

Sport Class Air Racing

PRTC & PRS 2025 – PART 2



Race Week
Look-Ahead





Learning Objectives

- * Understand the similarities and differences in operations between PRTC & PRS and racing events
- * Learn how to Qualify



What is Different at the Race?

- * Some things are easier
 - * Less events on your schedule
 - * More time between events
 - * More Structure
- * Some things are harder
 - * Self induced stress
 - * More distractions
 - * More distractions
 - * More distractions



Race Week Arrival

- * Arrive by specified cut-off time
 - * Don't push MX/WX
 - * Plan ahead
 - * Communicate when plan isn't working
 - * "No Prop Turn" line in effect
- * Check in with assigned Sport Class Rep(s)
 - * Get assigned parking
 - * Get Arrival Card
 - * Class Leadership will help if needed
- * Register
- * Tech Inspection



Tech Inspection

- * Performed by Sport Class Tech inspectors - Bob Fair - Lead
- * Checks compliance with Sport Class Rules
- * Top cowl removed (+ bottom for Turbos)
- * Wheel pants removed for brake inspection (FG Aircraft)
- * Overall airworthiness items checked
- * Equipment Check:
 - * Flight Suit
 - * Helmet
 - * Gloves
 - * Fire extinguisher
- * Testing affidavit – Class and ARO Certification Signature
Test to your anticipated max qual speed plus 5%
Pull 4.5 g (50 percent over the course cert 3 g)



Ramp Chief

- * At races we have a Ramp Chief to control everything that happens in our area of ramp.
 - * Maintains contact with Race Control
 - * Coordinates Engine Start times
 - * Enforces ramp rules
 - * Makes sure correct pilot is in each airplane (don't laugh)



Practice

- * Scheduled Practice Session (if Tech Inspected)
- * Conducted like PRTC & PRS
 - * Sport course periods assigned by Airboss/ARO
 - * Class divides period among flights
 - * Flights managed by Leads

Qualifying

Get Some!!!





Qualifying

- * Qualifying speed/time determines the heat you're in, and your starting position within your first heat
- * All Aircraft must qualify during scheduled qualifying periods
 - * Every event different – *pre-Brief* schedule with team!
- * ALL Qual laps are flown on the LONG (Outer) course
- * Flight Leads will manage qualification periods
 - * 4 aircraft max allowed on the clock at a time
 - * 4 aircraft max allowed on the course if any racer on the clock
 - * Leads may direct a racer into or out of the Queue
 - * Sequence should be briefed by Lead



How to Qualify

- * Leads will bring the flight onto the course or into the Queue
- * Must fly one complete level lap before calling for the clock
 - * **No diving to start the qual laps, must pass home on the course 1st**
- * When you are ready to qualify, call at back of course:
 - * *“Timers, Sport XX request the clock”*
- * Timers will usually answer:
 - * *“Sport XX will be on the clock next time around Home Pylon”*
- * Timers may or may not say you are on the clock after Home Pylon
 - * **Fly as if you are on the clock**
- * If you get a good time, Timers will call:
 - * *“Sport XX, you have a time”*



Sport Class Qualifying Rules

- * Follow Lead and Airboss instructions
 - * Race Control usually will track who is cleared on the course
 - * Our leads will manage our course times and aircraft
- * Calling for the clock means asking for 2 laps
 - * A good time in one or two laps is your time
 - * No “rejecting a 1-lap time” (no mulligans) in Sport Class rules
- * Must pull off before 1 lap is complete to abort the qual attempt
- * Good practice to leave the course at the Home Pylon
 - * Don't pull up early at Home Pylon on final qual lap... may not get a time!
 - * Be predictable and use the radio when coming off course



Race Progression Rules

- * Heat Finish determines starting order in next heat
 - * Pylon Cuts can affect finish order
- * All Racers may move up a heat or be bumped down a heat based on finish speed
- * Heat “Firewalls” may be used for Vne safety during starts
- * DNF, DNS and DQ move to bottom *of heat they were in*
 - * No bumping down to lower heat due to DNF, DNS, DQ
- * Attrition may result in moving “up” a course
 - * Slower aircraft move up, and quals 33-36 move permanently into Medallion
 - * Note: 33-36 will swap into some heats per racing progression with a full field
- * Class Officers confirm Pairings for each day’s heats with Scorer



