



**Sport Class Air Racing Association  
Official Rules of Competition  
2017**

[Revised January 2017]

## 2016 Summary of Changes

Section I:	Added verbiage to Purpose and Scope to include experimental, kit-built, plans-built and amateur built aircraft. Added verbiage to Scope to reflect an Aviation Event/Air Race. Revised class officer / committee member lists. Added new Ramp Boss.
Section II.A, B, H: Section II.I:	Added the word “Air” to the Class title of Sport Class Air Racing Changed the membership notification period for class rules changes from 60 days to 30 days.
Section IV:	Added verbiage to include experimental, kit-built, plans-built and amateur built aircraft
Section IV.A:	Added verbiage to include experimental, kit-built, plans-built and amateur built aircraft. Aligned Sport Class rules verbiage covering aircraft speed and g flight demonstration certification with that of the RARA Rules of Competition.
Section IV.B:	Moved the section on demonstration of adequate maneuverability and controllability from Section V to Section IV
Section V:	Renamed Section V to Required Aircraft Documents, Equipment, Markings and Inspections
Section V.A:	Clarified the list of documents that must be available for inspection for an aircraft to be considered race eligible. Removed current maintenance records from the list.
Section V.B-J:	Items re-ordered to match Section Title order and for clarity
Section V.I:	Clarified timing of Technical Inspection requirement, and added verbiage stating all aircraft are subject to inspection by the Tech Committee at any time.
Section V.J:	Added verbiage reiterating the requirement for speed and g demonstration certification by owners/pilots
Section VI:	Changed the responsibility for implementation of pilot disqualification procedures from Board of Directors to Class Officers
Section VI.A.1-8:	Re-ordered the section bullets for clarity
Section VI.A.7:	Added a sample Sport Class Air Racing License photo
Section VI.B:	Added verbiage stating that minimum pilot requirements must be met prior to participating in any PRS, NCAR or other racing event
Section VI.B.2:	Added the RARA Medical Certificate requirements for reference
Section VI.B.6:	Clarified the minimum PIC and Landing experience requirements in type, and in the actual race aircraft. No change to requirement minimums.
Section VI.B.8:	Added the race organizer’s Official Rules of Competition to the documents pilots must be familiar with and abide by
Section VI.C.1.b:	Added Oral Evaluation topic for speed and g flight test certification discussion
Section VI.C.1.k:	Added Oral Evaluation topic for Match Race Pilot Qualification
Section VI.C.3.l:	Added Flight Evaluation topic for Match Race Pilot Qualification
Section VI.D:	Added Section on Pilot Qualification Duration
Section VI.D.1:	Reformatted statement of Sport Class Racing License validity into a bullet, and added the note that Race Organizer recency of experience requirements also apply for all racing events.

Section VI.D.2	Added verbiage outlining the discretionary authority of the Class Officers and the Pilot Standards/Contest committee to require pilots to attend PRS after racing infractions or demonstration of performance not meeting Class Standards.
Section VI.E.1	Added Section on Sport Class PRS Timing Periods For Race Entry Selection In Size-Limited Fields
Section VII.B.2:	Added Flight Lead and Pace Pilot to Practice Period controlling authority
Section VII.B.3:	Added Flight Leads and Pace Pilots to Practice Period controlling authority
Section VII.C.5:	Added Flight Leads and Pace Pilots to Qualifying Period controlling authority
Section VII.C.6:	Increased maximum number of aircraft allowed on course during qualification periods to four (4)
Section VII.D.2:	Clarified the listed pylon cut penalty applies to qualification attempts
Section VII.D.4-5:	Clarified verbiage on one-lap and two-lap qualifying attempts
Section VII.D.6:	Defined that one-lap and two-lap qualifying attempts are final if a valid time/speed is received. No rejecting of times for a requal is allowed
Section VII.D.7:	Defined procedures for aborting a qualifying attempt
Section VII.D.8:	Defined the Sport Class limitation of one qualifying attempt per aircraft
Section VII.D.9:	Defined the process and parameters for requesting a second qualifying attempt
Section VII.D.11-12:	Added Flight Leads/Pace Pilots as controlling authorities during qualification periods
Section VII.E.3:	Maximum speed for Sport Medallion Course defined as 275 mph (pending RARA/FAA approval)
Section VII.E.4:	Added reference to Sport Match Race Course definition in Appendix 1
Section VII.F.4:	Clarified race/heat start speed selection process
Section VII.F.8-10:	Added Pace aircraft procedures and limitations after the start release, through pace landing
Section VII.F.11:	Added Match Race Exhibition start procedures and reference to Appendix 1
Section VII.G.1:	Defined Race Heat pairing criterion
Section VII.G.2:	Added note on modification of starting order in subsequent heats by assessed penalties, and DNF, DNS, DQ results
Section VII.G.4:	Added the D heat to the list of heats
Section VII.G.6:	Added the Match Race contentant alignment criterion
Section VII.H.3:	Added the Match Race pylon cut criterion
Section VII.H.6:	Added the Match Race pylon cut penalty parameters
Section VII.I.1-6:	Re-ordered for clarity
Section VII.I.1:	Combined two bullets on responsibilities of the passing aircraft
Section VII.I.6:	Clarified the rules concerning passing during a race or heat start
Section VII.J.1-11:	Re-ordered bullets, and added several bullets about Safety Chase aircraft procedures
Section VII.J.2:	Added “high key” and “based on the aircraft’s performance envelope” to the MayDay procedural rules
Section VII.J.4:	Clarified the radio calls recommended if an immediate landing is required during a MayDay event
Section VII.K.1-2:	Reworded Finish parameters for clarity
Section VII.K.5:	Clarified the normal race recovery policy

Section VII.K.6:	Defined the end point for the Match Race
Section VII.K.7:	Added the Match Race recovery policy
Section VII.M.7:	Clarified when racers should exit the course after the checkered flag
Section VII.N.4:	Added Sport Class Officers and the Pilot Standards/Contest Committee to the parties that may make a reckless or dangerous flying determination
Section VII.N.7:	Added Sport Class Officers to the parties that are authorized to exclude pilots from participation in Sport Class events for willful rules violations
Section VII.O.1:	Clarified that protests must be filed with the RARA Contest Committee via the RARA Official Scorer, or via the appropriate entities at other venues
Section VII.P.5:	Changed “start finish line” to “Home Pylon” as the designated point to exit the course in the event of a race cancellation
Section VII.R.4:	Defined general parameters for discretionary Match Race prize money
Section VIII.A.2:	Clarified the statement about the make-up in-doc briefing requirement
Section VIII.C, D:	Reordered and re-numbered Pace Pilot Briefings and Post Race Debriefing Sections
Section VIII.D.1-3:	Added clarifying verbiage to bullets; added Pace Pilot authority to waive Pilot Standards/Contest Committee member involvement in post-race debrief, if no committee member is available; and added the recommendation to move debriefs of a sensitive nature to a private location.
Section IX.A.1-5:	Added Aircraft Weight and Balance documents, and speed/g flight test certification documents (turned in to class and RARA) to the Aircraft Required Event Documents list. Removed aircraft maintenance records and Phase I flight test from the Aircraft Required Event Documents list.
Section IX.B.3-4:	Added Sport Class racing licence to list of required pilot documents, and clarified requirement for evidence of meeting the 500 hour flight time requirement, if requested.
Section X.D:	Removed race progression firewalls between the Sport Medallion and Sport Courses. Clarified rules for placement of DNF, DNS and DQ pilots in subsequent race heats.
Section XII.B:	Removed unused section.
Appendix I:	Created to contain Match Race Details

## **I. SPORT CLASS AIR RACING ASSOCIATION - ORGANIZATION**

### Purpose

The purpose of the Sport Class Air Racing Association is to highlight new and innovative work being done in the development of high performance experimental, kit-built, plans-built, or amateur built aircraft.

### Scope

The Sport Class Air Racing Association has developed a racing format that demonstrates the capabilities of the popular and rapidly growing experimental, kit-built, plans-built, or amateur built genre of aircraft, and gives the designers and builders a major Aviation Event/Air Race to showcase their designs.

### Organization

The Sport Class Air Racing Association leadership structure is comprised of the following:

#### Officers

President	Bob Mills	(775) 544-3511 E-mail <a href="mailto:Rvmills@sbcglobal.net">Rvmills@sbcglobal.net</a>
Vice President	Vicky Benzing	(408) 306-9128 E-mail <a href="mailto:Vickybenzing@gmail.com">Vickybenzing@gmail.com</a>
Secretary	Tom McNerney	(816) 309-6038 E-mail <a href="mailto:tom@n54sg.com">tom@n54sg.com</a>
Treasurer	Rick Vandam	(775) 742-5640 E-mail <a href="mailto:Rvandam162@aol.com">Rvandam162@aol.com</a>

#### Advisory Board

Chairman	Rick Vandam	(775) 742-5640 E-mail <a href="mailto:Rvandam162@aol.com">Rvandam162@aol.com</a>
Member	Dave Anders	(530) 347-3438 E-mail <a href="mailto:dandersrv4@sbcglobal.net">dandersrv4@sbcglobal.net</a>
Member	Dave Morss	(650) 465-7727 E-mail <a href="mailto:Morss@pacbell.net">Morss@pacbell.net</a>
Member	Rob Monahan	(650) 588-5313 E-mail <a href="mailto:rmonaghan@westernallied.com">rmonaghan@westernallied.com</a>

