

2023 Pylon Racing Rules and Classes

Overview:

2023 will be the 20th year of the club's Pylon Racing activity. Pylon is a fun event open to all skill levels. We limit the aircraft and engine/motor sizes to keep the speeds reasonable and safe and to conform more closely to AMA rules. We have also set certain rules pertaining to racing, safety and scoring that are noted below.

On race day we set two pylons at opposite ends of the overfly area and race 10 laps in heats of two to four aircraft each. Pilots can fly as high or as low as they want. Pilots will take off then cruise around the north end of the field until all other pilots in that heat are airborne. Music, then a 10 second countdown begins. Pilots start the race by crossing a marker at mid-field at zero count. Competitors will normally fly two heats in each class they are competing in, and there is no restriction on the number of classes within which one may compete. If you feel unsure about anything, understand that we are all here to help each other, and to have a good time in the spirit of *friendly* competition. So please don't feel like you are not "good enough" to fly pylon.

Rules and General Info:

- › On each race day, pilots should show up at 4:30 pm or earlier with **races beginning at 5:00 pm.**
- › All pilots present 30 minutes prior to the race start time will be included in racing heats. If a pilot is going to be late, please call, text, or e-mail the coordinator as early as possible on race day, but no later than 30 minutes prior to start time. If for some reason a pilot is quitting a racing class, please let the coordinator know. (See end for coordinator job description)
- › Pilots are required to keep their pylon race planes in safe flying condition. There isn't enough time to inspect each aircraft on race day so it's up to the pilot to be sure his own plane is flight worthy. All racing aircraft are to have their maiden and trimming flights done before racing any heats.
- › When a heat is announced by the start judge, pilots will get ready ASAP with as much time as needed to safely get batteries removed and installed, engines started etc. (See end for start judge job description)
- › If a pilot cannot start a scheduled heat for any reason, or crashes on takeoff, he will be scored as 0 points – "*Did not Start*" (DNS). In the event a pilot begins a heat, crashes during the heat, or does not finish for whatever reason it will be scored as 0 points – "*Did Not Finish*" (DNF).
- › Once airborne, pilots will fly in a holding pattern to the north side of the center marker until the race starts to avoid collisions with aircraft taking off. A pilot may be warned by the starting judge if they are flying too close to the takeoff area.

- › A one-lap penalty will be assessed for infractions. Infractions include pylon cuts and/or jumping the center marker at race start. The third infraction in any one race results in disqualification – 0 points (DQ). After takeoff, overflying the runway, pit or spectator area will result in a DQ (unless landing on the runway). The limit line is the long runway edge furthest away from people. The starting judge will announce any DQ's at his discretion.
- › **Scoring:** For a 4-plane heat, 1st place = 4 pts.; 2nd place = 3 pts.; 3rd place = 2 pts.; 4th place = 1 pt. For a 3-plane heat, 1st place = 3 pts.; 2nd place = 2 pts.; 3rd place = 1 pt. 2-plane heats score the same as 3-plane heats. Up to (but no more than) 4 planes can fly in a single heat.
- › All pilots must have an attending spotter. Spotters will hand launch aircraft for the pilots if needed, call out laps completed, and advise pilots of any hazards during the race and on landing. (See end for spotter job description)
- › In the event of a midair collision, all aircraft involved (if still flying) must land immediately. Involved aircraft will be inspected and safety approved before being allowed to continue racing.
- › At the end of a race, an aircraft landed on the ground or on the runway is considered “poison”. Any aircraft that touches another aircraft already on the ground will be immediately disqualified – zero points for that race. Spotters must help their pilots land safely without damaging another aircraft.
- › Any aircraft that crashes in the tall grass (requiring a search) will be left until all racing heats are finished. Downed planes in sight or in the half-tall east grass will be retrieved ASAP.
- › All pilots, spotters, and pylon cut judges must wear OSHA approved safety helmets during racing. The club has extra helmets available.
- › All pylon racing participants shall conduct themselves in a friendly courteous professional manner. We all just want to have fun. Race officials have the final word on race results. Any participant that acts in an angry abusive manner shall be immediately disqualified for unsportsmanlike conduct and asked to leave the field.