Race Procedures

- * Same as PRTC & PRS except with more airplanes and Pace
- * Schedule is easier, but more distractions
- * Once you walk across the crowd line...
 - * 100% concentration on Flying
 - * Anticipate the flow of events
 - * Consider contingencies/emergencies



Taxi for a Race

- * 8 airplanes plus Pace
 - * Ramp as per location
- * Ramp Chief coordinates start time
- * Pace makes all radio calls
- * Procedures are the same as PRTC & PRS, Pace taxis last
- * Run-up and thumbs up procedures are the same as PRTC & PRS



Line-up for Racing

- * Line-up is identical to PRTC & PRS procedures
 - * Pace taxis by and looks for a thumbs up.
- * Pace calls 60 knots
- * There will likely *not* be airplanes on the course, in which case early cut-off may be allowed



Rejoin

- * Lead makes wide turn
- * 9 airplanes are a lot to keep track of
- * Don't fly low on rejoin - you will be out of sight
- * Leave room (a hole) in the formation for laggards



Enroute to the Chute

- * Slow movements
 - * They magnify toward the end of the echelon
 - * Look through movement to lead
- * Do not get low
 - * You disappear from view
- * Hold position first. Manage cockpit second
 - * Develop a race start engine management plan
- * If you get ahead, call Pace and clear to the outside
 - * **NEVER NEVER NEVER back up into the formation**
- * Erratic flying is sent to 1000 ft. trail



The Chute

- * Pace calls the flight to Line Abreast
- * Pace lines the flight up aimed at the Guide Pylon
- * Pace directs airplanes in formation to move forward or back
 - * Large moves forward, back, up, or down or erratic flying sent to trail
- * When satisfied with the formation, “You have a Race”
- * Pulls up abruptly, flies to above and behind formation
 - * Pace follows flight through start
 - * Pace is also a start judge
 - * Pace typically orbits after start as safety chase and is LROD
 - * Pace may land after flight is established on course
 - * Safety Chases will be designated among racers



The Release

* “YOU HAVE A RACE”

- * **Contract First**, Race Second!
- * Fly off racer to left—stay in “lane”
- * DO NOT DIVE--Disqualified!
- * Do not Slingshot—Disqualified!
- * It is the passing aircraft’s responsibility to ensure nose to tail clearance with aircraft being passed.
- * Lane must be maintained until tangent to back stretch turn, unless verbally cleared
- * Safety of Flight is critical during start
 - * Races are not won in the start!



Common Infractions

- * Pylon Cut—penalized 2 sec per lap (typically 12 sec)
- * Improper Pass - disqualification
- * Low Flying - disqualification (or ban)
 - * Pylon Judges
 - * Contest Committee
 - * Timers
 - * Class Officials (Officers and Pilot Standards)
- * Unsafe Flying—disqualification (or ban)
- * Showline cut—disqualification



