

Sport Class Air Racing PRS 2023 – PART 1



How to fly at 50 feet
responsibly with 8
“uncooperative”
airplanes





Sport Class PRS Goals & Objectives

- * Safely Introduce Pylon Racing to Rookie Race Pilots
 - * Ground School
 - * Briefings
 - * Working Area Practice
 - * Formation Skill Development
 - * Required Maneuvers Demonstration
 - * On-Course Training and Practice

- * Hone Racing Skills of all Sport Class Race Pilots
 - * All the above
 - * Leadership Development



Sport Class PRS Goals & Objectives

- * Establish Standard Operating Procedures for all Aspects of Sport Class Air Racing:
 - * Pre-Race Prep
 - * Briefing
 - * Ground Operations
 - * Flight Operations
 - * Departure/Join-up
 - * Area Training
 - * Starts
 - * Racing
 - * Recovery
 - * Abnormals and Emergencies



Sport Class PRS Goals & Objectives

- * Provide look-ahead training for NCAR Race Week Operations
- * Provide Class guidance on preparations for NCAR
- * Establish a Sport Class culture of:

SAFETY and RACING EXCELLENCE!



Primary Benefits of PRS

- * Broaden your understanding of your airplane
- * Hone your airplane handling skills
- * Sharpen your Safety Focus
- * Improve your Situational Awareness
- * Learn the basics of Pylon Racing



Secondary Benefits

- * Learn about yourself
 - * Your tolerance to stress
 - * Your ability to multi-task
 - * Your ability to adapt to, and *follow*, SOP
- * Enjoy the camaraderie of fellow aviators
 - * Earn and share the TRUST of your fellow racers
 - * *Oh yeah, and qualify to race in September*



Presenters

- * Andrew Findlay – Race Training
 - * Sport Class Instructor, Check Pilot, Pace Pilot
 - * Lancair Super Legacy – “One Moment” Race 30

- * Sean VanHatten – Formation Training
 - * Sport Class Instructor, Check Pilot, Pace Pilot
 - * Super Glasair III – “Havoc” Race 3



A Little History

1998

- * Racers
 - * 10 total
 - * 2 heats
 - * several people raced twice
- * Winning Speed
 - * 308 MPH
- * Payout
 - * \$25,000

2012

- * Racers
 - * 28 total
 - * 3 Heats
- * Winning Speed
 - * 396 MPH
- * Payout
 - * \$100,000 +

2022

- * Racers
 - * 40 total
 - * 4 Heats
- * Qualifying Record
 - * 409.8 MPH
- * Payout
 - * \$100,000 +



Keys to Sport Class Success

- * Balance on the interests of 3 constituents:
 - * The Racers
 - * The Spectators
 - * The Race Organizers

- * Constant Focus on Safety/Risk Reduction and Excellence
 - * Make it our Culture
 - * Take Care of Each Other
 - * Have Fun!



Risk Reduction

- * Identify hazardous conditions
- * Standardization
 - * Everyone doing the same thing the same way
 - * Keeps people predictable
 - * Aids everyone's "Situational Awareness"
- * People demonstrating poor airmanship or lack of discipline will not be tolerated in the class



Formation Competency

- * Must meet one of the criteria below:
 - * FFI/FAST card
 - * Completion of formal formation training
 - * Multiple FFI/FAST Clinics
 - * Military or equivalent training
 - * Sport Class Formation Training
 - * Prior to FWU/PRS



Sport Class PRS Syllabus Overview

- * Tech requirements
- * Ground Operations
- * Flight Operations
 - * How to start a race
 - * Join-up/ Chute/ Start Lap
 - * Rules and techniques around the Pylons
 - * Fast line/ Passing
 - * Recovery and Landing
 - * Cool Down/ Traffic pattern
 - * Simulated Emergencies/ Upset Recovery
- * A look ahead at Qualifying and Racing in September
 - * PRS Timing Runs for Rookies and Vets with new/mod AC



Training Outline

1. PRS—Day One
 - * Chronologically go through the day
2. PRS—Days Two and Three
3. RACE WEEK
4. SAFETY Concerns



Preface to Day One: **TODAY**

- * Before you leave Stead for Hotel--Make sure:
 - * Windshield clean
 - * Fuel—Oil Serviced
 - * Pre-flight Complete
 - * Helmet/Gloves/Flight suit ready
 - * Cockpit items stowed
 - * All questions answered
 - * Ride/Show/Brief times are known!



PRS DAY ONE



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First Fly Day--Monday

- * Morning RARA Daily Brief in RARA hangar
 - * Last minute schedule changes plus weather
 - * **No Brief—No Fly**
- * Morning Sport Class Daily Brief
 - * Immediately following RARA brief
 - * Receive Flight Assignment/line-up card
 - * Flight is given Course time
 - * Flight Leads will then brief the specifics of the Flight



A Word About Course Times

- * Sport Class assigned 2 time blocks or periods. AM / PM
- * No Sport Class Airplane can take off to directly enter the course, or to enter the Queue until previous Class has landed.
 - * Departures to the working areas may be authorized
- * Sport Class blocks are divided into smaller units of time for flights.
 - * We can takeoff, go to the Queue, or land any time during our block.
 - * Aircraft can only be on the course during their specific assigned time. Flight Leads manage these times.



Learning Objectives

- * Continue Formation Warm-up
- * Area Work/Maneuvers
- * How to find and fly the Chute
- * How to find and fly the Pylons
- * How to enter and exit “Cool Down”
- * How to fly a standard recovery
- * How to pass and be passed safely
- * Emergency Procedures on the course

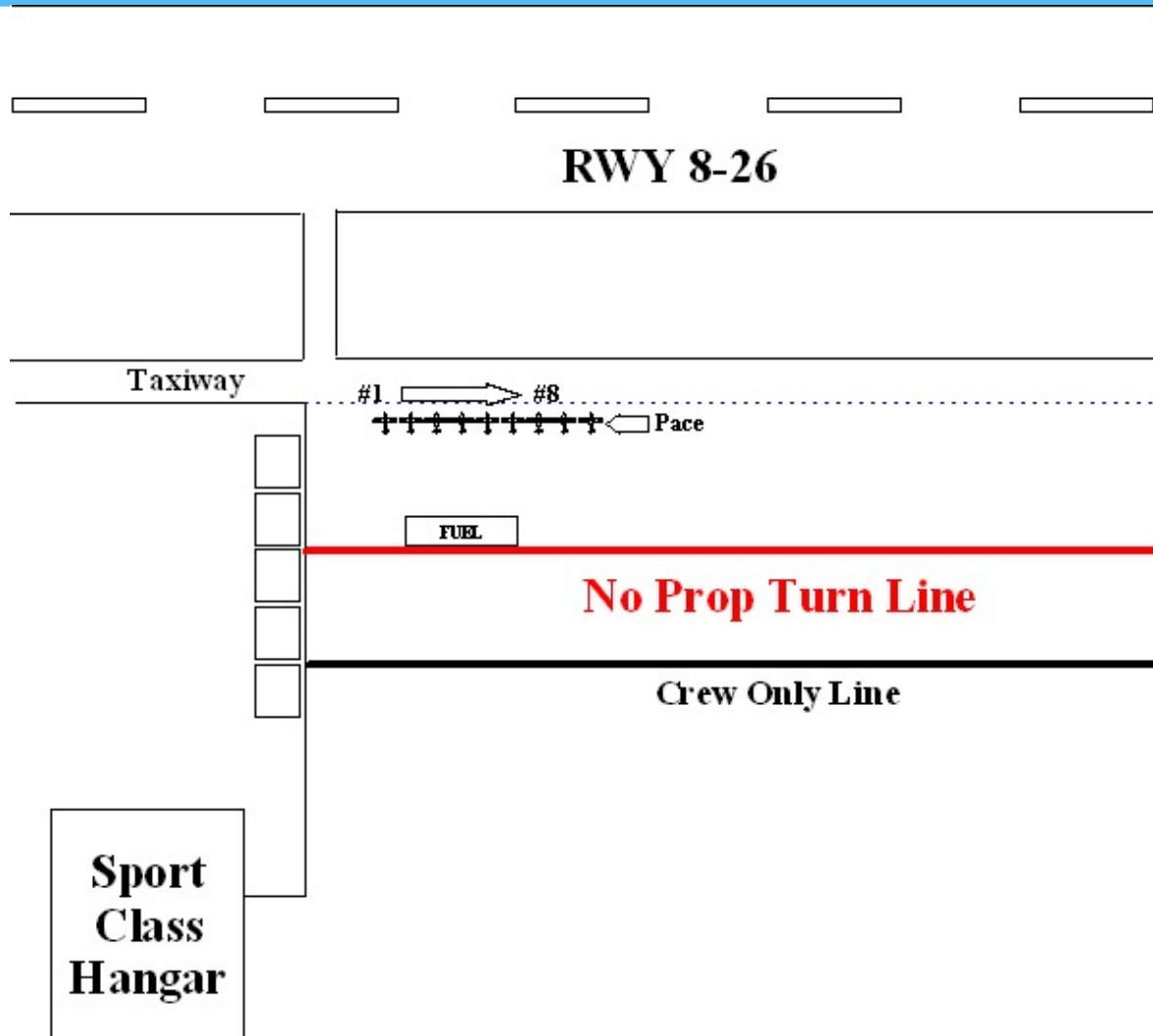


After Flight Brief Spot Aircraft

- * Find tow driver—offer bribe
- * Spot At least 20 Minutes prior to Take-off
 - * Lead Designates Spot and Start Times
- * Meet for final brief at Lead's airplane
- * “No Prop Turn” line in effect
 - * Do not taxi or coast across it!