Race Days

Pylon Races for season points are held on the **1st and 3rd Thursday** evenings during the months of **May, June, July, and August**. The first race in May is a tune-up and practice race. No points are received in this first race toward the season points totals. If races are rained out, they will be held on the following Thursday. Participants (*pilots and helpers*) are encouraged to come early to assist in set-up. Scores are tallied throughout the season with winners being announced after 7 race sessions are completed. There will be a separate independent “Fall Challenge” race in September as weather permits.

Aircraft Classes – 6 to choose from!

T-6 Nitro

Unlimited Warbird/Reno Nitro

A-Electric

B-Electric

Vampire EDF

E1000

NITRO CLASSES

T-6 Nitro Class

This is the entry level nitro class. Approx. 1/12 scale. All planes are T-6 (Texan, Harvard, or SN-J) replica models. Most pilots use the House of Balsa kit, ARF, or scratch-build from House of Balsa plans. Minor modifications to the kit, such as removing the washout from the wings are OK. No engine modifications are allowed except an air-scoop on the carburetor. All engines must be OS .15 LA (*plain bearing engine*); 15% nitro fuel only; master airscrew 8-4 prop; and must have landing gear and take off from the ground.

Unlimited Warbird/Reno Nitro Class

This is the more advanced nitro class and allows some modifications. Approximately 1/12 scale piston powered military aircraft that fly, have flown, or may have flown at Reno Air Races. Most pilots are using Great Planes ARFs of WWII fighters but if you can find something like a T-28 or A-1 Skyraider that is OK too. Multi-engine aircraft that flew at Reno (P-38 Lightning) or could have been flown (Grumman Tigercat) are allowed as well, but they must be 1/12 scale with the same engine specifications. Kit or scratch built is OK. House of Balsa has produced a few kits although they are now discontinued. Airframe modifications are allowed if they are consistent with those done to Reno race warbirds. Must have landing gear and take-off from ground – no retracts. Engines must be .15 standard production manufactured by OS, Magnum, Fox, etc. (*ball bearing engine OK*). No custom race engines are allowed. No engine modifications allowed except an air-scoop on the carburetor. Any brand 8-3 or 8-4 prop allowed; and 15% nitro fuel only.

ELECTRIC CLASSES

- › Aircraft are now classified by the average lap time for 10 laps. (Excludes E1000 and Vampire EDF class)
- › 12 seconds per lap (or more) will be B-Class.
- › Aircraft capable of 11.5 seconds or less per lap are A-Class.
- › Li-Po Battery cell count will be stated for each aircraft, but battery brand, capacity and C rating is up to the pilot. It is usually best to use the higher recommended capacity (mAh) suggested by the manufacturer. **The battery used must safely last an entire race and have some reserve.** A “worst case” scenario race would be takeoff, cruise at reduced throttle for 1 minute (waiting for all aircraft to get airborne), 12 laps at full throttle (10 laps plus 2 penalty laps) and a couple passes for landing. Test fly your battery choice against the worst-case scenario.

B-Class Electric Allowed Aircraft

Note: T-6 Nitro Class aircraft may race with B-Class Electric on pilot approval if warranted. Speeds are similar. Any racing points accrued will be counted in the T-6 class for the season.

(1) HOBBYKING GRUMMAN F6-F HELLCAT “Little Nugget”, FG-1 CORSAIR “Lucky Gallon”, P-51 MUSTANG “Galloping Ghost” 39” or 40” span (HobbyKing, receiver ready \$120 to \$160)

3 cell Li-Po, manufacturer suggests 2200 mAh capacity, 8X6 prop, must use stock 3108-1070KV motor. Optional Pro Motor 3108-1160KV motor is not allowed. A 3 cell 2200 battery close to 6 oz. (171 grams) weight works well. On the Hellcat, I had to re-arrange the motor cables to get the battery positioned toward the nose to balance without additional weight. Note: these planes can compete in both B-Class and A-Class with just a battery swap if no balancing changes are required.

(2) FLIGHTLINE P-51D MUSTANG 33.5” span (Motion R/C, receiver ready \$155)

3 cell Li-Po, manufacturer suggests 1600 to 2200 mAh capacity, 9X6 prop, mod to add rudder OK but not required. The model comes all silver with 2 choices of decals. Suggest painting a scheme that is unique and easy to see. Look at Callie Graphics for excellent vinyl decals in 1/13th scale. (<https://callie-graphics.com/> > Warbirds > P-51 Mustang – select 1/13 scale size)

(3) FLIGHTLINE Fw-190 D-9 Dora 33.5” span (Motion R/C, receiver ready \$155)

Same motor setup as above. 3 cell Li-Po, manufacturer suggests 1600 to 2200 mAh capacity, 9X6 prop, mod to add rudder OK but not required. Stock aircraft has scale German markings. Paint as necessary to be unique to the race officials.