Pilot Standards/Contest Committee

Chairman	Rick Vandam	(775) 742-5640 E-mail <a href="mailto:Rvandam162@aol.com">Rvandam162@aol.com</a>
Member	Dave Morss	(650) 465-7727 E-mail <a href="mailto:Morss@pacbell.net">Morss@pacbell.net</a>
	Vince Walker	(720) 933-5182 E-mail <a href="mailto:ycjkma@aol.com">ycjkma@aol.com</a>
	Dave Anders	(530) 347-3438 E-mail <a href="mailto:dandersrv4@sbcglobal.net">dandersrv4@sbcglobal.net</a>
	Colleen Keller	(858) 682-3310 E-mail <a href="mailto:colleenkeller@sbcglobal.net">colleenkeller@sbcglobal.net</a>

Technical Committee

Chairman	Bob Fair	(541) 382-4937 E-mail <a href="mailto:Fairrobert@msn.com">Fairrobert@msn.com</a>
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Ramp Boss

Lead	Mark Frederick	(512) 289-0746 E-mail <a href="mailto:f1boss@gmail.com">f1boss@gmail.com</a>
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## **II. ADMINISTRATIVE RULES**

- A. The Sport Class Air Racing Association is based in the State of Nevada as a “Non-Profit” corporation.
- B. The Sport Class Air Racing Association is registered with the Internal Revenue Service as a “not for profit” organization.
- C. The Officers will serve a term commencing on October 1 and concluding on September 31.
- D. Election of Officers will be held at the Associations Annual Meeting, which will take place during the Annual Reno Air Races.
- E. Advisory Board Members will be appointed by the Officers and serve as necessary to assist the Officers in administration of the Class.
- F. All Committee members will be appointed by the Officers as needed.
- G. Any committee member changes throughout the year will be at the sole discretion of the Officers.
- H. The Sport Class Air Racing Association does not have separate Class Bylaws. Class governance is as outlined in these Class Rules.
- I. Any requests for changes to the rules must be submitted in writing to the Officers. Any changes will be discussed in an open forum, if possible, before consideration for implementation. In no case will a change to the rules be adopted with less than 30 days notice to the membership.
- J. Business that requires notification of the current membership will be transmitted via e-mail.

### **III. OFFICIAL SPORT CLASS AIR RACING RULES**

- A. The Sport Class Air Racing Association Rules are the only official and approved Rules of Competition for the Sport Class Air Racing Association. The class will be referred to as Sport Class Air Racing. The Sport Class Aircraft Specifications are the official aircraft specifications for the class; the Sport Class Pilot Qualifications are the official pilot requirements for the class. These rules are the only official rules and will be the rules of competition for the Class.
  
- B. A sanctioning agreement will be negotiated between the official Reno Air Race organizers and the Sport Class Officers. The sanctioning agreement will include such details as race dates, entry fees, deadlines, race course, aircraft pit configuration, emergency service, required spectator location, air race organization, organizing committees, and prize money. Also included will be any specific requirements of the racers such as insurance requirements, airspace waivers, and any rules of competition. These Sport Class competition rules will be included in and referenced in the competition rules published by the race promoter for each racing event.
  
- C. The Sport Class Racing Rules will be available via the Sport Class Web site. It is each competitor's responsibility to download, read and understand all aspects of the rules prior to competition. If any of the rules are not clear, then it is the competitor's responsibility to request clarification from the Sport Class Officers and/or Advisory Board. The Officers and Advisory Board will be responsible for, and will administer the Sport Class Rules.
  
- D. These Sport Class Rules will be the only official rules documents for the Class.

#### **IV. AIRCRAFT ELIGIBILITY**

It is the intent of the Sport Class Air Racing Association to promote the manufacturers of experimental, kit-built, plans-built and amateur built aircraft.

A. Aircraft eligible for competition within the Sport Class shall be:

Sport aircraft shall be any experimental, kit-built, plans-built or amateur built aircraft that is certificated by the FAA and has completed a phase 1 flight test. Aircraft are to be powered by an internal combustion engine or engines totaling no more than 1000 cu in. and capable of a 200 MPH minimum qualification lap speed. The specifications listed herein will be the only specifications of the Sport Class Air Racing Association.

For operations at the Reno NCAR, all primary race pilots must submit a statement signed by the race pilot certifying that, at the anticipated density altitude of the race, the intended race aircraft has demonstrated a true airspeed of 105% of its projected qualifying speed, and a turn capability of 150% of the approved Sport Class race course maximum designed g-load, prior to being eligible to race at NCAR. During qualification, any aircraft that exceeds the speed in the submitted certification statement, will be required to demonstrate, and sign a certification statement that states at the anticipated density altitude of the race, a true airspeed of 105% of the new qualifying speed and a turn capability of 150% of the approved race course maximum designed g-load has been demonstrated. A new statement signed by the race pilot will be submitted to RARA prior to being permitted on the racecourse. Aircraft not in compliance are subject to disqualification. The Sport Class Officers and Advisory Board may implement disqualification upon due consideration of the recommendation of the Sport Class Technical Committee and/or the Pilot Standards/Contest Committee. The air racing flight demonstration specified in the written certification may be based on historic flight data (e.g. previous air race) for the same aircraft/primary pilot combination, as long as the aircraft has received no major changes or alterations since the flight demonstration date.

Operations at other race venues may have similar requirements, which must be met by all class pilots.

B. Aircraft must be able to demonstrate adequate maneuverability and controllability at race speeds and altitudes. This will be evaluated during PRS and NCAR qualification and racing by the Sport Class Pilot Standards/Contest Committee.

## **V. REQUIRED AIRCRAFT DOCUMENTS, EQUIPMENT, MARKINGS AND INSPECTIONS**

- A. All aircraft must have current FAA issued Airworthiness Certificate, Aircraft Registration, Operating Limitations, and Weight and Balance documents available for inspection by the Sport Class Technical Committee, the Reno Air Race Association Contest Committee, the race organizers, or the FAA.
- B. All aircraft must have completed the phase 1 flight test requirements and have adequate proof that this has been accomplished prior to attending PRS or flying on the race course during any phase of NCAR. Their respective Operating Limitations must not prohibit air racing.
- C. All aircraft must have a minimum of \$1,000,000 of liability insurance. The insurance policy rider must be valid for air racing and name the air race organizers as additional insured, per the requirements in the NCAR entry form. Each participant must have proof of this insurance prior to flying on the race course.
- D. All aircraft must be equipped with an operable VHF radio capable of two-way radio communication with race control. The radio will be tuned to race control during all practices, qualifications, and racing. A pilot must use a second radio if he desires to communicate with his respective ground crew during any practice, qualification, or race.
- E. All aircraft must be equipped with an operable seat belt and shoulder harness.
- F. All aircraft must be equipped with, and have readily available to the pilot, a cockpit-located fire extinguisher.
- G. All aircraft must display the assigned racing number on each side of the fuselage or vertical stabilizer, and on the lower surface of the right wing and the upper surface of the left wing. The number must be as close to 30 in. tall as the surface area permits, and be of high contrast so that it is readily readable by race officials.
- H. The Sport Class will assign race numbers upon application by eligible pilots or aircraft owners and upon receipt of the annual \$50 race number retention fee.
- I. All aircraft must pass an inspection by the Technical Committee prior to on-course operations and qualification during NCAR or any other race venue. Aircraft are also subject to inspection by the Technical Committee at any time during PRS, NCAR, or other race venues, at the discretion of the Technical Committee. The Technical Committee will ground an airplane that does not comply with the above-mentioned items. Additionally, the Technical Committee may, at its discretion, ground an aircraft until a safety of flight item is suitably repaired or otherwise addressed.
- J. All primary race pilots must submit a statement signed by the race pilot certifying that, at the anticipated density altitude of the race, the intended race aircraft has demonstrated a true airspeed of 105% of its projected qualifying speed and a turn capability of 150% of the approved Sport Class race course maximum designed g-load of the prior to being eligible to race at NCAR. Similar requirements at other race venues, if present, must be met prior to operations at those venues.

## VI. SPORT CLASS AIR RACING ASSOCIATION PILOT QUALIFICATIONS

These Sport Class Air Racing Association Specifications are the only officially sanctioned and approved pilot qualification requirements. They comprise a specific part of the Official Sport Class Racing Competition Rules and apply to all Pilots and designated Alternate Pilots participating in Sport Class Racing Sanctioned Events. Failure to comply with these rules will result in disqualification of pilot and/or aircraft from competition. Disqualification procedures will be implemented by the Officers of the Sport Class Air Racing Association upon recommendation of the Pilot Standards/Contest Committee.

### A. Responsibilities:

1. The Pilot Standards/Contest Committee will be responsible for developing, documenting, and maintaining the standards and procedures used in determining pylon race pilot competency.
2. The Pilot Standards/Contest Committee will be responsible for evaluating the experience of applicants for PRS, NCAR, or other race participation, and their their conformance with all requirements for participation.
3. The Pilot Standards/Contest Committee will be responsible for the evaluation and qualification of applicants in accordance with current Sport Class Racing Pilot Qualification Test Standards, outlined in part C of this section.
4. The Pilot Standards/Contest Committee will be responsible for issuance of credentials to applicants who meet the requirements for race participation as outlined in part B of this section.
5. The Pilot Standards/Contest Committee will review the credentials of PRS, NCAR or other race venue entrant pilots and designated alternate pilots to ascertain the currency of experience, requirements, and credentials.
6. The Pilot Standards/Contest Committee will be responsible for observing the performance of pilot participants in race events, for counseling pilots on performance that is questionable or fails to fully meet standards, and for withdrawing the credentials of those who exhibit unsatisfactory performance.
7. The Chairman of the Pilot Standards/Contest Committee will appoint Sport Class Instructor/Evaluator Pilots who will make recommendations for issuance of a **Sport Class Racing License**.

### Sample Sport Class Racing License:



8. The Pilot Standards/Contest Committee will maintain all appropriate records necessary in observance of these responsibilities.