No Prop Turn Line





Engine Start

- * Start Engines @ Briefed Time
 - * Ramp Boss will alert racers to slides or move-ups
 - * Watch Lead/Pace
- * When ready for Check-In/Taxi pull forward 5 feet
- * Lead will check everyone in at briefed time
- * Check in with Race number in order

- * BE VIGILENT ON THE RAMP!

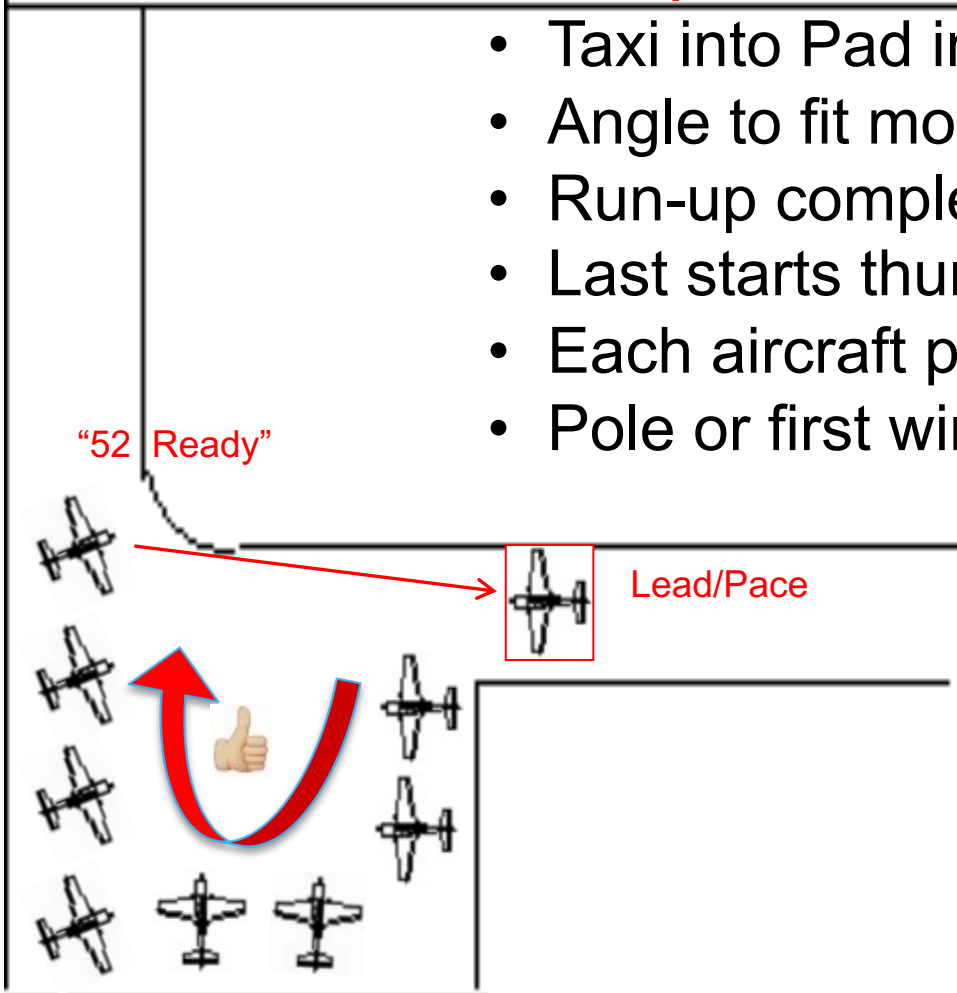


TAXI

- * Lead gets clearance for the group and directs the taxi
 - * Same as race procedures with Pace (Lead acts as Pace)
 - * First Wingman, or Pole Position leads the taxi
- * Taxi Staggered
- * Help out taildraggers
 - * Spacing
 - * “Eyeballs”
- * Uniform spacing--Look professional
 - * Airshow formation spacing not required

• Run-Up Area Procedures

- Taxi into Pad in trail
- Angle to fit more aircraft in
- Run-up complete, check aircraft on both sides
- Last starts thumbs up moving forward
- Each aircraft passes thumbs up forward
- Pole or first wing calls ready to Lead/Pace





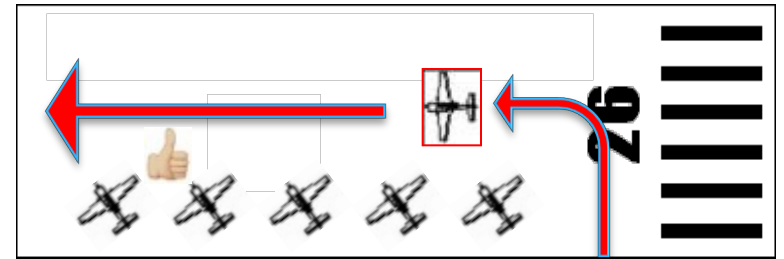
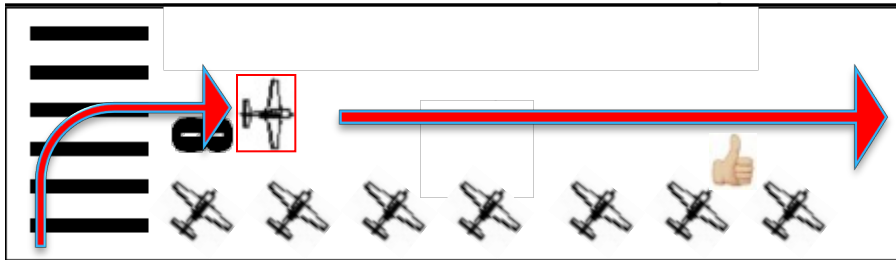
Run-up

- * All Aircraft do Run-up on their own
 - * No run-up signal required
- * Wingmen Pass Thumbs-up back to front
- * Pole or First Wingman calls “XX Ready” to Lead/Pace
- * Pace/Lead switches flight to Race Control Frequency
 - * Do not auto switch to Race Control
- * Check-In with Race number
- * Lead/Pace calls Race Control for Clearance
 - * Line-up and Wait
 - * Cleared for Takeoff



Line-Up

- * Pole or First Wing taxis down runway to allow all members of the flight to stop on **South (cold)** side of the runway
- * Angle 45 degrees to the runway heading
- * Lead/Pace follows flight onto runway
- * When Cleared for TO, Lead taxis past all aircraft
- * Racers give thumbs up to Lead/Pace
- * Lead/Pace Rolls and Calls 60 knots





Takeoff

- * Racers roll in order when previous racer is 1000 ft. down the runway
 - * Lead Call 60 knots
- * Takeoff on Hot side, abort to Cold side

THERE WILL LIKELY BE RACERS ON THE COURSE

- * Low Transition on South Edge of Runway
- * No turns until past the race course
- * Last aircraft in flight call “XX airborne”



Takeoff Aborts

- * Aborting aircraft
 - * **Maintain Aircraft Control**
 - * Call Aborting
 - * Move to Cold Side when under control and its clear to move
 - * Call “cold” when moving to cold side
 - * **Control aircraft first!**

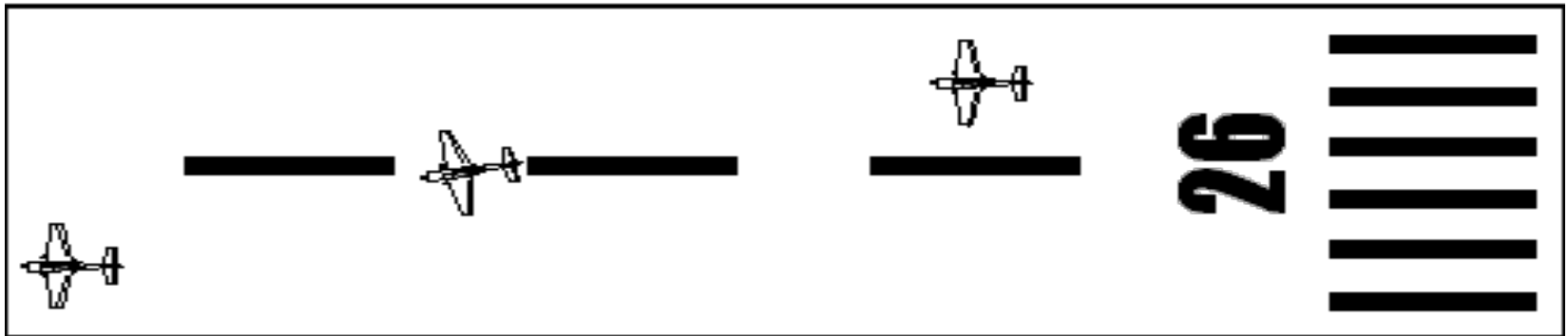
- * Remaining aircraft
 - * If rolling, continue on Hot Side
 - * If not rolling, hold



