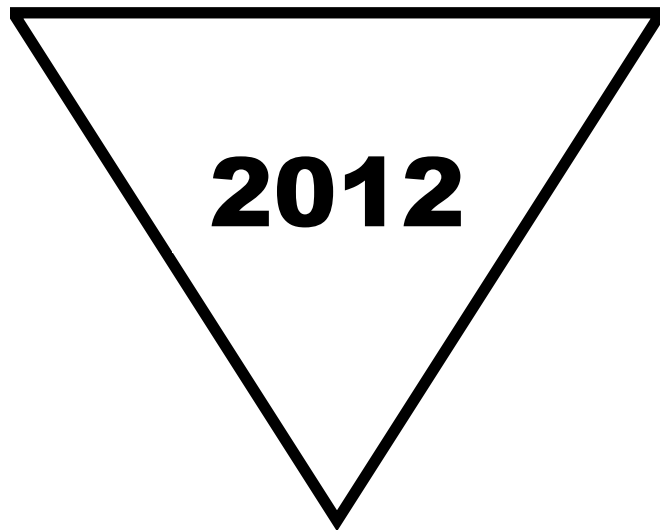


# **TRIANGLE SERIES**

**RADIO CONTROL PYLON CHAMPIONSHIP SERIES**

## **UNLIMITED WARBIRD CLASS**

**MORGAN HILL**



**MORGAN HILL**

**FRESNO**

**DIRECTED BY KEVIN NORRED & JOE DELATUER  
SUPPORTING CLUBS: FRESNO RADIO MODELERS, &  
SANTA CLARA COUNTY MODEL AIRCRAFT SKYPARK**

2012 – 2013 TRIANGLE SERIES

# UNLIMITED WARBIRD RACING

RACING RULES



Basics of the Class:

Class of mixed Warbird Bombers/Fighters/Trainers

400sq in thru 650 sq in wing area minimums vs. engine displacement

No Breakouts or Class timing

# Unlimited Warbird Aircraft Rules and Limitations

DATED MATERIAL: December 3, 2011

All rules are to be followed as listed below. No changes or alterations will be allowed. Any alteration from these rules will result in disqualification.

The Unlimited Warbird racing event was designed as a two pylon-racing event that can be enjoyed by all sport pylon enthusiasts of intermediate or advanced skill levels. The class is not intended for entry-level pilots that are not familiar with high performance aircraft. Pilots not able to demonstrate safe control of their aircraft will be black-flagged.

## AMA Racing Safety & Marking of Aircraft

- All aircraft must have name and AMA number located inside of aircraft and visible upon safety inspection of the aircraft. Failure can result in AMA safety code violation.
- AMA racing insurance / waivers requires all personal on the flight line to wear ANSI, DOT, NOCSAE, or SNELL approved hard hats or safety helmets within 275 feet of the centerline of the race course. This includes all pilots, crew members, spotters, callers and helpers. Any individual not in compliance of this will not be allowed on the flight line or within the staging areas during the racing event. All pilots and team members are responsible for supplying their own hardhats or safety helmets. Each pilot can have one caller/spotter beyond the spectator line during the racing event per AMA regulations and guidelines. All pilots and crewmembers must sign an AMA release form releasing liability from any officials or associates of the racing series. All spectators must stay within the safety areas of the facility.
- It is recommended to have a 1” up to a 3” race number on the back of the pilots hardhat to help race officials identify aircraft currently racing.
- Aircraft markings and/or color schemes are optional and not need be scale. Bright color schemes are encouraged and will allow easier identification for pylon judges and race officials on the starting line. If aircraft are not easily recognized, confusion with other aircraft may occur. All Pilots will be required to register a race number. If an aircraft is unique and cannot be easily mixed up with another aircraft at an event, that pilot may choose not to put race numbers on their plane. If there is doubt between aircraft, an identification marker may need to be used.