B. Race Qualification Entrance Requirements:

Pilots and designated Alternate Pilots must provide the Officers and the Pilot Standards/Contest Committee evidence of meeting the following requirements before participating in any Sport Class Air Racing Association-sanctioned PRS training event, or any NCAR (or other) Race or Qualification event.

1. A current fixed-wing pilot certificate. (Private Pilot or higher)
2. A current Medical Certificate. All Sport Class pilots must comply with the Race Organizers' rules of competition for class of medical certificate and issue date.
3. A valid Pylon Racing License issued by the Sport Class Racing Association (required for NCAR and other racing events).
4. Pilots must be able to demonstrate all formation skills that would be required for FAST certification.
5. All pilots must have a minimum of 500 hours of documented pilot-in-command flying time in fixed-wing aircraft.
6. All pilots must have documented 10 hours pilot-in-command flying time and 10 takeoffs and landings in the type of aircraft to be raced, prior to flying the race course. 3 hours PIC time and 3 full stop landings in the specific (actual) race aircraft must be documented prior to flying the race course.
7. All pilots must have a minimum of 3 takeoffs and landings in the type aircraft to be raced within the preceding 90 days.
8. All pilots must be familiar with, and abide by, the rules and regulations governing Closed Course Pylon Air Racing as set forth in the Official Sport Class Racing Competition Rules and the race organizer's Official Rules of Competition.
9. All pilots are required to wear fire protective clothing and helmets when practicing, test flying, qualifying, or racing in race-controlled airspace.

C. Pilot Qualification Flight Evaluations:

All pilots and designated alternate pilots must demonstrate the following standards to the Sport Class Pilot Standards/Contest Committee prior to recommendation for the issuance of a Pylon Racing License.

1. Oral evaluation:
  - (a) Provide evidence of minimum pilot flight time and requirements as outlined in part B above, excluding item 3.
  - (b) Discuss aircraft speed and load factor ("g") limitations, engine and propeller limitations, weight and balance limitations, and takeoff/landing limitations. Review and discuss the submitted flight test certification statement regarding speed and g flight test completion.
  - (c) Discuss Density Altitude considerations.

- (d) Demonstrate knowledge of Official Sport Class Air Racing Competition Rules and Regulations.
  - (e) Race staging, start, and pylon procedures.
  - (f) Passing procedures.
  - (g) Method of communicating emergency-in-progress info to participants and required responses.
  - (h) Method of declaring emergencies and actions for various types of emergencies.
  - (i) Method of communicating emergency termination of race to participants and required responses.
  - (j) Normal race termination procedures.
  - (k) Match Race Exhibition procedures (selected pilots)
  - (l) Pre-Race briefing requirements and outline of contents.
    - (1) FAA regulations and waivers applicable to air racing.
    - (2) Air race radio control frequencies.
    - (3) Crowd and Race show line requirements.
    - (4) Race schedules and relation to staging.
    - (5) Aircraft ground safety precautions.
    - (6) Race pylon locations.
    - (7) Course and airfield obstructions.
    - (8) Emergency landing facilities.
    - (9) Coordination with fire/rescue personnel.
2. General pre-flight procedure for qualification evaluation:
- (a) Sufficient fuel and oil for proposed time of flight.
  - (b) Seat belts and harness restraints.
  - (c) Loose objects in aircraft.
  - (d) Canopy and access latches.
  - (e) Controls and aircraft structure.
3. Qualification flight evaluation procedures:

The following checkout flight maneuvers will be demonstrated by the race pilot prior to recommendation for the issuance of a Pylon Race Pilot License, these maneuvers will be witnessed by a member of the Sport Class Pilot Standards/Contest Committee while flying with the pilot seeking qualification. Upon successful completion, all recommendations for the issuance of Pylon Race Pilot Competency Letters will be forwarded to the Pilot Standards/Contest Committee Chairman for review and approval.

- (a) Normal ground operating and taxi procedures.

- (b) Normal takeoff procedures.
- (c) Demonstrate 180 degree turns at 50% placard “g” without significant gain or loss of altitude. (+/- 100 feet)
- (d) Demonstrate a 180 degree roll and recovery with minimum loss of altitude
- (e) Demonstrate formation join-up and formation flying.
- (f) Demonstrate a race start.
- (g) Demonstrate a minimum of three laps on a racecourse with other aircraft.
- (h) Demonstrate proper passing procedures on a racecourse.
- (i) Demonstrate simulated engine failure procedures and approach.
- (j) Demonstrate a power-off landing.
- (k) Demonstrate Normal landings.
- (l) Match Race Exhibition procedures (selected pilots), including ground operating and takeoff procedures, match race holding and race start procedures, match race on-course procedures, match race reversal turns, match race recovery procedures, and match race emergency procedures, per Appendix 1 of these Rules.

D. Pilot Qualification Duration:

1. Sport Class Race Pilot Qualifications will remain valid provided the pilot meets requirements and remains active in recognized Sport Class Racing events. Any previously qualified pilot that has not participated in a recognized event within the proceeding two calendar years must re-qualify with the Pilot Standards/Contest Committee prior to participating in any Sport Class Racing sanctioned event. Race organizer recency of experience rules for racing at NCAR also apply to all pilots.
2. Pilots who have had racing infractions, or who have demonstrated flying that does not meet Sport Class Air Racing Standards, may be required to attend PRS and re-qualify at the discretion of the Pilot Standards/Contest Committee, or the Sport Class Air Racing Association Officers.

E. PRS Timing Periods For Race Entry Selection In Size-Limited Fields:

1. If race entries are limited in total number by the race organizer, the Sport Class will conduct a timing period for rookies and those with new airplane entries during PRS. The speed results of the time trials will be used to choose the aircraft that are included within the limited number of entries for the associated race event.

## **VII. RACE QUALIFICATION AND RACECOURSE PROCEDURES**

### **A. Pilot Briefing:**

1. Race pilots must attend the daily pilot briefing on any day that the pilot intends to fly or is scheduled to fly. Any attempt to fly without attending the daily flight briefing will result in disqualification from the applicable race.
2. If the use of an alternate pilot is anticipated, the alternate pilot must also attend the daily brief.
3. Pilots arriving at the race site prior to a race event must be briefed prior to flying on or practicing on the racecourse.
4. Weather Minimums. For the purpose of qualification and racing, the minimum weather required for flight operations shall be 3000 ft vertical from any cloud base, visibility of 6NM, and the winds must not exceed 30kts with gusts not to exceed 40kts.

### **B. Practice Periods:**

1. Practice periods will be scheduled in advance of the race event to allow each competitor adequate time to become familiar with the racecourse.
2. Aircraft will be allowed on the racecourse on a first come first serve basis and will be controlled by race control and the designated Flight Lead or Pace Pilot.
3. Race control and the designated Flight Leads or Pace Pilots will be the sole controlling authorities and their decisions on the control of aircraft will be final.

### **C. Qualifying Periods:**

1. Qualification periods will be scheduled in advance and will allow every aircraft a fair chance to qualify.
2. All entries must qualify in order to establish their respective eligibility and starting positions for their respective race.
3. All qualification periods will be monitored and controlled by the Contest Committee, race timers, and pylon judges.
4. Race control will be the controlling authority for all qualification periods.
5. Race control will control all aircraft from takeoff until landing and will permit aircraft onto the racecourse on a first come first serve basis. During Sport Class Qualifying periods, each Flight Lead or Pace Pilot will manage his or her flight in conjunction with Race Control. The Flight Lead or Pace Pilot may conduct the flight on a pre-briefed qualifying sequence, and may call qualifiers out of the queue and onto the course, or off the course and into the Queue or cool down.
6. A maximum of four (4) aircraft will be permitted on the racecourse during qualification.
7. Aircraft waiting for entry onto the racecourse will either wait on the ground or orbit the racecourse in the Queue, in a counterclockwise direction above 2000ft AGL.

#### D. Qualification of Aircraft:

1. In order to qualify for a race, all aircraft are required to fly one or two consecutive official qualification laps. These laps must be timed and recorded by the official race event Timer, in accordance with the rules and procedures set forth by the race organizer. The resultant derived speed for the fastest lap will determine qualification and race pairing order for subsequent race heats.
2. Pylon cuts during a qualification lap will be given a penalty of four seconds for each cut.
3. A contestant desiring to attempt to qualify will notify the Timers by radio prior to passing a designated pylon. The Timers will acknowledge the call. If the call is not acknowledged, race control may attempt to notify the Timers of the qualifying attempt. The qualifying lap will start only upon receiving a green flag from the starter prior to crossing the home pylon.
4. At the end of the first lap of a two-lap qualifying attempt the starter will give the racer a white flag to signify one lap remaining.
5. At the completion of the timed one-lap or two-lap qualification attempt, the starter will give a checkered flag to the racer to mark the end of the qualifying attempt. If there are other racers awaiting a qualifying attempt, the racer completing qualifying shall exit the course and return to the queue to await confirmation of a valid time. Actual qualifying speeds will not be transmitted to the racer but will be posted following the session.
6. If a valid qualifying time/speed is received after a one-lap or two-lap qualifying attempt, that time/speed becomes the racer's qualifying time/speed. Pilots may not reject a one-lap or two-lap time in order to make another qualifying attempt.
7. The only way to abort a qualifying attempt, once the Timers have been notified of the attempt, is to pull off the race course prior to passing Home Pylon during the first qualifying lap. Timers should be notified of the aborted attempt with a radio call. Once Home Pylon has been passed at the end of the first qualifying lap, if a time/speed is assigned, that becomes the racer's qualifying time/speed.
8. RARA allows up to two qualification attempts per aircraft. However, due to the number of Sport Class aircraft that are attempting to qualify, and to allow Sport Class racers adequate post-qualification practice on the course they will fly in NCAR, Sport Class Air Racing may limit the number of qualifying attempts per aircraft to one. At other racing venues, the qualification process will be tailored, as required, to meet the organizers' policies, and Sport Class racing requirements.
9. Under specified circumstances, a pilot that has received a valid qualifying time/speed may verbally request that the Sport Class Air Racing Officers or Pilot Standards/Contest Committee authorize the opportunity to make a second attempt on a subsequent flight. Such requests will be reviewed, and a decision rendered, within 24 hours of the request being submitted. Circumstances that may warrant consideration of an additional attempt, include, but are not limited to, a mechanical irregularity or system malfunction that substantially impacted the speed of the aircraft during the attempt, or the qualification attempt being interfered with by another aircraft or race control during the attempt. Small adjustments to aircraft to marginally increase qualifying speed are not eligible for consideration under this subsection.
10. If a valid qualifying time/speed is not received, the racer may elect to try another attempt.