Hot Side / Cold Side

Hot Side

N



Cold Side

S





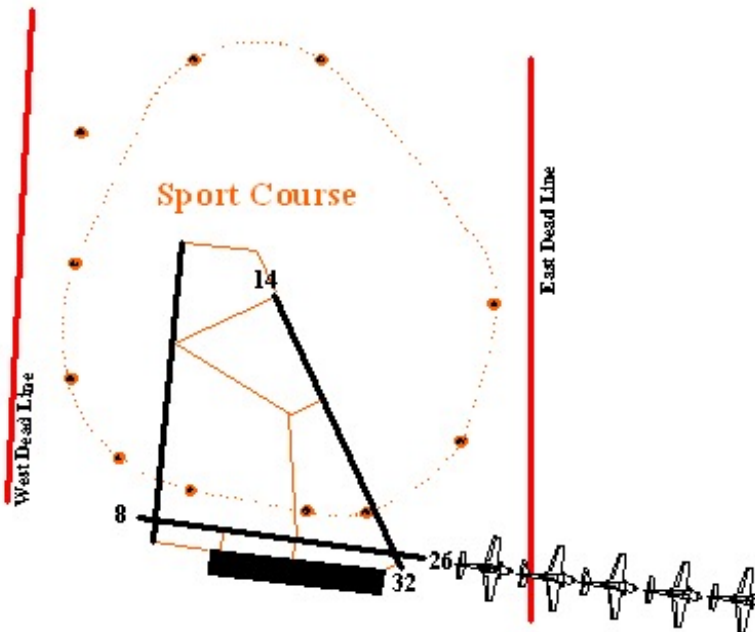
Departures 8

- * Last plane off calls “XX airborne”
- * Lead starts left turn and all racers begin a left turn as soon as they are *past the race course*.
- * **CAUTION:** There could be racers in the chute
 - * Leads in Chute may stay high and enter Queue if needed



Departures 8

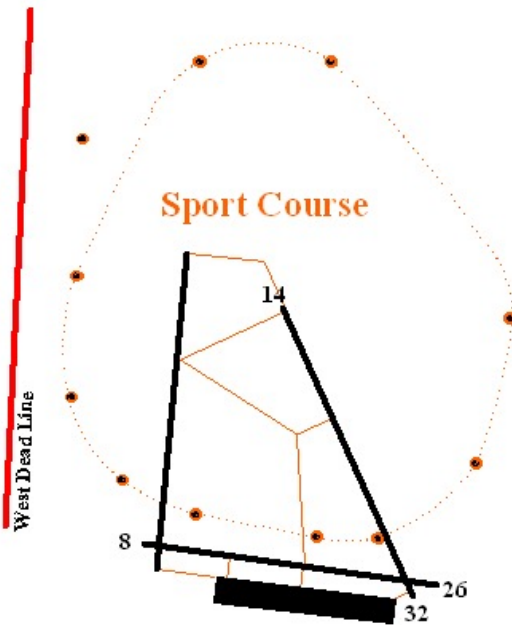
Take Off Rwy 8



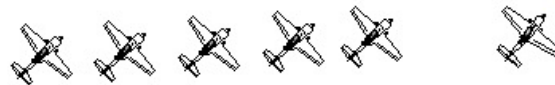


Departures 8

Turn with lead for cut-off



East Dead Line



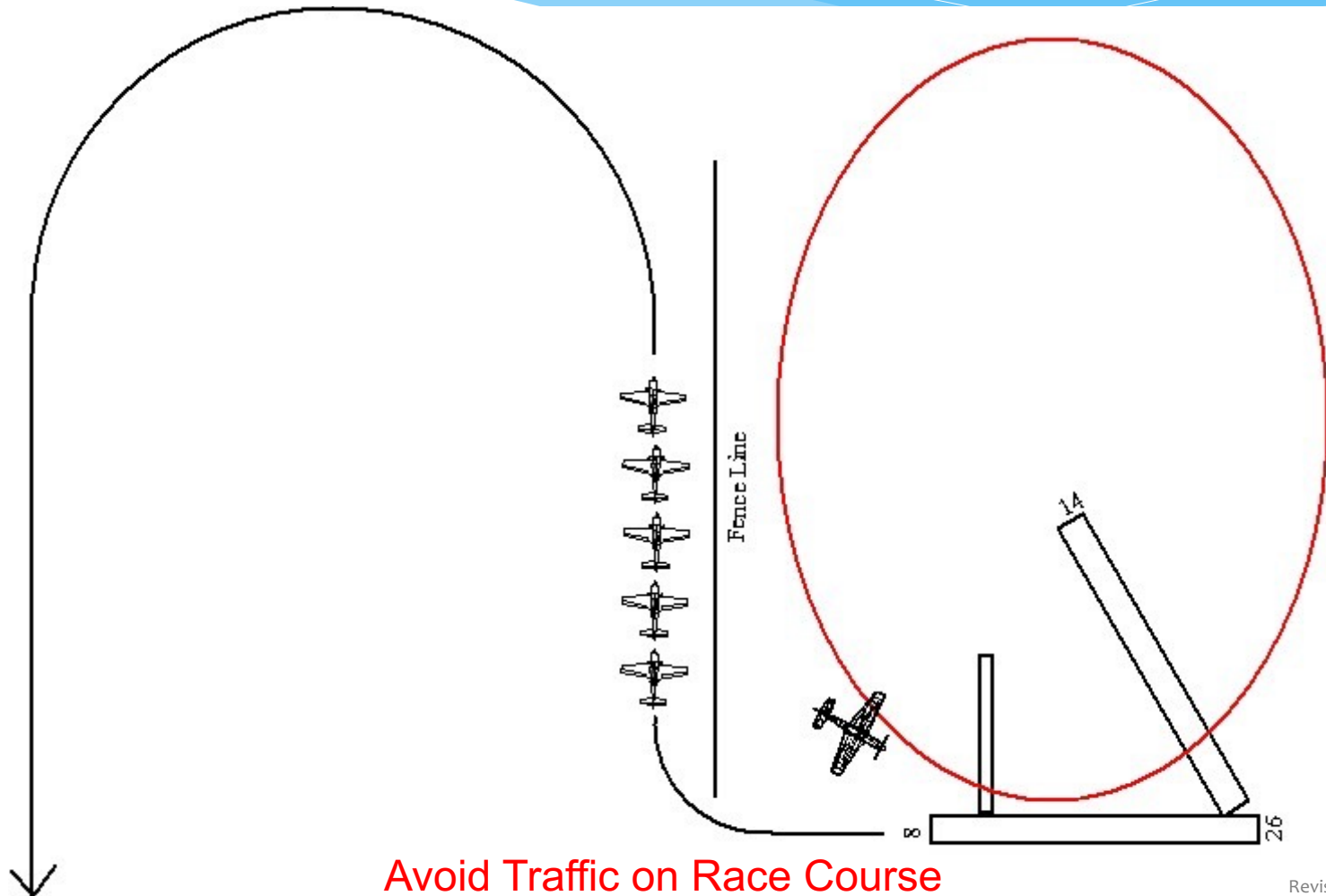


Departures 26

- * Last plane off calls “XX airborne”
- * Fly runway heading until you are past the race course
- * Make right 90 degree turn Northbound (In Trail)
- * Lead will start left turn and all aircraft should immediately make left hand turn for cutoff
- * Do not turn North early: RACERS ON COURSE
- * Last few aircraft may cut across circle to West



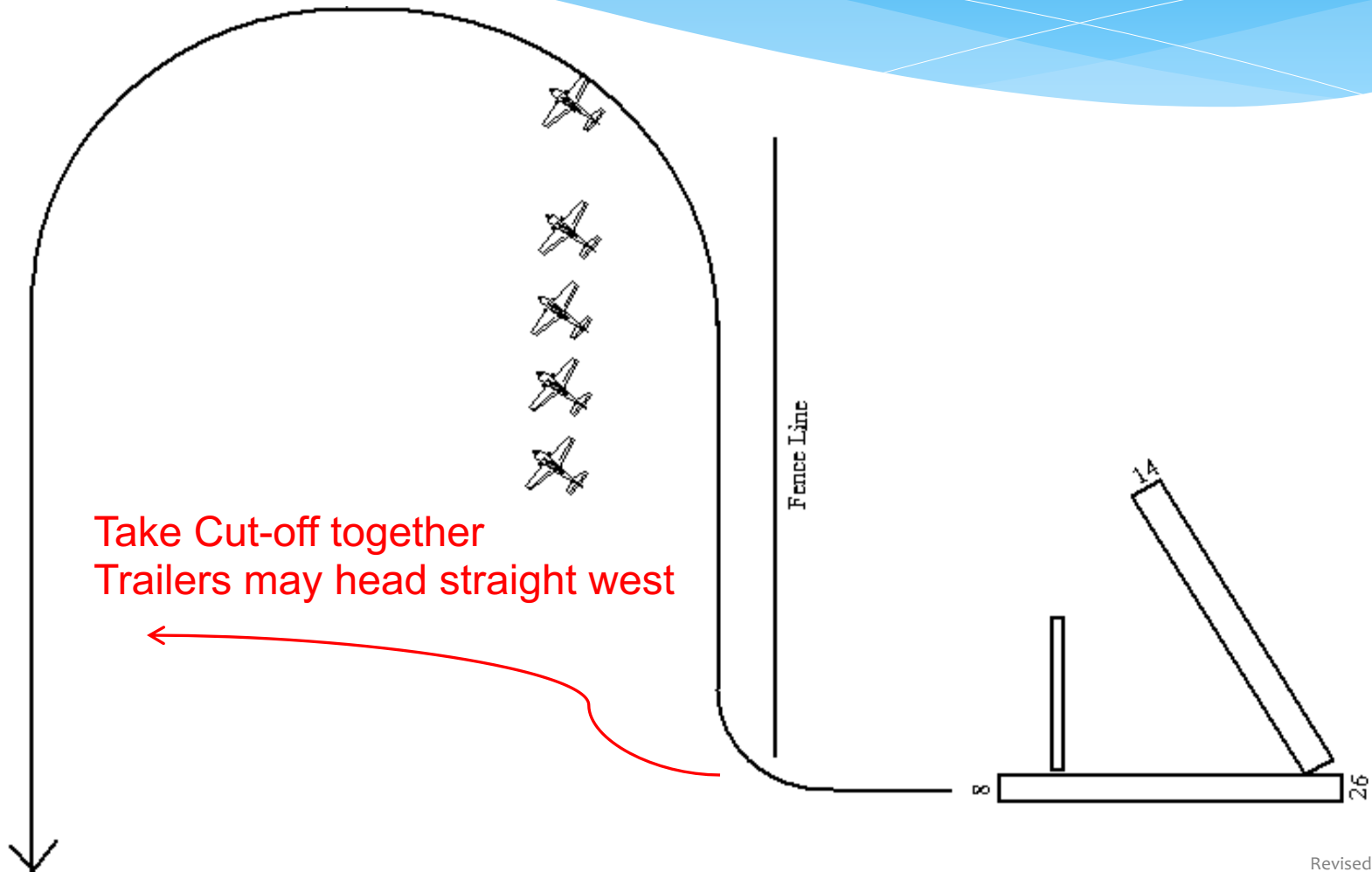
Departures 26



Avoid Traffic on Race Course



Departures 26



Take Cut-off together
Trailers may head straight west



Area Work

- * At Lead's discretion, you may go to a working area before maneuvering to enter the course via the chute
- * Primary Drivers
 - * Course Timing and Training Requirements