## Aircraft Requirements:

- Any scale replica of a piston engine, man carrying, propeller driven fighter/bomber aircraft that served in WWII, the Korean conflict, Vietnam or any Reno/Mojave/Phoenix Warbird Racer that raced in an official Unlimited race heat will be deemed legal. Military Trainers such as AT-6, T-34 and PT-26 are legal. Piston engine recon planes such as or similar to the J-3 Cub or Grasshopper not allowed. The Phoenix Models “Strega” and modified versions are legal as long as they resemble a P-51 or modified scale P-51 racer. No Biplane, Formula I aircraft and/or homebuilt type airplanes such as but not limited to Lancair or Glasairs allowed in class. World Models T-34 Mentors not legal.
- The Warbird/ Reno Racer must be a least standoff scale in appearance. They can be built from Composite Kits, Balsa Kits, ARF kits, scratch built from plans or a personal design. This is not a

scale contest. Airplanes will not be judged for scale appearance but will not be allowed to race without a scale outline. You may change the size of the moveable surfaces but the outline of the aircraft must resemble the outline of the full-size. The Event Contest Director or Series Coordinator has final approval on the outline and legality of the aircraft. If questionable, please contact the event and series coordinators for written approval.

**Basic Rules:**

The wing must meet the minimum square inches to the maximum engine size. Wing and fuselage must be proportional in size. Any aircraft that are not within portion of the scale aircraft may be deemed illegal by the Contest Director. If you have a kit that isn't stock, proof of these dimensions is required. Elliptical wings will be measured four inches from the outer most tip of the wing for the tip chord thickness.

**Single Engine Aircraft**

Engine Size	2-stroke	4-stroke	Minimum Wing Area Required
<b><u>Up to a</u></b>	.50 max	<b><u>Up to a</u></b> .89 max	400 sq. in.
	.60 max	.99 max	440 sq. in.
	.70 max	1.09 max	480 sq. in.
	.80 max	1.19 max	515 sq. in.
	.95 max	1.29 max	550 sq. in.
	1.05 max	1.39 max	565 sq. in.
	1.10 max	1.49 max	580 sq. in.
	1.15 max	1.59 max	595 sq. in.
	1.20 max	1.69 max	610 sq. in.
	1.30 max	1.75 max	630 sq. in.
	1.40 max	1.80 max	650 sq. in.

**Twin Engine Aircraft**

Engine Size	2-stroke	4-stroke	Minimum Wing Area Required
<b>Engine displacement is total combined for both engines</b>			
<b><u>Up to a</u></b>	1.00 max	1.50 max	500 sq. in.
	1.22 max	2.00 max	600 sq. in.
	1.40 max	2.50 max	700 sq. in.
	1.60 max	3.00 max	850 sq. in.
	1.82 max	3.50 max	1000 sq. in.

**Engines Allowed:**

- Any 2-stroke or 4-stroke engine with the maximum displacement allowed in the chart above may be used with as long as the minimum wing area is presented. Any manufacturer may be used. Carburetors are required and must allow motor to idle with ease. Engines must idle a minimum of 4000 RPM for a 10 second period and throttle to full throttle at ease. Aircraft not meeting this will not be allowed to race. Standard aircraft engines, helicopter engines, or ducted fan engines are allowed.
- You may use any exhaust system of your choice be a special muffler or tuned pipe. Exhaust must be a minimum of 1 inch to be legal. Modifications are legal. Straight header pipes allowed. Exhaust header pipes must be at least 1" in length.
- Any two bladed or three bladed propellers may be used. No single bladed props allowed. No Metal or variable pitch propellers allowed. Please make sure propellers used do not exceed maximum RPM limits.

- No fuel restrictions. Only AMA legal fuel standards may be used. Bladder tanks or conventional tanks are allowed. Pilots must bring and/or use fuel that they supply. No fuel will be supplied.
- Servo or electronic fuel mixtures allowed. Check valves & Fuel Filters will be allowed. On board Glo systems for engines is allowed.