11. If a valid qualifying time/speed is not received, and the racer is still on the course, the racer may start a second attempt at that time. If the racer has already exited the course the racer may try another attempt after being sequenced back onto the course by race control or the Flight Lead/Pace Pilot.
12. Race control and the Flight Lead/Pace Pilot will be the sole authorities on control of the racecourse and be responsible for the sequencing all racers onto the racecourse.

E. Race Course:

1. A chart of the racecourse will be made available to all pilots.
2. All racecourse markings will be readily visible to the pilots.
3. The Gold/A Heat will race daily on the Outer Race Course. The Silver/B Heat will race daily on the Sport Course. The Bronze/C Heat will race daily on the Sport Course if the Fastest Bronze/C Heat race qualifier is faster than 275 MPH; if the fastest Bronze race qualifier is at or slower than 275 MPH then the Bronze/C Heat will race on the Sport Medallion Course. The Medallon/D Heat will race daily on the Sport Medallion Course, provided all aircraft in that heat qualified at 275 mph or slower. Should any Medallion racer qualify faster than 275 mph, the Bronze/D Heat will race on the Sport course. At the completion of qualifying, when the Bronze and Medallion courses have been selected, based on qualifying speed, those Heats will remain on the specified course for the duration of the NCAR, and will not cycle or change between the Sport and Sport Medallion Courses on subsequent days.
4. The Sport Class Match Race Exhibition will be flown on the modified Formula One course, as outlined Appendix 1.

F. Race Starting Procedures:

1. Air starts will be used for all Sport Class Pylon Racing events. A designated pace plane will be utilized when available.
2. The Pace Pilot will be responsible for conducting the pre-race pilot briefing. When a pace plane is not available, the pole position pilot will assume the duties of the pace pilot.
3. The Pace Plane will provide all guidance and function as the flight lead during the formation join-up and will be responsible for proper line-up of aircraft coming down the chute.
4. The start will be from a descending flight path at the required pre-briefed drop off airspeed. The drop off airspeed will be determined by the qualifying speeds of the aircraft in each heat, and agreed upon during the flight briefing with the Pace Pilot.
5. During the start, any attempt to slingshot the start will result in a 10- second penalty. Either the Contest Committee or the Pace Pilot will determine if a slingshot was attempted. If a slingshot is determined, no protests will be entertained.
6. During the start any attempt to dive from the release will be grounds for disqualification. This may be determined by the Pace Pilot, the Sport Class Contest Committee or by RARA's Contest Committee. The observation shall be reported to the Sport Class Pilot Standards/Contest Committee, for disciplinary action.

7. The Pace Pilot will signal the release and race start by broadcasting the statement “You have a race” over the race control frequency. In the event of radio failure the pace pilot will signify release and race start by making an abrupt pull-up and turn away from the race formation.
8. After release, pace follows the start to pylon 5 without entering the course. Pace will monitor the start, looking for conflicts and mitigating safety threats.
9. After monitoring the start, Pace will climb to cool down, and plan to land ASAP, remaining clear of the race course.
10. Pace will not enter the race course, nor will perform aerobatics while over the race course.
11. As outlined in Appendix 1, the Match Race Exhibition Start will be conducted from the Match Hold point, and will include the Pace aircraft as lead, with two contestants per race start. Remaining Match Race contestants will remain in Match Hold until directed by the Pace Pilot to join on the Pace Aircraft for their start.

G. Race Alignment:

1. After qualification, the racers will be aligned in decreasing order by speed. The aircraft will be divided into four heats consisting of up to 9 aircraft per heat. The fastest aircraft will be designated the Gold/A Heat and will fly on the Outer Race Course. The next group will be designated the Silver/B Heat, the third group will be designated the Bronze/C Heat, and the fourth group will be designated the Medallon/D Heat.
2. The racers will taxi, line-up on the runway, takeoff, and rejoin on the right wing of the Pace Plane in the briefed order for each respective heat. This will serve to position the fastest qualifier closest to the inside of the racecourse. This order may be modified on subsequent heats by assessed penalties, or by Did Not Finish (DNF), Did Not Start (DNS), or Disqualification (DQ) results.
3. If a plane is unable to taxi with the respective heat, he may be permitted to rejoin the heat, in pairing position, prior to lineup with the permission of the pace aircraft, or by the flight lead in the absence of a pace plane. After Lineup on the runway, no attempt to rejoin or re-align the aircraft for takeoff will be permitted. After lineup, if, for any reason, a plane is unable to takeoff in proper sequence, he will call “aborting” and clear to the cold side of the runway, exit at the nearest taxiway, and return to the ramp. No attempt to rejoin the flight is permitted.
4. Each succeeding day’s alignment will be determined by the fastest speeds from the previous day’s events (after any penalties are assessed) and separated into respective A, B, C and D Heats in descending order.
5. The method outlines in VII.G.4 above will be used for all subsequent days’ race alignment.
6. The alignment of racers for the Match Race Exhibition will be in the form of a bracket. The bracket will be made up of selected and trained Match Race pilots. The bracket pairings (seedings) will be based on current year NCAR race qualification speeds.

H. Pylon Turns:

1. All aircraft will remain outside of a line drawn that visually connects the racecourse pylons, at all times during a race.

2. A pylon cut will be called anytime an aircraft, or portion of an aircraft, passes inside or over a pylon.
3. During a Match Race Exhibition, a pylon cut will be called anytime an aircraft, or portion of an aircraft, passes on the wrong side of, or over, a pylon.
4. The respective pylon judges will determine a pylon cut. A cut called by the pylon judge is a judgment call, deemed official, and protests will not be entertained.
5. In the event of a pylon cut, a penalty of 2 seconds per lap for each lap of the race will be assessed. This will be added to the racer's total race time to determine race speed.
6. In the event of a pylon cut during a Match Race Exhibition, the racer will be assessed a 2-second penalty for each pylon cut, which will be added to his total race time to determine finish position in that Match Race.
7. In the event of a forced cut, (aircraft being forced to the inside by another aircraft), no penalty will be assessed to the aircraft cutting the pylon. A 10 second penalty will be given to the aircraft that caused the cut. This determination will be at the sole discretion of the pylon judge. No protests will be entertained.
8. Minimum altitude on the course will be no lower than the height of a pylon (approximately 50 feet). Violations may result in disqualification. Violations will result in disqualification for the heat. At the discretion of the pilot standards committee and/or contest committee, such violations may result in disqualification of the pilot for multiple heats or the entire event.

I. Passing:

1. During a pass attempt, the overtaking pilot must keep the overtaken aircraft in sight at all times during the pass. In the interest of Safety, the requirement of the passing aircraft to maintain visual contact with the aircraft being passed shall be paramount. Any pass that causes the passed aircraft to alter flight path may be deemed an illegal pass, and may result in disqualification, or other action, as deemed appropriate by the Sport Class Officers, the Sport Class Pilot Standards/Contest Committee, or the RARA/Race Organizer Contest Committee.
2. After passing an aircraft, any attempt to cut back in front of the passed aircraft until at least 100 feet of nose-to-tail clearance has been obtained, and nose-to-tail distance is increasing (opening), may result in disqualification.
3. The aircraft radio may be used to inform the preceding aircraft of an intended pass, but radio chatter must be kept to a minimum.
4. During a pass attempt, the aircraft being overtaken must not in any way impede or interfere with a faster overtaking plane.
5. At no time will a preceding aircraft fly a wide course to allow another aircraft to pass on the inside of a turn or straightaway.
6. During any heat or race start, all aircraft must ensure they remain in their start lane until 45 degrees of turn past the Start Guide Pylon. Passing prior to this point requires a verbal clearance from the aircraft being passed. Trailing aircraft that fall behind aircraft ahead may move to the left prior to this "45 degree point past the start pylon" only if all aircraft ahead remain in sight at all times, and only when this movement maintains the aircraft in trail (behind), or outboard, of all aircraft ahead.

J. Emergencies:

1. During every race brief, Pace will designate a Primary and Secondary Safety Chase, from among the racers. Unless the Pace aircraft remains airborne for the duration of the race, these Safety Chase pilots will assume the Safety Chase role, if requested by a Mayday Aircraft.
2. Any aircraft experiencing a problem that makes them unable to continue the race will announce, over the radio, "MAYDAY" and the aircraft race number.
3. After calling "MAYDAY", the aircraft will pull off the racecourse and climb to an initial altitude commensurate with a high or low key position for that aircraft's performance envelope.
4. If an immediate landing is required, the aircraft will, if possible and prudent, announce race number and the planned landing runway. This alerts and assists CFR in making a timely response.
5. If an immediate landing is not required, the aircraft will climb to an altitude of 2000 Feet AGL or above, notify Race Control, and orbit in a counter clockwise pattern over the racecourse.
6. If the support or assistance of a Safety Chase is desired, the MayDay Aircraft should announce, "MAYDAY, Sport XX needs Safety Chase" (or "needs assistance").
7. If requested, the Primary Safety Chase pilot will visually clear the area, and exit the course to provide support to the MAYDAY aircraft. If the MAYDAY aircraft is the Primary Safety Chase, then the Secondary Safety Chase aircraft will visually clear the area, exit the course, and provide the requested support.
8. The Safety Chase will pull to a position to the lower right of the MAYDAY aircraft and await direction or request for support from the MAYDAY aircraft. If the MAYDAY aircraft is NORDO, the Safety Chase will pass to Race Control, if possible, info about, possible intentions of, or hand signals received from, the MAYDAY aircraft.
10. As the MAYDAY aircraft enters the pattern and lands, the Safety Chase will follow, maintaining a position so as not to interfere with the MAYDAY aircraft or the race, and execute a low approach. The Safety Chase will then climb to cool down, and monitor the remainder of the race as the Safety Chase, then sequence for landing after the completion of the race.
11. 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.