Area Work

- * Close formation
 - * Fingertip
 - * Cross-under
 - * Echelon/Echelon Turns
 - * Pitchout/Rejoin Practice
 - * Breakout Demo

- * Upset maneuver (Flip-Flop)
 - * Roll to Inverted and Return to Upright
 - * Recognize limitations of no inverted oil

- * Wingtip Vortex Awareness

- * Extended Trail (Optional)



To the “Chute”

- * All Rookies will enter the course for their first time by following lead down “The Chute” in echelon formation
- * Chute Begins on E side of Peavine Peak
- * Chute is basically S-N towards lighted Start Pylon
 - * Gold Leads always fly around Peavine
 - * Engine management for turbos, etc
 - * Silver, Bronze and Medallion Leads may fly inside of Peavine
 - * 2023 Alternate procedure – must be practiced at least once during PRS by all but Gold pilots
 - * “Gouge” points
 - * 26/32 intersection
 - * Go-Kart Track
 - * S-N Road
 - * Lighted Start Pylon



Entering the Course

- * Lead will maneuver the flight to “The Chute”
 - * Loose Echelon, Relatively Slow Speed
 - * So you can see course highlights and pylons
- * Lead de-conflicts with aircraft on course/in Queue
 - * On-Course Racers will exit via “Escape Maneuver”
 - * Lead also de-conflicts with aircraft on takeoff roll on 8 or landing on 26
- * Lead may hold flight higher than normal or enter Queue if conflict is not resolved
 - * Leads will communicate with each other



Race Course Familiarization

- * Lead will fly at a pre-briefed speed and provide a guided tour
- * Highlights include:
 - * Start Chute and associated landmarks
 - * Lighted Start Pylon
 - * Lighted Guide Pylon (west side)
 - * Sport Gold/Unlimited Course Pylons (White)
 - * Sport Course Pylons (Blue/White)
 - * T-6 Course Pylons (Red) (only for racers with top speeds \leq 275 mph)
 - * All Courses Share Pylons 7, 8, 9, Home and 1
- * Lead will brief & clearly communicate all course-to-course transitions
- * For Flights Transitioning to the T-6 Course:
 - * Trailer must call “clear of 7” before lead will transition to T-6 Course at Pylon 1
- * **No Passing on the course during Fam Hop 1**

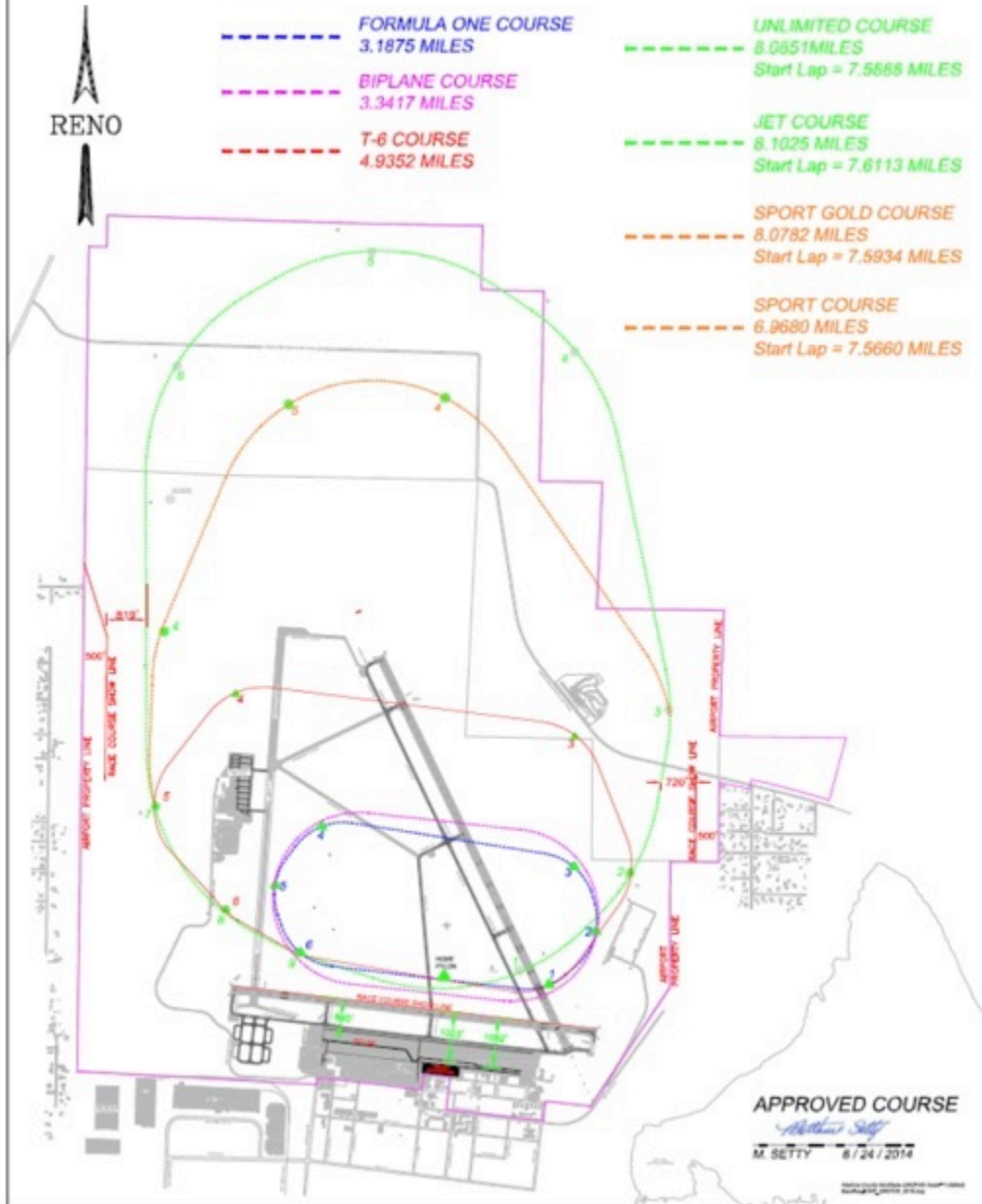


Race Course Familiarization

- * Lead will brief and fly the guided tour on appropriate course(s)
 - * Subsequent PRS hops will brief and fly on one course only for the period
 - * **Exception is all course entries from the chute fly one lap of Gold course first**
- * Flight composition determines what courses will be demonstrated – Lead Discretion
 - * Gold-only racers may elect to fly only the Sport Gold Course
 - * > 275 mph racers will be guided on both Sport Gold and Sport Courses
 - * < 275 mph racers will be guided on Sport Gold, Sport and Medallion Courses
 - * Course Fam 1 hop will conclude with a demo of escape maneuver and entry into cooldown for recovery