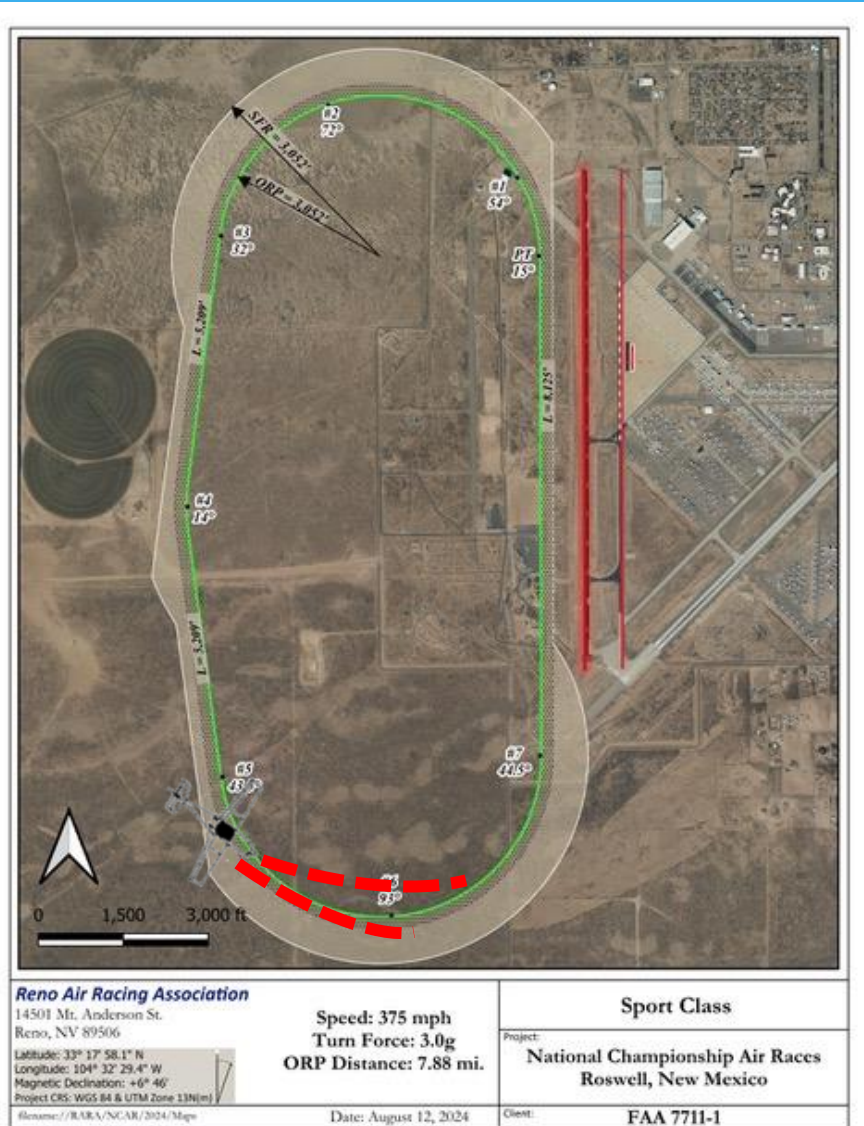
Pylon Cuts

**NEVER, EVER
TURN RIGHT!**

**Accept a pylon cut if you
have to, but
DO NOT TURN RIGHT!**

***Reduction in bank angle
can look like a right turn**

Forced cuts can be protested.





Know the Course

- * Road crossings, sagebrush, runway markers
- * Count from visual markers (depends on speed)
 - * After pylon 4, count 5 telephone poles, nose to the prison, turn left and pick up the water tower to find middle six
- * Wind correction angles - avoid getting too tight on a pylon

- * Ask questions to veteran racers



Race Flags

- * May or may-not have flagger
 - * Depends on man-power & event
- * Radio Call by Race Control too
 - * Yellow Flag – Caution – Continue Racing
 - * Red Flag – All Racers off Course
 - * Black Flag – Racer Specific – Off Course
 - * White Flag
 - * One lap to go for leader
 - * Checkered Flag
 - * Winner has passed Home Pylon
 - * Race is over next time you cross Home Pylon regardless of what lap you are on.



Finish Line

- * Pull up at home pylon, ease left into cool-down.
- * Follow the airplane in front—keep in sight
- * Cool down altitude is 2,000 AGL or above.
- * Cool down - calm down!
- * **“Sport XX Out of Cool Down”**
 - * Look for your Sequence
- * **“Sport XX Downwind Abeam”**
- * **“Sport XX Base / Gear”**
- * Tower makes mistakes, you are the PIC!!!
- * Clearance to Land is not required at racing events



Maydays and Safety Chase Aircraft

- *Pace Aircraft may land after the start
- *Pace will designate a Primary and Secondary Safety Chase for every race, from among the racers.
- *Emergency Aircraft exit course and call “MAYDAY” and the aircraft race number
 - * Climb to an initial altitude commensurate with a high or low key position for that aircraft’s performance envelope
- *If an immediate landing is required, announce planned landing runway if prudent
 - * This alerts and assists CFR in making a timely response
- *If an immediate landing is not required, climb to an altitude above 2000 Feet AGL
 - * Notify Race Control, and orbit in a counter clockwise pattern over the racecourse
- *If Safety Chase support is desired, announce “MAYDAY, Sport XX needs Safety Chase” (or “needs assistance”).