(4) TOWER HOBBIES MUSTANGS AND RED RACER 40” span (Discontinued)

Allowed models are the P-51 “Silver” (TOWA2012), the P-51 “Berlin Express” (TOWA2018), the “Red Racer” (TOWA2016), and the P-51 “Miss America” (TOWA2014). Also allowed are the two older razor-back P-51 versions and a Hellcat and Corsair. The aircraft must remain stock, motor TOWG200 30-35-1000 and 30 Amp ESC was common to all planes. The prop size is APC 9x9E for racing, a 10x7 is OK but will be slower. 3-cell Li-Po, manufacturer suggests 1800 to 2200 mAh capacity. Landing gear or retracts are optional.

A-Class Electric Allowed Aircraft

(1) DURAFly EFXtra RACER 975mm or 1100 mm (Hobby King, receiver ready, \$170)

3 cell LiPo, manufacturer suggests 2200 to 2600 mAh capacity. APC 8x4E prop only (reduces speed to a safe limit and increases runtime for a full race).

Easy to hand launch, belly land. 975 mm span is the latest version and comes in green and red, the older 1100 mm span comes in yellow and orange. Very fast with the stated setup, average lap times 11 seconds and under.

(2) HOBBYKING GRUMMAN F6-F HELLCAT “Little Nugget”, FG-1 CORSAIR “Lucky Gallon”, P-51 MUSTANG “Galloping Ghost” 39” or 40” span (HobbyKing, receiver ready \$120 to \$160)

Exact same models as allowed in B-Class except with a 4 cell Li-Po, manufacturer suggests 2200 mAh capacity. 8X6 prop, must use stock 3108-1070KV motor. Optional Pro Motor 3108-1160KV motor is not allowed. A 4 cell 2200 battery close to 8.5 oz. (243 grams) weight works well. On the Hellcat, positioning the 4S battery back to first former balanced the plane without adding any additional weight. Note: these planes can compete in both B-Class and A-Class with just a battery swap if no balancing changes are required.

(3) ROCHOBBY (FMS) P-51 STREGA, VOODOO, P-39 COBRA II, CORSAIR (Mostly Discontinued)

4 cell Li-Po, manufacturer suggests 2200 mAh capacity. All planes come with retracts and flaps. You may hand launch and belly land, but you may not remove the retracts. These models are too fast for B-Class but do not quite keep up with the EFXtra racers. It is acceptable to upgrade the motor to an FMS 3948-900 for a little more speed.

DURAFLY VAMPIRE D.H.100 EDF CLASS

Sold by Hobby King for around \$160. OK to beef up the structure as needed, increase fan airflow, try new motors, fan units, add rudders etc. 4 cell Li-Po, manufacturer suggests 2200 to 3300 mAh capacity. Vampires fly 8 lap races. Paint as you wish to make it unique. Share your modifications with the other Vampire pilots! Be careful selecting fan/battery combos – test any new configurations **before** race day! Also be sure the fan is rotating the right direction.....

E-1000 CLASS – SHORT COURSE

This electric class will include the new HB-1 and HB-2 Combat planes and any other small electric planes with a power level of 11.1 watt/hrs. or lower. For a 3S battery, capacity is limited to 1000 mAh, for a 2S battery, 1500 mAh, a 4S battery is 750 mAh. C-rating pilot’s choice. Planes will race 10 laps on a shorter course closer to the pilot line (due to the smaller size of the planes) approx. 250 feet long centered on the starting pylon. Any motor/prop combo is allowed and no restrictions to airframe design if a full race can be flown safely.

NEW MODELS and EXHIBITION CLASS

Models can come and go as we saw with the RocHobby Racer line and the Tower Hobbies P-51 series. Some of the electric models chosen above are ones I have tested. If a pilot has purchased and wishes to qualify a new electric model for A or B class, please contact me.