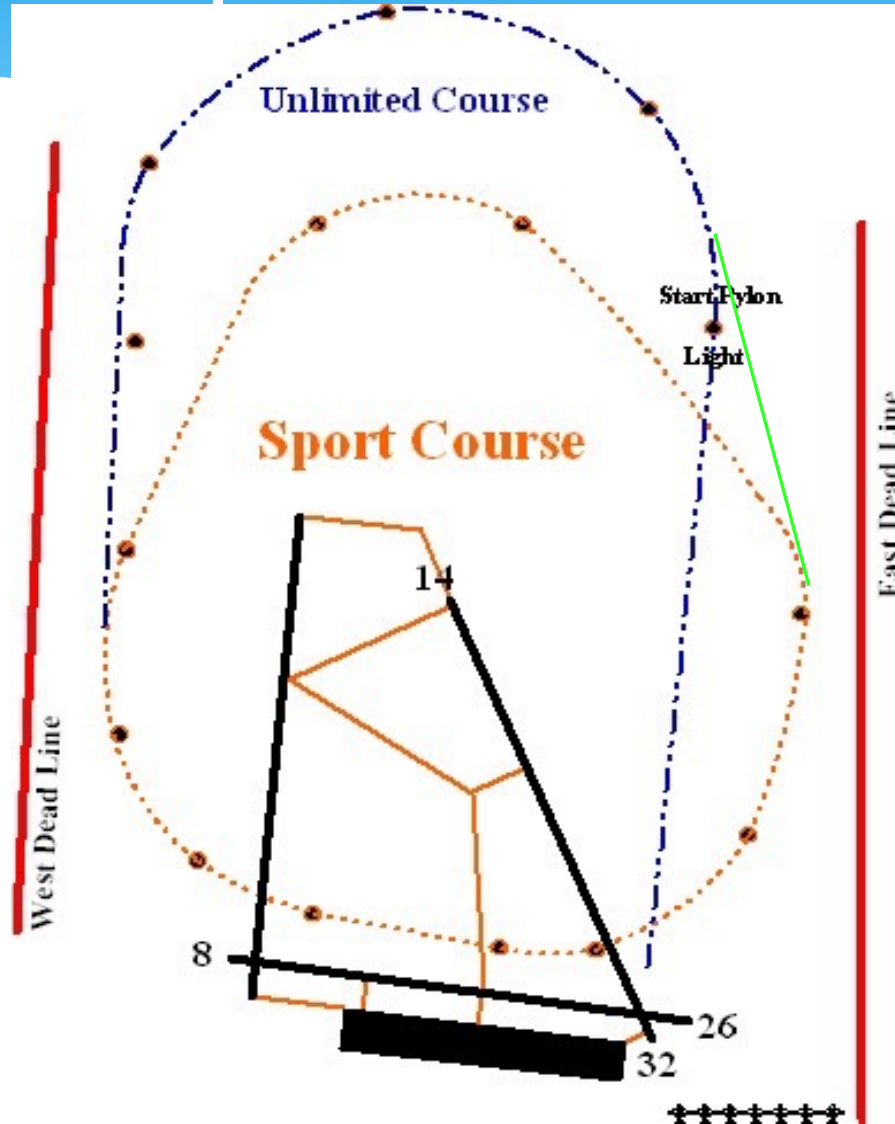


RENO RACE COURSE OVERVIEW



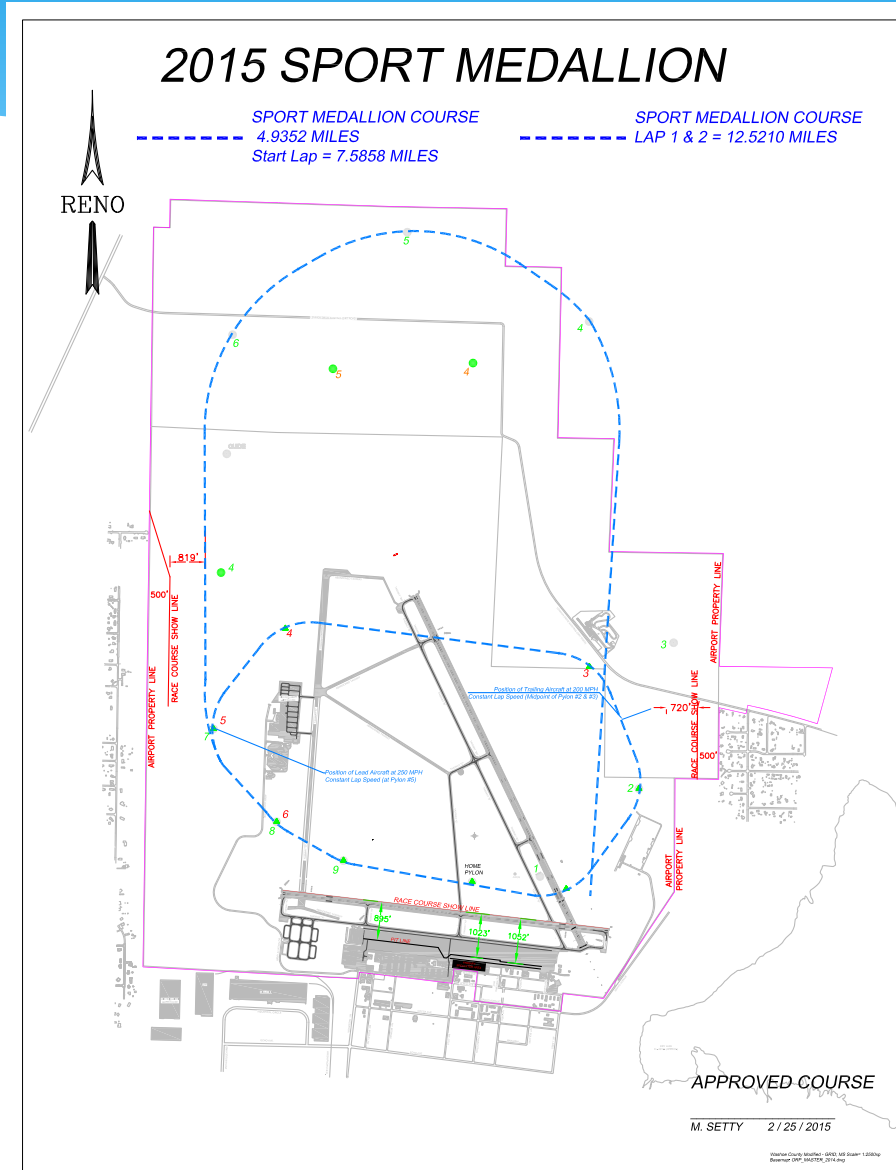


Outer (Sport Gold) and Sport Courses



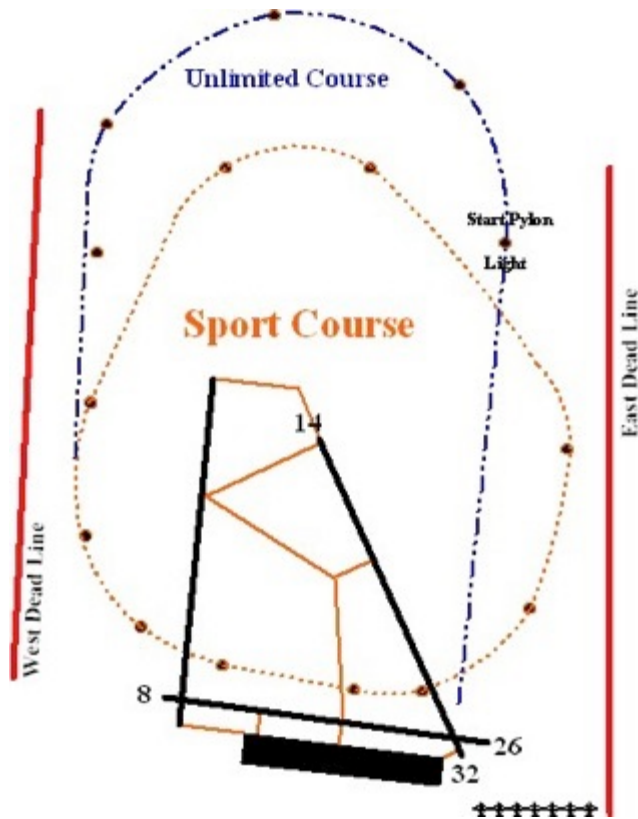


Sport Medallion (T-6) Course

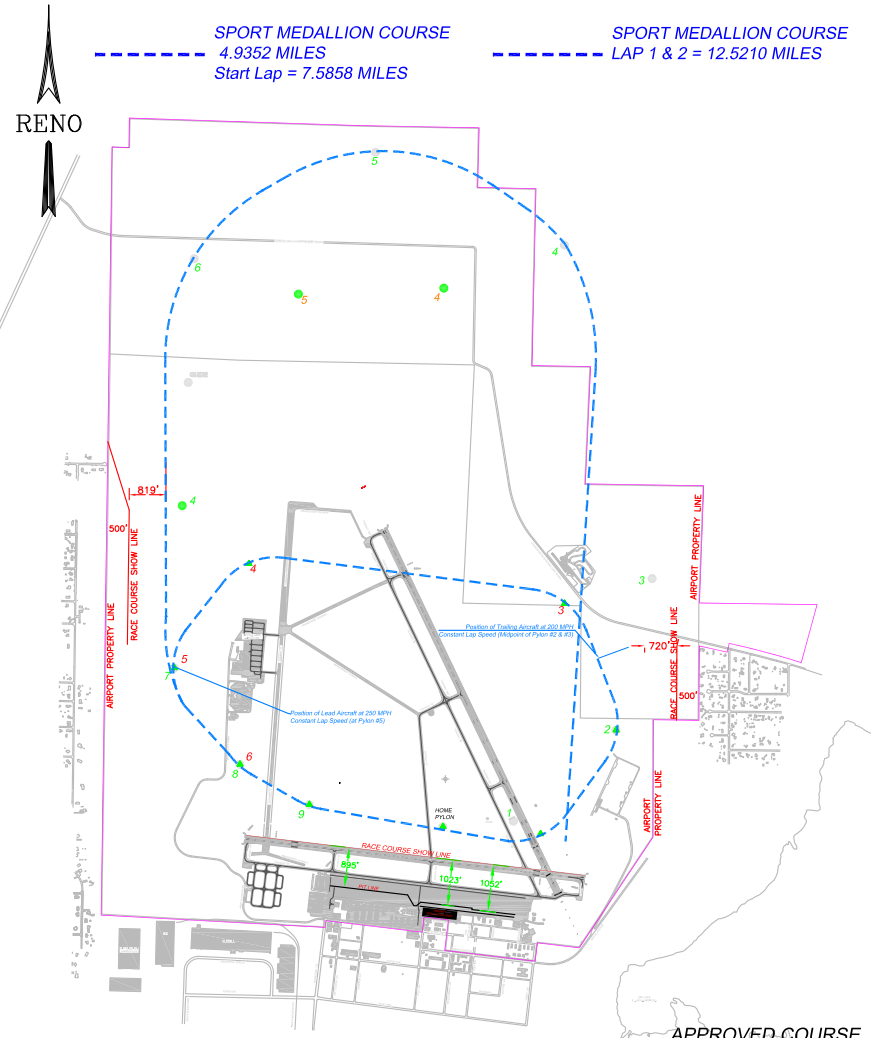




Sport Silver and Bronze/Medallion Course Comparison



2015 SPORT MEDALLION



Revised March 2015

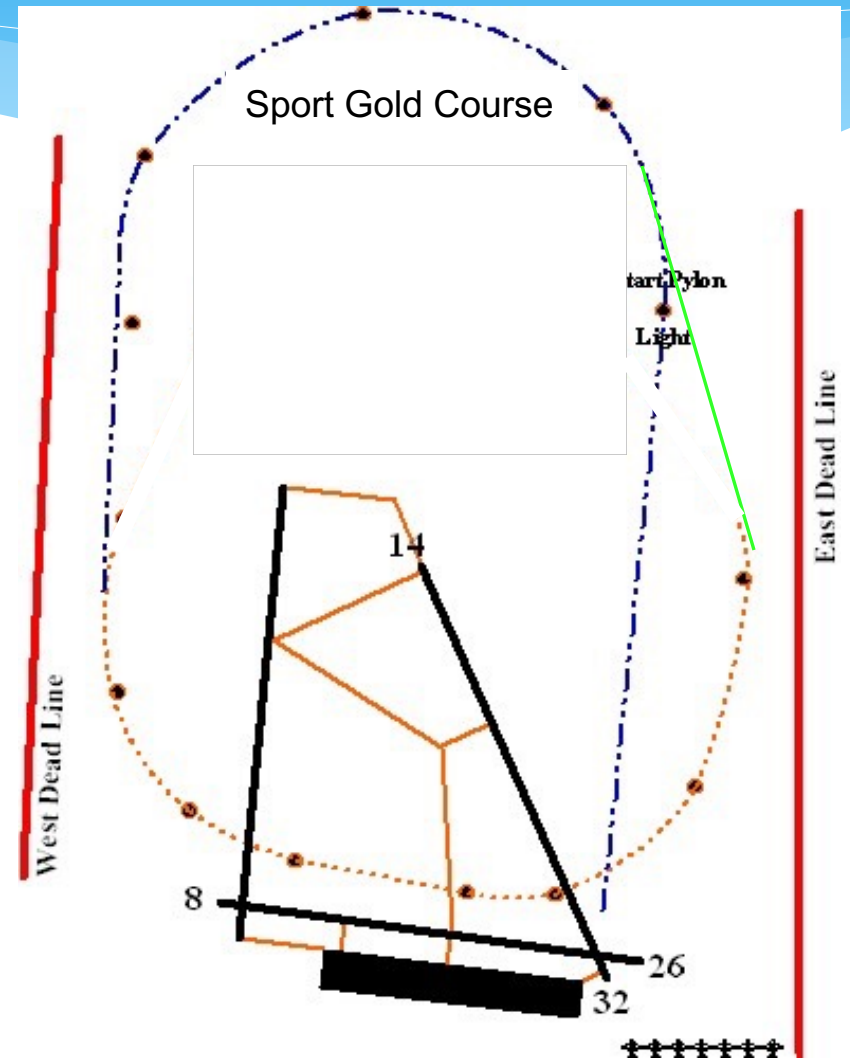
M. SETTY 2 / 25 / 2015

Washoe County Auditor - GPS MS Build - 1/28/15
Source: GPX_2015_011310C_2015.gpx



Outer Course Features (Quals & Sport Gold)

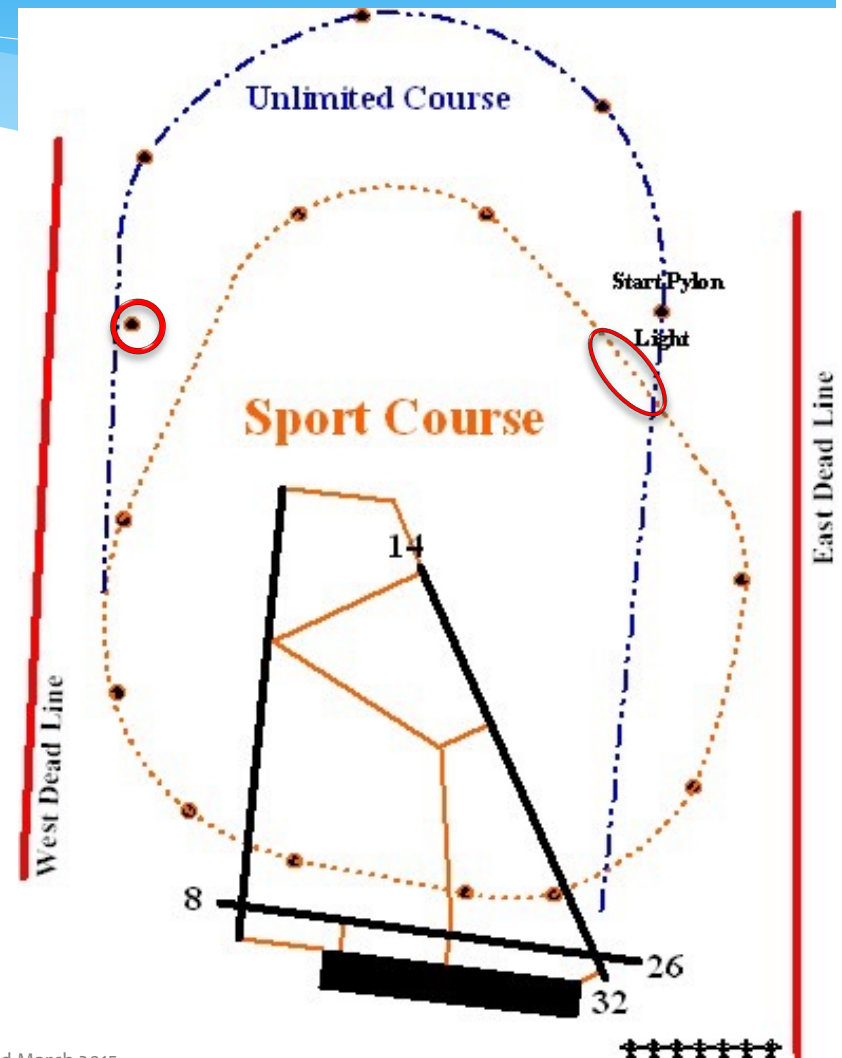
- * East Show Line not may not be visible until close
 - * (white checked swath)
- * Pylon 4 may not be visible initially, depending on altitude
 - * Top of hill
- * Lighted Guide Pylon
 - * Between Pylon 6 and 7
- * West Show Line is graded swath





Sport Course Features

- * Lead will point out subtle rising terrain between Pylon 3 and 4
- * Turn around 4, 5 and 6 requires planning/technique
- * Lead will point out the western Guide Pylon





Techniques On the Course

- * Fast Line
 - * Smooth, non-scalloped turns
 - * Level
 - * Minimum G
 - * Sport Course, 2.2 or less is all you need
 - * T-6 Course, perhaps a bit more
- * Optimum Ground track changes with wind
- * Plan the turns – Look at next two pylons
- * Head on a swivel – Don't fixate and lose SA
- * Situational and Terrain Awareness are paramount
- * Scan Engine
 - * Find a spot on the course to check Oil, EGT, CHT
 - * Check engine at least once each lap



Hazards on course

- * Turbulence
 - * Different wind direction makes the course fly differently
- * Rising Terrain between pylon 3 and 4
 - * Difficult to see/focus is on planning for pylon 4
- * Wing Tip Vortices/Prop Wash
 - * Particularly bad behind Thunder Mustang
 - * Wind changes location of vortex