K. Race Finish:

1. When the first aircraft crosses the finish line at the completion of the required number of laps, the finish will be signaled with a Checkered Flag, and the Race Control radio call "Checkered Flag, Checkered Flag". The race will end when all aircraft have passed home pylon at the end of the lap in which the Checkered Flag call was waved/announced.
2. Each following aircraft will then complete the current lap, and after crossing the home pylon, pull up and off the racecourse into the cool down area for sequencing to land. Any aircraft

that is lapped, and does not complete the required amount of laps will be given a speed based on total laps flown divided by total time to complete those laps.

3. After crossing the finish line on the final lap each aircraft will climb to an altitude of 2000 feet AGL or above. (Cooldown Area)
4. The aircraft will fly a left-hand orbit, keeping the preceding aircraft in-sight.
5. After cooldown, aircraft will fly the Sport Class prescribed landing sequence procedures, and make the prescribed radio calls on Race Control frequency.
6. During Match Race Exhibition events, the race will end when both aircraft have crossed the finish line at the completion of the required number of laps.
7. Aircraft exiting the Match Race Exhibition course will either return to the Match Hold point, enter the cool down pattern, or land immediately, per Appendix 1, and as briefed and directed by the Pace Pilot and/or Race Control.

L. Landing:

1. Race Control is the controlling authority for landing.
2. Once sequenced for landing, the aircraft will enter a normal downwind, base, and final approach for landing.
3. On the base leg of the approach, each aircraft will call race number, base, and gear checked. (I.E. "Race 5, Base, Gear") Race control will then acknowledge, and issue clearance to land.
4. All aircraft will land on the side of the runway opposite of the turnoff (hot side). Once the aircraft has slowed to a controllable speed it will move over to the turnoff side (cold side) of the runway and exit in sequence at the taxiway in use.

M. Race Flags:

1. The following flags will be utilized during all practices, qualifications, and race events. The location of the flag will be at the timers booth at the base of the Start/Finish Pylon. The yellow flag may be displayed at any pylon.
2. Black Flag: Aircraft disqualified. Aircraft will exit the racecourse and will be sequenced to land as soon as possible.
3. Yellow Flag: Emergency in progress. Racers will continue but use extreme caution.
4. Red Flag: Race Cancellation. Racers will exit the racecourse and set up to be sequenced for landing.
5. Green Flag: Start of race. Continue to race.
6. White Flag: Start of final lap.
7. Checkered Flag: End of race. Following the call of "Checkered Flag, Checkered Flag", all racers will exit the course at the Home Pylon, the next time they pass Home Pylon, and

proceed to cool-down for landing sequence. Lapped racers will not complete the full number of race laps, and will exit as soon as they pass Home Pylon after the “Checkered Flag” call.

N. Penalties:

1. In addition to other offenses included herein, the following shall be deemed violations of the rules and will be grounds for fines, disqualification or other sanctions.
2. Any action or proceeding harmful to the integrity of the sport, or not in the best interests of air racing.
3. Any unsportsmanlike conduct formulated against participants, officials, or committee members.
4. Reckless flying, dangerous flying, or showboating, as determined by race officials, will be grounds for disqualification. Race officials include the Race organizers and their Contest Committee, Race Control, Sport Class Officers or the Sport Class Pilot Standards/Contest Committee.
5. Penalties may include fines, disqualification, revocation of racing credentials or other sanctions.
6. Any contestant determined to have intentionally violated class rules may be permanently excluded from Sport Class competitions at the discretion of the Sport Class Officers or the Pilots Standards/Contest Committee.

O. Protests:

1. Any protest must be filed by written notification to the RARA/Race Organizer Contest Committee via the RARA Official Scorer (or the entity identified by other race organizers in other venues), as per the sanctioning authority.

P. Race Cancellation or Postponement:

1. In the event that the race is postponed, all racers will be notified as early as possible and given a reasonable time to prepare for a re-schedule.
2. If the race is cancelled for a particular day, that day’s format will progress to the next day’s race,
3. If the race is cancelled after takeoff but prior to start, the race may be re-scheduled with the same format.
4. If the race is cancelled after start, the race will be considered a complete race and race results will be determined by the order of the aircraft at the time that the race was cancelled. The racers speed over the course will then become the total time flown divided by the number of laps flown.
5. If the race is cancelled after the start of the race, all racers will continue around the course until passing the Home Pylon, at which time they will pull off the course and proceed to cooldown for sequencing for landing.

Q. Special Rules:

1. It shall be permitted for the air race organizers to formulate rules, which will apply to a specific event. These rules supplement, and apply to the Sport Class rules listed here.
2. In the event additional rules apply, a copy of these rules must be provided by the race organizers to each racer.

R. Prize Money:

1. All prize money must be put in escrow by the event organizer prior to the race event to ensure fair pay out to the racers.
2. The purse will be divided among the qualifiers and starters of the various heats at the conclusion of the event.
3. A copy of the prize money payout scale will be made available to the racers prior to the race event.
4. Prize money paid out to Match Race Exhibition participants, above and beyond that paid to them for normal NCAR (or other venue) race participation, is discretionary. Prize money for Match Racing, if any, will be in the amount negotiated by the class with the race organizer for additional funds beyond the normal class purse (if any), or will be in the amount determined by the class officers to be paid from the normal class purse funds, if deemed appropriate.

## **VIII. PILOT BRIEFINGS**

### **A. Event Briefings:**

1. Upon arrival at a race, all racers will receive an indoctrination briefing from the Race organizer. This briefing will include at a minimum:
  - a. FAA Waiver and Special Operating Rules.
  - b. Local Operating Procedures.
  - c. Racecourse layout and markings.
  - d. Pit Procedures.
  - e. Scheduled Practices, Qualifying, and Racing events.
  - f. Race Officials and Organization.
  - g. Other information helpful to the racers.
2. The Operations Officer or the Air Boss, if available, must personally brief any racer unable to attend this briefing, or the racer will not be able to participate in any event.

### **B. Daily Briefing:**

1. Each pilot intending to fly that day must attend the daily brief.
2. Any pilot not attending the brief and caught attempting to fly will be disqualified.
3. The daily brief will include at a minimum:
  - a. Daily Schedule.
  - b. Daily Weather Forecast.
  - c. Any Special Subjects.
  - d. Questions.

### **C. Pace Pilot Briefing:**

1. Engine Start Time.
2. Takeoff Time.
3. Takeoff Position.
4. Takeoff runway and rendezvous turn.
5. Rendezvous speed and altitude.
6. VHF radio frequency.
7. Number of laps in race.
8. Emergency procedures. Primary and Secondary Safety Chase assignments.
9. Other procedures as necessary.
10. Questions.

D. Post Race Debrief:

1. At the conclusion of a race, all pilots involved in the race will meet at a designated area, typically at the Pace aircraft, for a post-race debrief with the Pace Pilot.
2. A member of the Pilot Standards/Contest Committee will also attend this debriefing. The Pace Pilot may waive this requirement if all committee members are flying, or preparing to fly, a race heat.
3. The purpose of this debriefing will be a formal get together to discuss details of the race. Comments concerning race conduct, race officials, other pilots, or other comments in general should be discussed at this time. Discussion of items of a sensitive nature should be conducted in a private location, such as a class briefing room.

## **IX. REQUIRED EVENT DOCUMENTS**

### **A. Aircraft:**

1. Current Airworthiness Certificate
2. Aircraft Registration
3. Operating Limitations
4. Aircraft Weight and Balance documents
5. Aircraft speed/g test certification documents (submitted to class and the race organizer, as required).