### **Airframe**

- Aircraft may be re-covered in a personal color scheme and is encouraged for team identification, personal recognition or official identification. Stock A.R.F. kits should be altered in appearance to help pilot and caller identification.
- Cockpit detail or pilots optional and are not required.
- Canopies may be tinted, painted or clear.
- Fastening of cowls, canopy, or hatches to aircraft airframe is optional. You may use any sort of hardware for mounting purposes including tape or screws.
- Spinners of any size are recommended but not required. Spinners used must be Plastic, composite or Aluminum. No Flywheel spinners. It is recommended to use a single bolt spinner in the case a prop is spun loose and quick installation is needed. Spinners may be balanced if desired.
- Wheel size of approx. 2" or 50mm or larger is required. Wheels must be ½" constant thickness minimum. (25.4mm = 1")
- All aircraft must have landing gear, fixed or retractable. Carriages, cradles, or hand launching are not permitted. All aircraft are required to have a tail wheel. No tailskids allowed. No racing wheels allowed. Main wheels must be at least 2" tall and ½" constant width.
- You can use any advanced building techniques such as hollow core vacuum-bagged composite wings; goop hinges or skin hinging. Composite fuselages are allowed.

### **Radio Requirements:**

- Radio installation setup and hardware is as desired by the pilot but must meet all criterias within the rules and AMA safety code.
- Radio hook-up is open with the following exceptions:
  - Servos must have at least 50oz.minimum of torque for operating control surfaces. Any other functions can use any type of servo. Minimum of a 500-mah-battery pack is required. Slip type linkages with setscrew may not be used on Ailerons or Elevator. Z-bend or solder linkages are the best suitable application for major control surfaces. All control linkages must have keepers. Retractable Servos may be of any size. It is **recommended** for safety purposes to run (2) Elevator servos (one per surface) and (2) Aileron Servos (one per surface).
- Minimum of 500Mah 4 or 5 cell battery pack is required. Batteries may be Nickel Metal, Nicad or Lipo w/ regulators. It is suggested to have an outboard source to monitor battery level throughout the race day without disassembling aircraft.
- If a radio is setup for "Fail-safe" on PCM or any other radio capable of "Fail-Safe", it is recommended to have throttle cut to idle or kill in the event aircraft system goes into "Fail Safe".

- Receiver used must be for Gas Powered Aircraft. Small receivers such as those used for park flyers will not be permitted, as they do not allow the range needed in a pylon-racing event.

### Miscellaneous

- Back-up aircraft are allowed but must have the same race number and same frequency as the primary aircraft. Back-up aircraft may be used only if the primary aircraft has been severely damaged or has been deemed unsafe and can't be fixed before the next heat. It is up to the Contest Director to allow back-up aircraft to be entered in replacement of primary aircraft under different race numbers and/or frequency. There are no additional entrance fee to have a back-up aircraft. It is not permitted to allow the original aircraft entered and flown to return to race once the backup aircraft has flown a heat. Race officials have the right to allow primary aircraft back if desired. Parts from back-up aircraft may be interchanged with primary aircraft if needed. \* **It is up to the CD to make the overall decision if other circumstances may apply.**
- Pilots may have another person land their aircraft if needed. This is a decision for safety of pilots and aircraft.
- No timing devices, Hand held radios or any other electronic device will be allowed on the race course during the event that will help aide in the pilot's finish. GPS systems not allowed.
- The Contest Director has all rights to challenge any and all entries of aircraft in question to legality at no expense or at any time during the event. If a contestant or pilot wishes to challenge another entrant, there will be a \$20 protest fee, which will go to the pilot challenged if deemed legal. If the pilot is deemed illegal, the person filing the protest gets his/her money back. A pilot deemed illegal would result in disqualification. If the races have not started, the pilot may change to make aircraft legal. Major violation will result in termination from all races for one year. Only contestants signed up may challenge another pilot's aircraft.
- One class will be offered. If enough entries at the race, Top Qualifiers may be separated into Gold & Silver Trophy races if designated by Contest Director prior to race.
- Unlimited Heat Races will consist of maximum of 4 aircraft. Trophy Races will consist of maximum of 5 aircraft.

# RACE NUMBER DIAGRAM

## FUSELAGE NUMBERS-OPTION 1

3" NUMBERS ON FUSELAGE SIDE BETWEEN TRAILING EDGE OF WING AND LEADING EDGE OF TAIL ( BOTH SIDES )

## FUSELAGE NUMBERS-OPTION 2

3" NUMBERS ON RUDDER ( BOTH SIDES )

## BOTTOM OF WING NUMBERS

7" NUMBERS BOTTOM WING, HIGH OR LOW PANEL. MAKE SURE THAT FUSELAGE IS POINTED IN SAME DIRECTION AS DRAWING.