Practice Periods

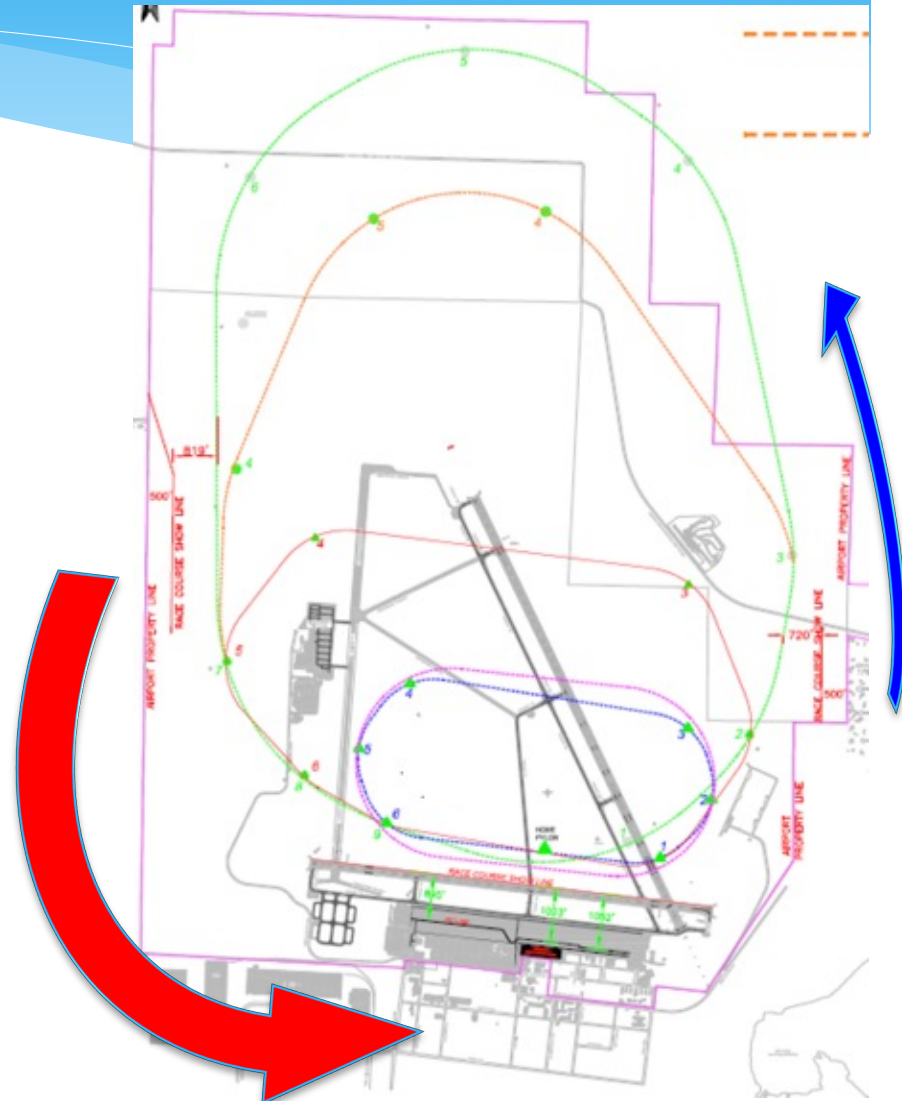
7-10 Laps

- * If you are on time for the Chute, flight will have an opportunity for 7-10 laps (depending on speed) before the next group arrives down the Chute
- * Next Flight in Chute?
 - * Flight will exit out the ESCAPE ROUTE and up into COOL DOWN.
- * Leads must communicate with each other
 - * Wingmen must follow Lead's direction and exit course as instructed



The Escape Maneuver West or South Show Lines

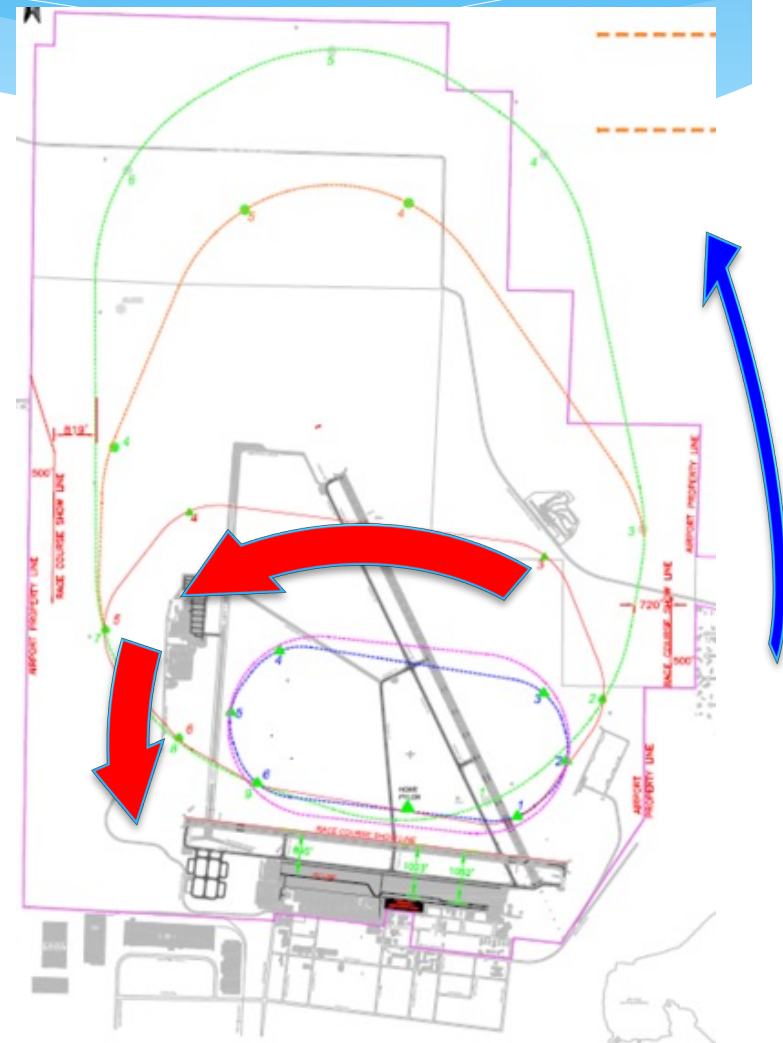
- * Pitch up and climb to 1500' AGL +
- * Fly S of Airport, Stands, and Crowd
- * DO NOT Buzz west-end hangars!
- * Used to exit course when:
 - * W or S show line bust inevitable
 - * Even if forced... Exit and protest
 - * Re-enter outside 3-4-5
 - * Enter wide of traffic if req
 - * Watch your speed!
 - * When On-Course aircraft must clear with next group in the Chute
 - * Caution for aircraft in chute
 - * Give Chute Aircraft Right of Way





The Escape Maneuver From The Medallion Course West or South Show Lines

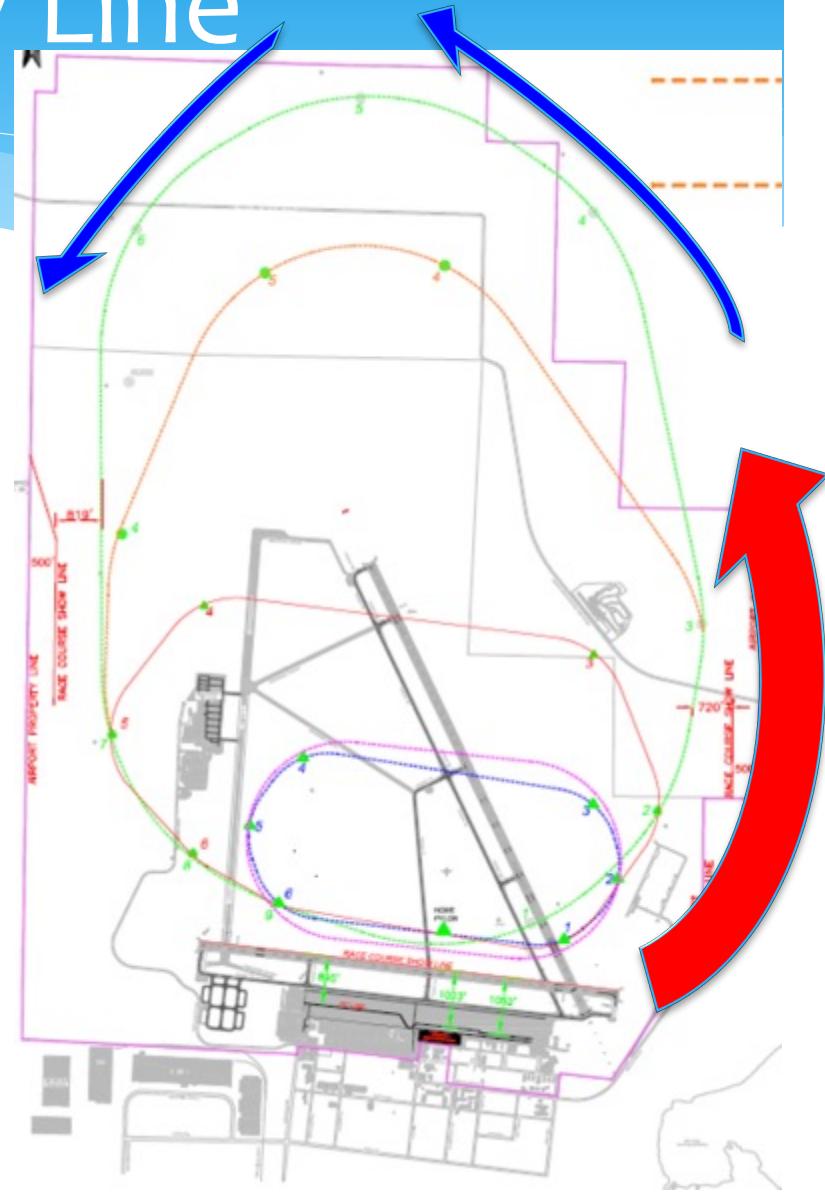
- * Executed on Backside straightaway
- * Pitch up and climb to 1500' AGL +
- * Fly S of Airport, Stands, and Crowd
- * DO NOT Buzz west-end hangars!
- * Used to exit course when:
 - * W or S show line bust inevitable
 - * Even if forced... Exit and protest
 - * Re-enter outside 3-4-5
 - * Enter wide of traffic if req
 - * Watch your speed!
 - * When On-Course aircraft must clear with next group in the Chute
 - * Caution for aircraft in chute
 - * Give Chute Aircraft Right of Way





The Escape Maneuver East Show Line

- * Pitch up and climb to 1500' AGL +
- * Used to exit course when:
 - * E show line bust inevitable
 - * Even if forced... Exit and protest
- * Re-enter outside 4-5, or Valley of Speed
 - * Enter wide of traffic if req
 - * Watch your speed!