### **B. Pilot:**

1. Current Fixed-wing Pilot Certificate
2. Current Medical Certificate that meets the race organizers' class and date requirements
3. Sport Class issued Racing License
4. Evidence of meeting the 500 Hours minimum pilot hour requirement, if requested

### **C Insurance:**

1. Proof of insurance with \$1,000,000 Liability
2. Additional rider permitting Air Racing
3. Additional rider naming covered Event Organizers or other entities, as required by race Organizers

## X. SPORT CLASS RACING VENUE AND RACE HEAT PAIRING

- A. Sport Class Air Racing intends to pair racers into groups (heats) based on performance during qualification speeds and subsequent races. 24 racers will constitute a full field and the racers will be divided into 4 heats, labeled A, B, C and D. Alternate procedures and a defined progression will accommodate additional racers to a maximum of 40.
- B. The Heat Races will take place before Sunday's Championship Races, and will be conducted as follows: After all official qualification times are established, the racers will be aligned in decreasing order of 1-40 according to speed. The racers will be divided into four race heats consisting of from 6-9 aircraft per heat. The fastest speeds will be paired for the "A" Heat of each day, the second fastest paired for the "B" Heat, the third fastest paired for the "C" Heat, and the fourth fastest paired for the "D" Heat.
- C. The number of available race aircraft will determine the number of aircraft per heat. The emphasis will be to insure that the maximum number of racers will be allowed to race. Therefore all qualifying aircraft will be divided into four heats based upon qualifying speed, the heats will be evenly divided with from 6-9 aircraft per heat. In the event that the heats are not evenly divided, the preference will be for the greater number to go to the faster heat.
- D. The race lineup for the subsequent day's racing will be determined after the day's racing has been completed. The total number of race-eligible aircraft will determine the number of airplanes in each heat according to the following schedule:

Eligible Aircraft	Gold/A Heat	Silver/B Heat	Bronze/C Heat	Medallion/D Heat
24	6	6	6	6
25	7	6	6	6
26	7	7	6	6
27	7	7	7	6
28	7	7	7	7
29	8	7	7	7
30	8	8	7	7
31	8	8	8	7
32	8	8	8	8
33	9	8	8	8
34	9	9	8	8
35	9	9	9	8
36	9	9	9	9

After the race heats for the day have been completed, the heat/race pairing line-up will be rearranged for the following day, based upon all racers' *most recent* speed (not necessarily their fastest speed). The only exception to this is when a racer flies in more than one heat in a day (do to filling in as an alternate, as in paragraph G). In this case, the racer will carry forward their fastest speed of the day. Following any DNF, DNS, or DQ result, those race pilots in any heat will be placed at the bottom of the same heat's pairing for the next day's heat/race, in that order (DNF, DNS, DQ). In the pairings for the subsequent day's racing, such DNF/DNS/DQ pilots will not be moved to the next lower heat. If there is more than one DNF, the DNF pilots will be paired in the order of most laps completed before the pilot pulled off of the course. If there is more than one DNS, the DNS pilots will be paired in the order that they were to start. If there is more than one DQ, the DQ'd pilots will be paired in the order of most laps completed before the DQ event.

E. In the event that there are 37 race eligible aircraft for the subsequent day's races, the following rule will apply to ensure that every eligible racer gets to race. If there are 37 aircraft available for the first day of racing, the number 34 qualifier will act as the alternate aircraft. For the second day of racing, the number 35 qualifier will act as the alternate aircraft. For the third day of racing, the number 36 qualifier will act as the alternate aircraft. For the Championship Race, the number 37 qualifier will act as the alternate aircraft. In the event that there are 38-40 race eligible aircraft the following matrix will apply:

Race eligible aircraft	Heat 1A, 1B, 1C, 1D								
38									
Heat 1A	1	2	3	4	5	6	7	8	9
Heat 1B	10	11	12	13	14	15	16	17	18
Heat 1 C	19	20	21	22	23	24	25	26	27
Medal 1	28	29	30	33	34	35	36	37	38

Race eligible aircraft	Heat 2A, 2B, 2C, 2D								
38									
Heat 2A	1	2	3	4	5	6	7	8	9
Heat 2B	10	11	12	13	14	15	16	17	18
Heat 2C	19	20	21	22	23	24	25	26	27
Medal 2	28	29	30	31	32	35	36	37	38

Race eligible aircraft	Heat 3A, 3B, 3C, 3D								
38									
Heat 3A	1	2	3	4	5	6	7	8	9
Heat 3B	10	11	12	13	14	15	16	17	18
Heat 3C	19	20	21	22	23	24	25	26	27
Medal 3	28	29	30	31	32	33	34	37	38

Race eligible aircraft	Championship								
38									
Gold	1	2	3	4	5	6	7	8	9
Silver	10	11	12	13	14	15	16	17	18
Bronze	19	20	21	22	23	24	25	26	27
Medallion	28	29	30	31	32	33	34	35	36

Race eligible aircraft	Heat 1A, 1B, 1C, 1D								
39									
Heat 1A	1	2	3	4	5	6	7	8	9
Heat 1B	10	11	12	13	14	15	16	17	18
Heat 1C	19	20	21	22	23	24	25	26	27
Medal 1	31	32	33	34	35	36	37	38	39

Race eligible aircraft	Heat 2a, 2B, 2C, 2D								
39									
Heat 2A	1	2	3	4	5	6	7	8	9
Heat 2B	10	11	12	13	14	15	16	17	18
Heat 2C	19	20	21	22	23	24	25	26	27
Medallion	28	29	30	34	35	36	37	38	39

Race eligible aircraft	Heat 3A, 3B, 3C, 3D								
39									
Gold	1	2	3	4	5	6	7	8	9
Silver	10	11	12	13	14	15	16	17	18
Bronze	19	20	21	22	23	24	25	26	27
Medallion	28	29	30	31	32	33	37	38	39

Race eligible aircraft	Championship								
39									
Gold	1	2	3	4	5	6	7	8	9
Silver	10	11	12	13	14	15	16	17	18
Bronze	19	20	21	22	23	24	25	26	27
Medallion	28	29	30	31	32	33	34	35	36

Race eligible aircraft	Heat 1A, 1B, 1C, 1D								
40									
Heat 1A	1	2	3	4	5	6	7	8	9
Heat 1B	10	11	12	13	14	15	16	17	18
Heat 1C	19	20	21	22	23	24	29	30	31
Medal 1	32	33	34	35	36	37	38	39	40

Race eligible aircraft	Heat 2A, 2B, 2C, 2D								
40									
Heat 2A	1	2	3	4	5	6	7	8	9
Heat 2B	10	11	12	13	14	15	16	17	18
Heat 2C	19	20	21	22	23	24	25	26	27
Medal 2	28	32	33	34	35	37	38	39	40

Race eligible aircraft	Heat 3A, 3B, 3C, 3D								
40									
Heat 3A	1	2	3	4	5	6	7	8	9
Heat 3B	10	11	12	13	14	15	16	17	18
Heat 3C	19	20	21	22	23	24	25	26	27
Medal C	28	29	30	31	32	37	38	39	40

Race eligible aircraft	Championship								
40									
Gold	1	2	3	4	5	6	7	8	9
Silver	10	11	12	13	14	15	16	17	18
Bronze	19	20	21	22	23	24	25	26	27
Medallion	28	29	30	31	32	33	34	35	36

- F. The designated alternate aircraft will brief, spot, start and taxi with the respective heat. The alternate will be prepared to fill in for any racer that is unable to takeoff when the Pace Aircraft is ready for Takeoff. The Pace Pilot will determine this after getting a “thumbs up” from each respective racer. In the event that a racer is unable to give the Pace Pilot a “thumbs up”, the Pace Pilot will direct the alternate aircraft to fill in the last position and move any other aircraft forward in the lineup. Unless necessary for safety the aborting aircraft will remain in position until all aircraft have taken off, then will coordinate with Race Control for the return to the Ramp.

**XI. AIRCRAFT FUELS AND ADDITIVES**

- A. Sport aircraft will be allowed to use any fluid, liquid or gas, sprayed externally or internally to promote engine performance.

## **XII. RULES CLARIFICATIONS AND ADDENDUM'S**

- A. This section is included to highlight any Clarifications or Addendum's incorporated in the existing rules within the past year as a result of the previous year's critique. Its intent is to provide the user with a "quick reference" section to familiarize themselves with all recent modifications, including a short synopsis of the modification, as well as a reference to the specific section in which the modification has been incorporated. Subsequent years' will be posted in this section on an annual basis.



## Appendix 1

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### Sport Class Air Racing Match Racing Exhibition Events

#### CONCEPT:

Sport Class Exhibition Match Racing is a one on one competition between two aircraft at a time, on a side-by-side slalom racecourse, utilizing existing pylons on the current Formula/Biplane course (see attachment 1). The competition will take place in a single-elimination bracket format, with 8 race aircraft. The bracket will be entitled the Sport Class Match Race Bracket. The Match Race will be run as an invitational event. 12 pilots will be selected by Sport Class Air Racing Association Officers and the Pilot Standards/Contest Committee, and trained during PRS. The 8 pilots and aircraft selected to fly in the Exhibition Match Races during NCAR will be from among the 12 trained and qualified Match Race pilots. Spare, or backup, pilots will also be selected from that trained and qualified group of pilots.

#### MATCH RACE PROGRESSION:

The Match Racing elimination bracket will be published at the end of normal NCAR qualifying. The pairings for the Match Racing will be determined by speed, as indicated in attachment 2. During each Match Race Exhibition event, a quarterfinal heat, semifinal heat and final race will be conducted, and a Match Race winner will be declared during, or immediately following the event. The quarterfinals will consist of four match races, reducing the field from 8 to 4. The semifinals will consist of 2 match races, reducing the field from 4 to 2, and the final will consist of one match race. Each race is final, and the winner will continue in the bracket, while the loser will land. Racers will not switch courses and fly each heat twice. At the beginning of each event, the racers in the quarterfinal bracket will flip a coin to determine who chooses the track they will fly on during the event. Once a track is selected, each racer will remain on the original track, unless paired with a racer that also selected the same track. In this event, the Match Race pilot will direct the racers as to which track to fly. Each event will take 25-30 minutes from launch to recovery.

#### RACECOURSE DESIGN:

The Match Racing Slalom Course will utilize the existing pylons of the Reno Formula/Biplane course. The course will be flown as a slalom, and will include two and one half laps, or passes, up and down the course, as outlined in attachments 3 and 4.