In addition, if 2 or more pilots show up with the same aircraft to race, we will consider this an “Exhibition Class”. If the planes prove popular, they will be added as their own class if there’s enough racing time available.

Pylon Personnel Job Descriptions

Pylon Coordinator

Responsible for keeping the pylon rules current and improving them as issues come up. Announces via e-mail and/or Facebook race days, race cancellations and race results throughout the season including the Fall Challenge race. Tracks and tallies pilot points accrued in each class. Helps to set up (and take down) the racing course on race days, assures all PA and communication equipment is charged, determines the heat matrix, and sets up the scoreboard for race days. Must take photos of the completed race scoreboard to track accrued points. May be asked to interpret or advise on rules by race officials.

Starting Line Judge/Announcer

Responsible for pre-race pilot safety and communication briefing. Will announce the heat class, the pilots racing in that heat throughout the race day using the scoreboard set up by the pylon coordinator as a guide. Adequate time will be allowed for pilots to get ready and airborne between heats. The starting judge will ensure all racecourse participants are wearing a hardhat, each pilot has a spotter, and the line judges are in position before the start of the heat. The starting judge will turn on the race start music once all pilots are safely air-borne and determine if any pilot jumps the starting line on zero count. The starting judge may call a 1 lap penalty for 1 pilot jumping the count, 2 pilots, 3 pilots or even 4 pilots. The starting judge may on rare occasions re-start the race if the start was very messy and was unable to determine who jumped the starting marker. The starting judge may warn or DQ a pilot for unsafe flying at his discretion at any time. Starting judge will call cuts against pilots as communicated by the pylon judges via walkie-talkie during the heat. The starting judge will follow the race listening to the spotters calling out laps and determine the heat winner and pilot placings (1st, 2nd, 3rd, 4th, DNS, DNF, DQ) marking the scoreboard accordingly. He may ask for clarification of a race's finish from the pilots, spotters, or line judges if there is confusion. **All Starting Line Judge decisions are final.**

Pylon Judge

Responsible for determining if a pilot has cut a pylon during a heat. There is a north end and south end pylon judge. The Pylon Coordinator will position the chairs for the Pylon Judges before races begin, chairs should not be moved without approval. Pilots do not have to fly around the pylon, they must "break the plane" and appear to go past it from the judge's perspective. A cut will immediately be communicated to the starting judge via walkie-talkie. A typical cut call would resemble this: "Cut – South Pylon – Yellow plane" or "Cut – North Pylon – Matt" if the pylon judge recognizes the aircraft's pilot. Before a heat, a pylon judge can request an aircraft ID from the starting judge if they want to see the aircraft in more detail. Pylon judges should try to learn the owner of each aircraft, if possible, but calling out a color, marking or model type is fine. **All Pylon Judge decisions are final.**

Spotter

The spotter will loudly and carefully call out the laps completed by the pilot during a heat. The spotter should also indicate with outstretched fingers the laps completed. The spotter may assist with takeoff by holding an aircraft on the runway or by providing a hand launch to planes without landing gear. The spotter will advise the pilot of any safety concerns, pilot cuts or other important items during the race. At the race end, the spotter will help the pilot land safely by relaying the position of other pilots that have landed. He may retrieve the aircraft once all pilots have landed.

Racing Pilot

The racing pilot will keep track of the progression of the heats and have his aircraft as ready as possible for their next heat. At the heat start, the pilot will ensure his plane is working properly, (inform the starting judge if there are problems preventing a flight) have or ask for a spotter and wait for the other pilots to get ready. When all pilots are ready, the pilot will get airborne (don't crash, relax, have fun), listen for the race start (don't crash, relax, have fun), fly the appropriate number of laps (don't crash, relax, have fun), and land safely (don't crash, relax, have fun). If a pilot isn't flying in a heat they are highly encouraged to spot for another pilot, be a pylon judge or even be the starting judge.

- Contact Matt Schwemmin for comments.
- Revised 03/10/2021 Changed naming, added B-class Fw-190.
- Revised 03/11/2021 Removed registration fee & food service references.
- Revised 11/16/2021 Added landing rule, moved RocHobby planes to A-class.
- Revised 12/16/2021 Added Intro Sport Class
- Revised 05/22/2022 Deleted Intro Sport, added E1000, changed start time, other edits.
- Revised 01/18/2023 New Planes, Job Descriptions, Scoring, multiple other edits.