11	23	32

9

1	10	19	28	1	11	21	31	1	12	23	34	1	13	25	30	1	14	27	33	1	15	20	34
2	11	20	29	2	12	22	32	2	13	24	35	2	14	26	31	2	15	19	34	2	16	21	35
3	12	21	30	3	13	23	33	3	14	25	36	3	15	27	32	3	16	20	35	3	17	22	36
4	13	22	31	4	14	24	34	4	15	[illegible]	[illegible]	4	16	19	33	4	17	21	36	4	18	23	28
5	14	23	32	5	15	25	35	5	16	27	28	5	17	20	34	5	18	22	28	5	10	24	29
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8	17	26	35	8	18	19	29	8	10	21	32	8	11	23	28	8	12	25	31	8	13	27	34
9	18	27	36	9	10	20	30	9	11	22	33	9	12	24	29	9	13	26	32	9	14	19	33

Pylon Racing Heat Matrix

Maximum
Number
of Entries
Per Column

10

1	11	21	31	1	12	23	34	1	13	25	37	1	14	27	40	1	15	29	33	1	16	22	39	1	17	24	32	1	18	26	35
2	12	22	32	2	13	24	35	2	14	26	38	2	15	28	31	2	16	30	34	2	17	23	40	2	18	25	33	2	19	27	36
3	13	23	33	3	14	25	36	3	15	27	39	3	16	29	32	3	17	21	35	3	18	24	31	3	19	26	34	3	20	28	37
4	14	24	34	4	15	26	37	4	16	28	40	4	17	30	33	4	18	22	36	4	19	25	32	4	20	27	35	4	11	29	38
5	15	25	35	5	16	27	38	5	17	29	31	5	18	21	34	5	19	23	37	5	20	26	33	5	11	28	36	5	12	30	39
6	16	26	36	6	17	28	39	6	18	30	32	6	19	22	35	6	20	24	38	6	11	27	34	6	12	29	37	6	13	21	40
7	17	27	37	7	18	29	40	7	19	21	33	7	20	23	36	7	11	25	39	7	12	28	35	7	13	30	38	7	14	22	31
8	18	28	38	8	19	30	31	8	20	22	34	8	11	24	37	8	12	26	40	8	13	29	36	8	14	21	39	8	15	23	32
9	19	29	39	9	20	21	32	9	11	23	35	9	12	25	38	9	13	27	31	9	14	30	37	9	15	22	40	9	16	24	33
10	20	30	40	10	11	22	33	10	12	24	36	10	13	26	39	10	14	28	32	10	15	21	38	10	16	23	31	10	17	25	34

11

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2	13	24	35	2	14	26	38	2	15	28	41	2	16	30	44	2	17	32	36	2	18	23	39	2	19	25	42	2	20	27	34	2	21	29	37	2	22	31	40
3	14	25	36	3	15	27	39	3	16	29	42	3	17	31	34	3	18	33	37	3	19	24	40	3	20	26	43	3	21	28	35	3	22	30	38	3	12	32	41
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5	16	27	38	5	17	29	41	5	18	31	44	5	19	33	36	5	20	24	39	5	21	26	42	5	22	28	34	5	12	30	37	5	13	32	40	5	14	23	43
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9	20	31	42	9	21	33	34	9	22	24	37	9	12	26	40	9	13	28	43	9	14	30	35	9	15	32	38	9	16	23	41	9	17	25	44	9	18	27	36
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11	22	33	44	11	12	24	36	11	13	26	39	11	14	28	42	11	15	30	34	11	16	32	37	11	17	23	40	11	18	25	43	11	19	27	35	11	20	29	38

12

1	13	25	37	1	14	27	40	1	15	29	43	1	16	31	46	1	17	33	38	1	18	35	41	1	19	26	48	1	20	28	39
2	14	26	38	2	15	28	41	2	16	30	44	2	17	32	47	2	18	34	39	2	19	36	42	2	20	27	37	2	21	29	40
3	15	27	39	3	16	29	42	3	17	31	45	3	18	33	48	3	19	35	40	3	20	25	43	3	21	28	38	3	22	30	41
4	16	28	40	4	17	30	43	4	18	32	46	4	19	34	37	4	20	36	41	4	21	26	44	4	22	29	39	4	23	31	42
5	17	29	41	5	18	31	44	5	19	33	47	5	20	35	38	5	21	25	42	5	22	27	45	5	23	30	40	5	24	32	43
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8	20	32	44	8	21	34	47	8	22	36	38	8	23	26	41	8	24	28	45	8	13	30	48	8	14	33	43	8	15	35	46
9	21	33	45	9	22	35	48	9	23	25	39	9	24	27	42	9	13	29	46	9	14	31	37	9	15	34	44	9	16	36	47
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