#### MATCH RACE EXECUTION:

Each Match Race event will stage, start, check-in, and taxi as a flight of 11 (2 Pace aircraft plus 8 racers and 1 spare racer). If Pace aircraft assets are limited, a single pace may be utilized. Spare aircraft procedures will be the same as in normal Sport Class races. Departure and rejoin of the 10 flying airplanes will be conducted in the same manner as a normal Sport Class race heat, from either runway 8 or runway 26. Once the rejoin is complete, the flight will proceed to the "Match Hold" point, approximately 4 miles NW of Home Pylon, at 6,500 feet MSL (see attachment 5). From Match Hold, Pace will lead two aircraft in a modified "Vic" formation from "Match Hold", to "Match Entry" (see attachment 5). Pace will lead the racers to the course via a west-to-east chute, similar to the T-6 Start Chute (see attachment 5). Pace will spread the racers so as to align them just south of their respective first pylons. Pace will release the two Match Race aircraft with a radio call and a pull up, approximately one

half mile from the first pylons. Pace will execute a turn to the north, clearing the course, and will then return to the Match Hold point to pick up two more racers. After release, the two active race aircraft will execute two and one-half laps of the Match Race course, flying a slalom course above pylon height (50 feet). The race aircraft will fly west to east with a left reversal turn to the north, then will fly east to west, with a left reversal turn to the south, and then fly a straight dash to the finish on the south side of their respective pylons. The finish line will be abeam the Home Pylon. Timing will begin at the radio call or pull up for the start, and will end as each aircraft passes Home Pylon on the third pass. After passing Home Pylon, the race aircraft will pull up and off the course, and will either recover immediately, or return to Match Hold, as directed in the “Match Race Recovery” section of this Appendix.

#### MATCH RACE WINNER DECLARATION AND ELIMINATION:

After each Match Race, the winner will be declared after considering any pylon cut time penalties and/or disqualifications. If there are no pylon cuts or disqualifications, the winner is the first aircraft to pass Home Pylon on the final pass. If a pylon cut is assessed, a time penalty of 2 seconds will be applied for each pylon cut, and the winner will be the aircraft with the fastest resulting time from start to finish, including penalties. The winner will move forward in the bracket, and the loser will be eliminated from Match Race competition. Winners of quarterfinal and semifinal matches return to Match Hold, and match losers land. After the Match Race Final, the racers and pace aircraft will recover, and the event will be complete.

#### MATCH RACE RECOVERY:

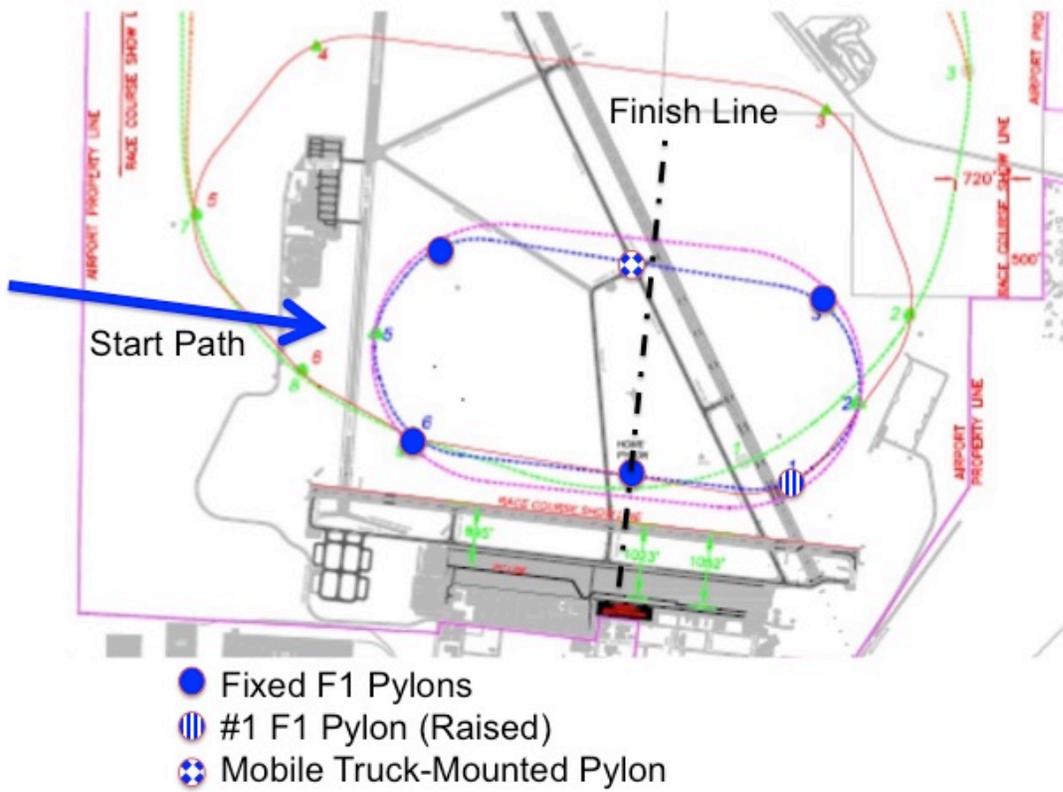
During the Quarterfinal and Semifinal Match Racing, after each pair completes its Match Race, the race aircraft will pull up and off the course after passing the Home Pylon the third time. The winner will return to Match Hold, and the losing aircraft will recover. Upon completion of the Final, both racers will recover as described above, followed by Pace, who will recover from a modified cool-down in trail of the Final Match Racers. If recovery is to runway 26 or 32, the aircraft will make a slight left climbing turn, followed by a right turn to the right downwind for runway 26 or 32. If recovery is to runway 14, 18 or 8, each aircraft will make a left turn to a left downwind for runway 14, 18 or 8. Each aircraft will call downwind, and base with gear, just as in normal Reno race operations. For an expedient landing to allow the next Match Race to start, Runway 14 or 26 will be the preferred landing runways, even if runway 8 was the departure runway, as long as wind conditions allow.

#### SAFETY AND MAYDAY CONSIDERATIONS:

Pace will be responsible for the conduct of the flight at all times, supported by Race Control. In the event of a Mayday, the race will be immediately terminated, with the calls “MayDay” and “Knock it Off”. If this occurs, the aircraft in the Match Hold will remain there until the Emergency/Mayday is terminated. The other aircraft on the racecourse will terminate, clear the course, and climb to cool-down for holding and/or recovery. The Mayday aircraft will have priority, and will be supported by Pace, Race Control and Tower, as required.

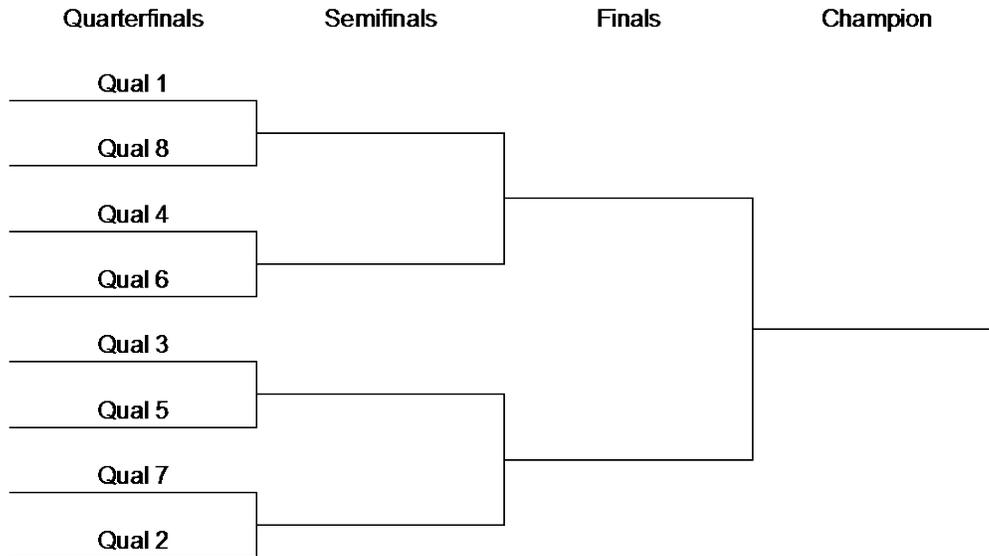
#### ADDITIONAL MATCH RACE COURSE CONSIDERATIONS:

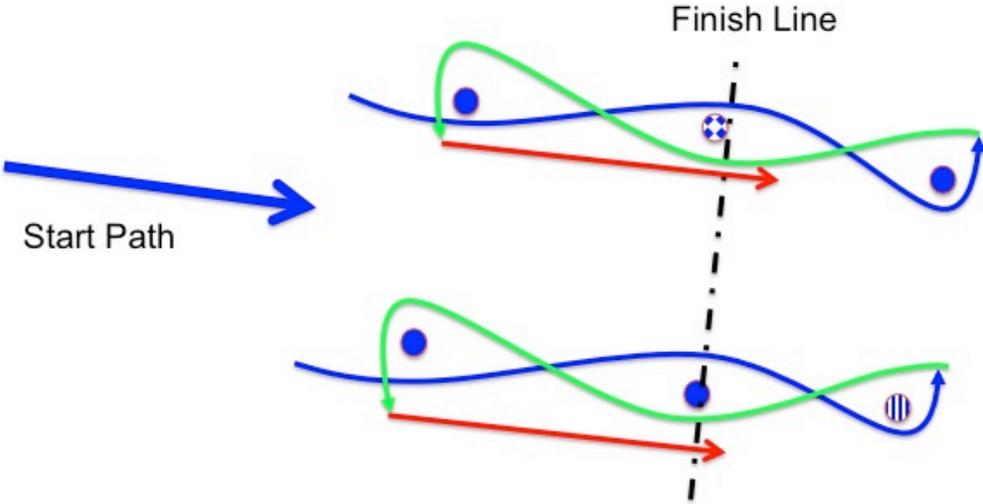
The Match Race aircraft will at all times be within the confines of the current racecourse limits, so no additional waiver airspace will be required. Attachments 6 and 7 are the official course diagrams for the Match Race Slalom Course.