Maydays and Safety Chase Aircraft

- * If requested, and Pace has landed, Primary Safety Chase pilot: visually clear the area, exit course, provide support to MAYDAY aircraft
 - * If the MAYDAY aircraft is the Primary Safety Chase, then Secondary Safety Chase aircraft will provide the requested support
- * Safety Chase position to the lower right of the MAYDAY AC and await direction or requests from MAYDAY AC
 - * If MAYDAY AC is NORDO, Safety Chase will pass info to Race Control (from Mayday AC hand signal, etc.)
- * Safety Chase follows MAYDAY aircraft through the pattern and landing, but executes a low approach
- * Safety Chase then climbs to cool down, and monitor the remainder of the race as the Safety Chase
 - * Take sequence for landing after the completion of the race
- * Note: Safety Chase must not interfere with or distract emergency aircraft, and must maintain safe separation and monitor their own aircraft systems and position!
- * In the event of an emergency, the race will continue unless, at the discretion of Race Control, a condition exists that would be hazardous to the other racers.



Preparation

- * MINDSET - Recommend at least 30 minutes of uninterrupted quiet time before staging. Think out contingencies—engine failure, airframe malfunction, closed runway.
 - * Eliminate distractions, focus your game
- * FUEL - enough to hold for 20 minutes and fly to divert fields.
 - * 5 extra gallons of gas makes no difference on lap time, but may keep you out of the dirt!
- * Know your systems & have flight test wrapped up
 - * Don't be learning new procedures at training or racing events
 - * Be able to touch all the switches with your eyes closed



State-of-Mind

- * No one makes money Air Racing
- * The winner is a determined based on advance airplane preparation—not last minute efforts
- * GOAL--Have a great time, go home with new friends, new memories, and in the same airplane you brought.



Mental Training

- * Mind laps
 - * Visualize the lap (eyes closed) and check the clock as you pass home pylon.
 - * Too fast - need more detail, Too slow - too much detail
- * Video training – review helmet cam video
- * Optimum focus and state of mind => Breath control
- * Have a Mantra to focus your mind
 - * “I will be fast, I will be focused, I will fly the perfect line”
- * Be Completely immersed in the situation



Race Checklists

- * Build your own race specific checklists
 - * Preflight for the crew
 - * Safety gear
 - * Before start
 - * Aircraft, SA (who am I next to), mindset
 - * Run-up – systems checked and set, canopy, radios
 - * Peavine/chute – fuel, systems armed, fly good form
 - * Cooldown – fuel, SA, know your interval, disarm systems



Engine Management

- * Know where you will check your engine
 - * Every course is different – Chair fly it beforehand
- * Blink at a single parameter, then back outside
- * Oil temp, CHT, induction temp
- * Don't focus, know what you are going to look at before you bring your eyes inside



Keys to Safety

- * Procedural Knowledge
- * Standardization
- * Situational Awareness
- * Flight Discipline/Airmanship
- * Attitude



Sport Class Culture

- * We are disciplined in the air
 - * We take the responsibility we have to each other *seriously*
- * We help each other
- * We are here for the joy of flying and the camaraderie
- * We seek self improvement
- * We take pleasure in a well prepared airplane and a well flown race
- * Our Core Values are Safety, Racing Excellence and Teamwork

If you don't fit into our culture—you don't fit into our Class

If you buy in to our culture,

We welcome you to the brotherhood of Air Racing!

Questions?

GO Fast,
Turn Left,
and Have Fun!

Thank you