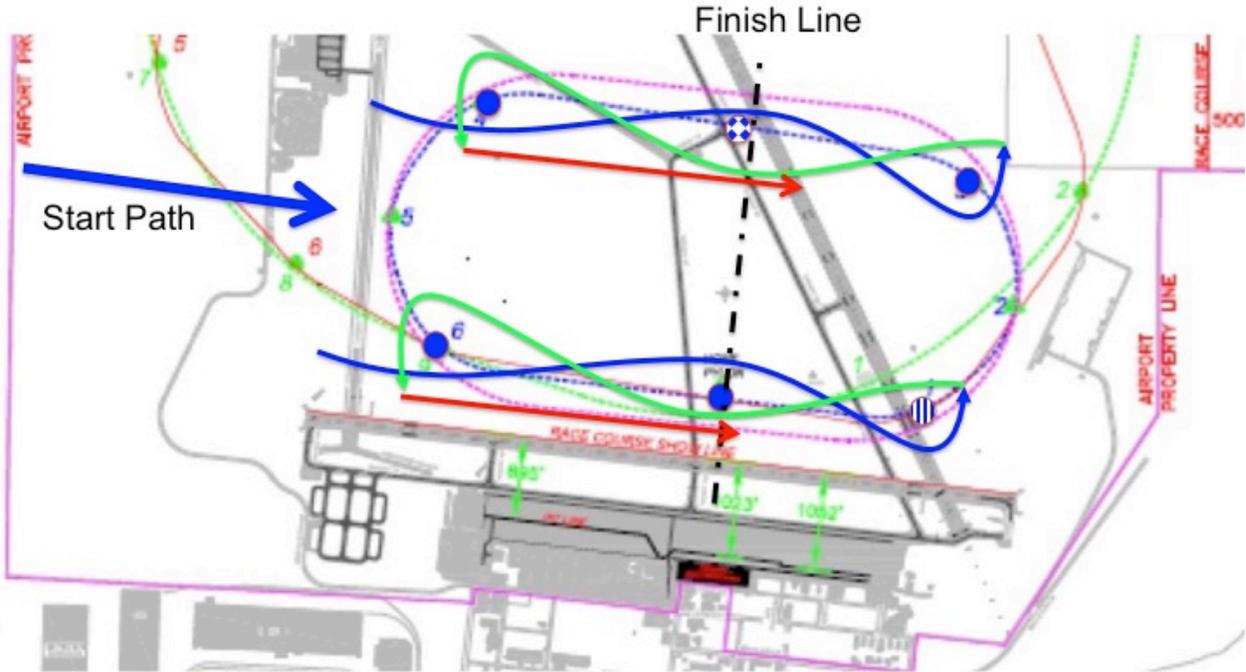
Match Race Bracket

Attachment 2

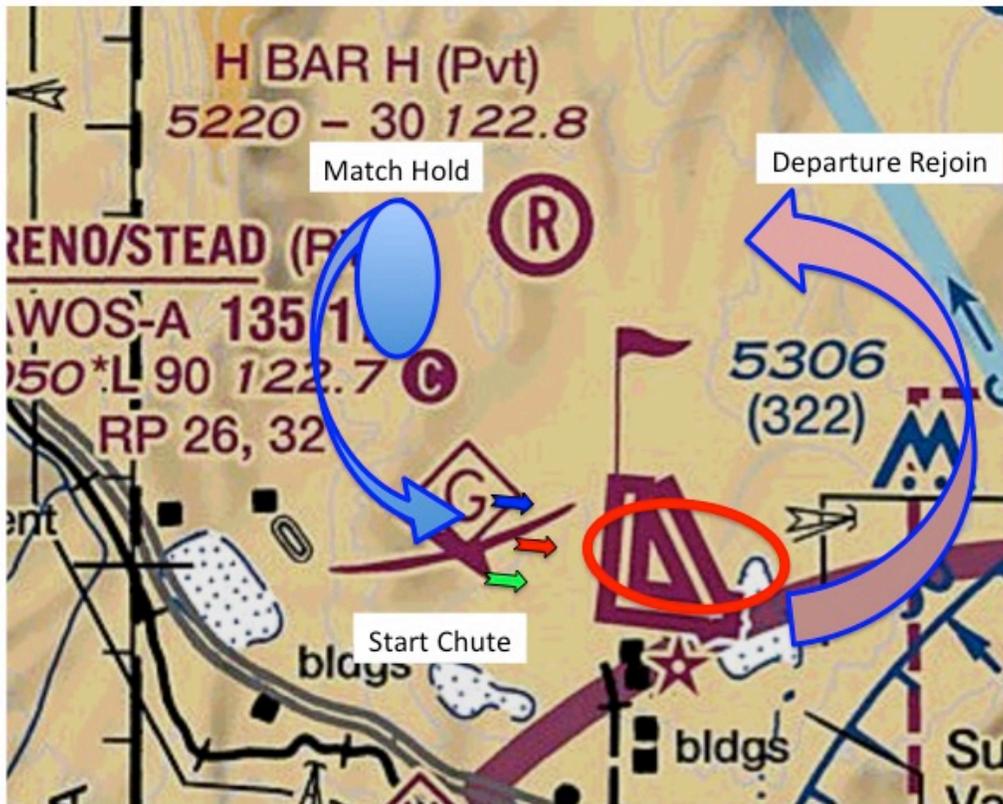




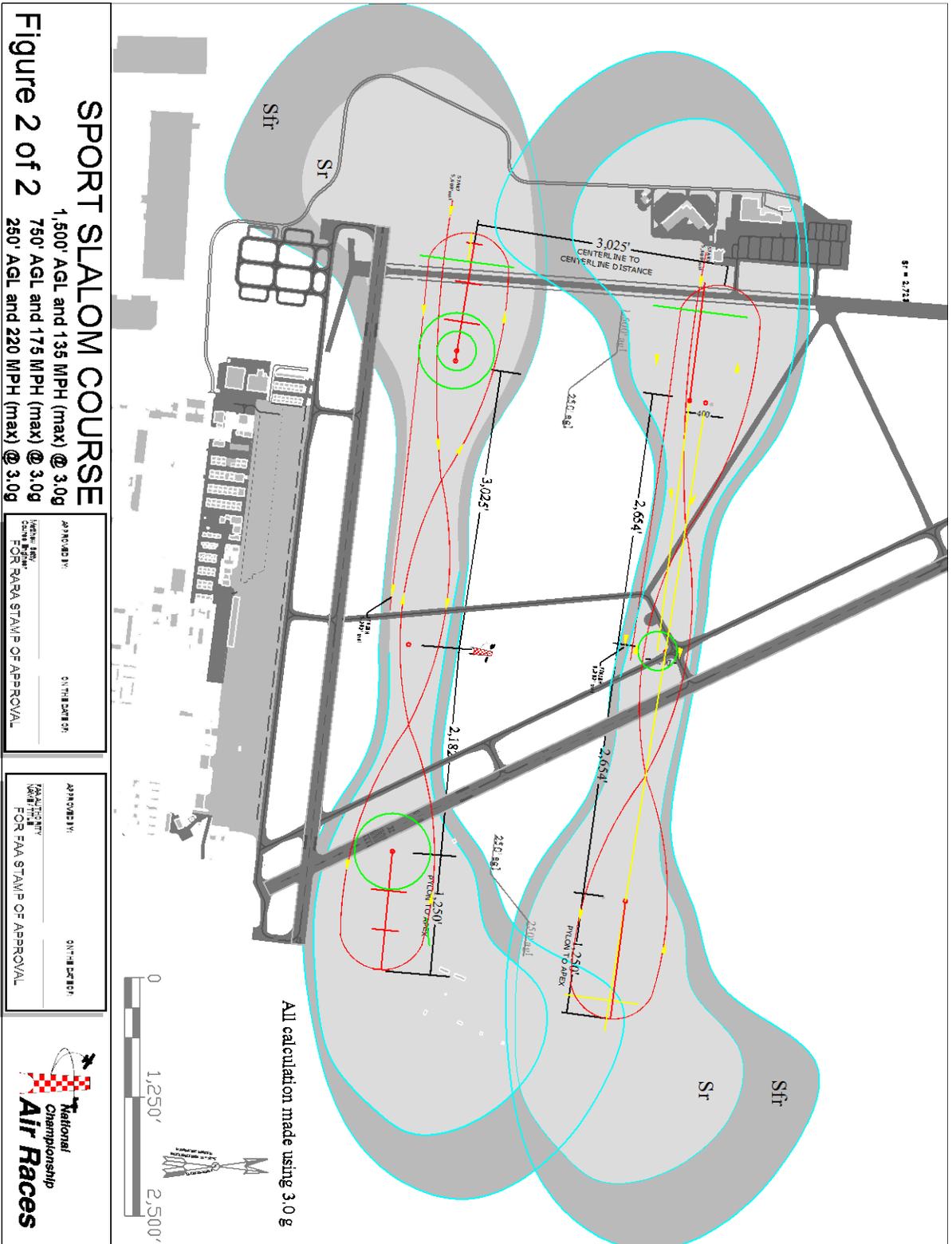
- Fixed F1 Pylons
- ||| #1 F1 Pylon (Raised)
- ⚽ Mobile Truck-Mounted Pylon



- Fixed F1 Pylons
- ⦶ #1 F1 Pylon (Raised)
- ⊛ Mobile Truck-Mounted Pylon







**SPORT SLALOM COURSE**  
 1,500' AGL and 135 MPH (max) @ 3.0g  
 750' AGL and 175 MPH (max) @ 3.0g  
 250' AGL and 220 MPH (max) @ 3.0g

APPROVED BY: \_\_\_\_\_ CIVIL ENGINEER  
 DESIGNER FOR SARA STAMP OF APPROVAL

APPROVED BY: \_\_\_\_\_ CIVIL ENGINEER  
 FAA STAMP FOR FAA STAMP OF APPROVAL