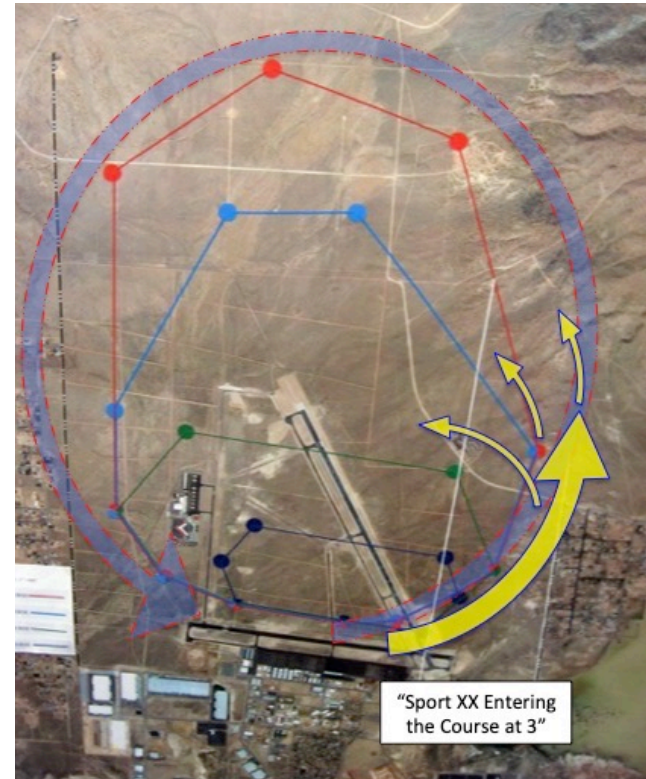
Exiting the Course

- * Call off the course
 - * “Sport XX is off at 7” (escape maneuver)
 - * “Sport XX is off on the backside” (Medallion esc maneuver)
 - * “Sport XX is off at Home”
- * Climb to “Cool-Down” altitude above 7,000
 - * Use Escape Route if Racers in the Chute
- * Fly over the race course
 - * Watch for traffic in “Queue” at 7,000



Exiting and Re-Entering the Course for Priority Aircraft

- * Examples of a Priority Aircraft
 - * BLM operations
 - * Air Guard
- * When? As directed by Race Control
 - * Exit from current position and maintain SA
- * Re-enter the course at pylon 3
 - * Follow the plane in front of you
 - * Don't pass till you are on the course
- * Watch your Speed!
- * Leads Maintain oversight and control
 - * Be directive as needed





Exiting “Cool Down” to Land

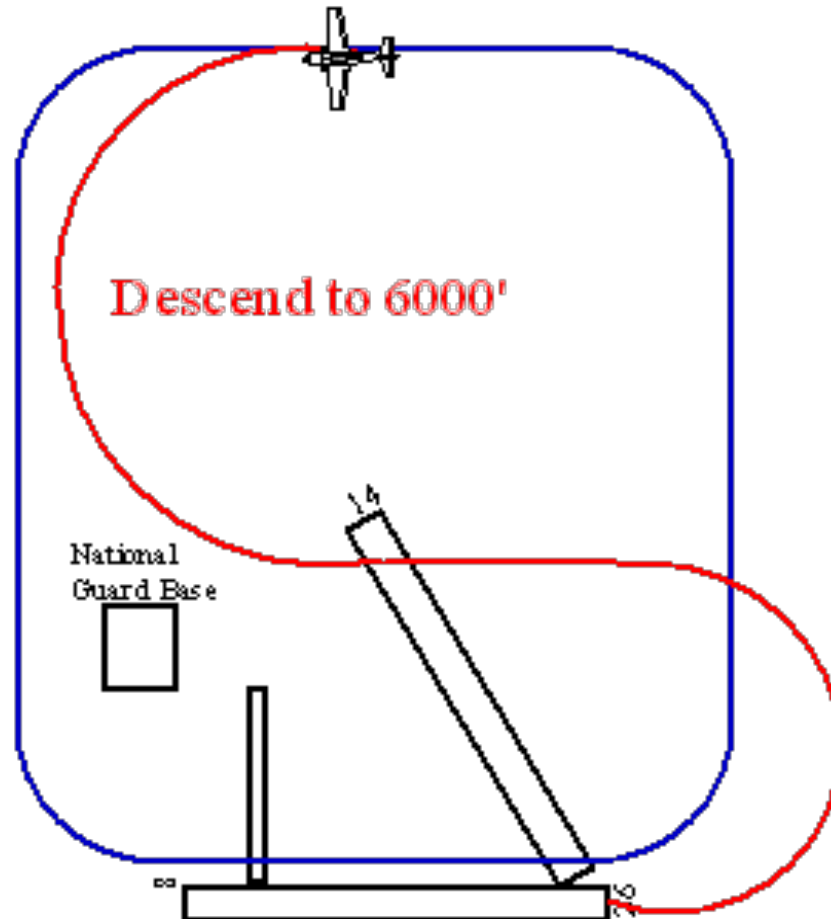
- * Do not stop flying!
- * Manage the engine and systems!
- * Switch brain to landing mode!
- * Clear traffic in the Queue and Cool Down!
- * Call “Sport XX Out of Cool Down”
- * Fly *standard* procedures and patterns



Pattern for 26

Rwy 26 Landing

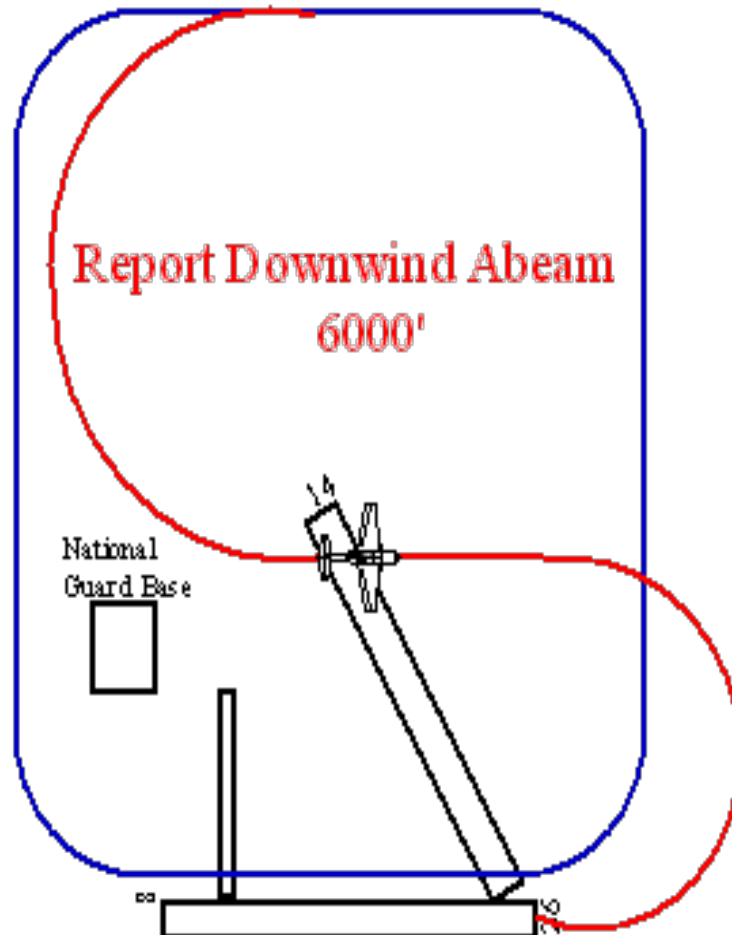
Leave Cool down here





Pattern 26

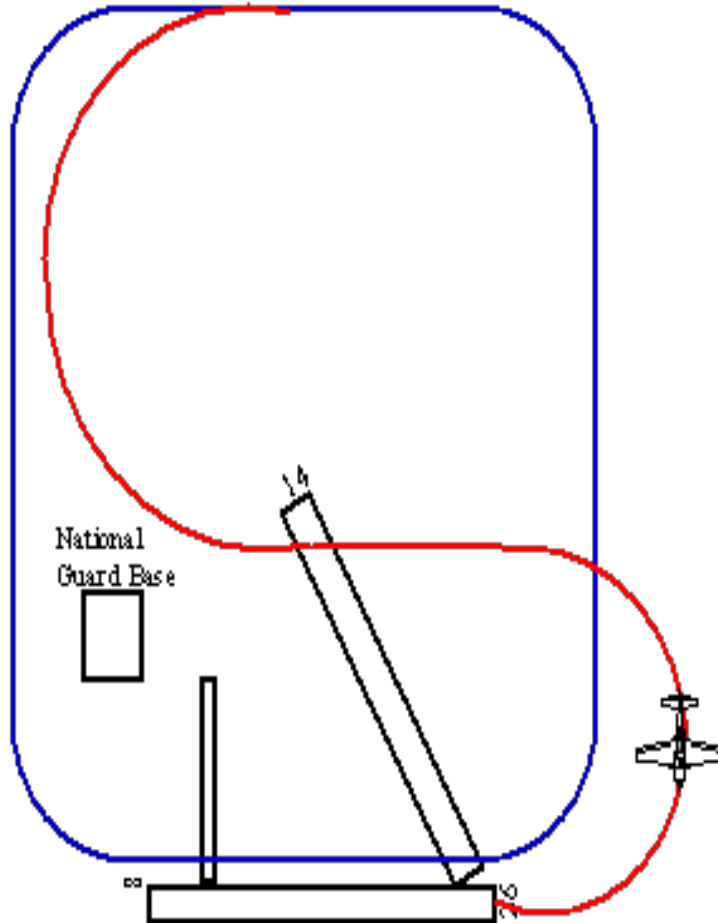
Rwy 26 Landing





Pattern for 26

Rwy 26 Landing

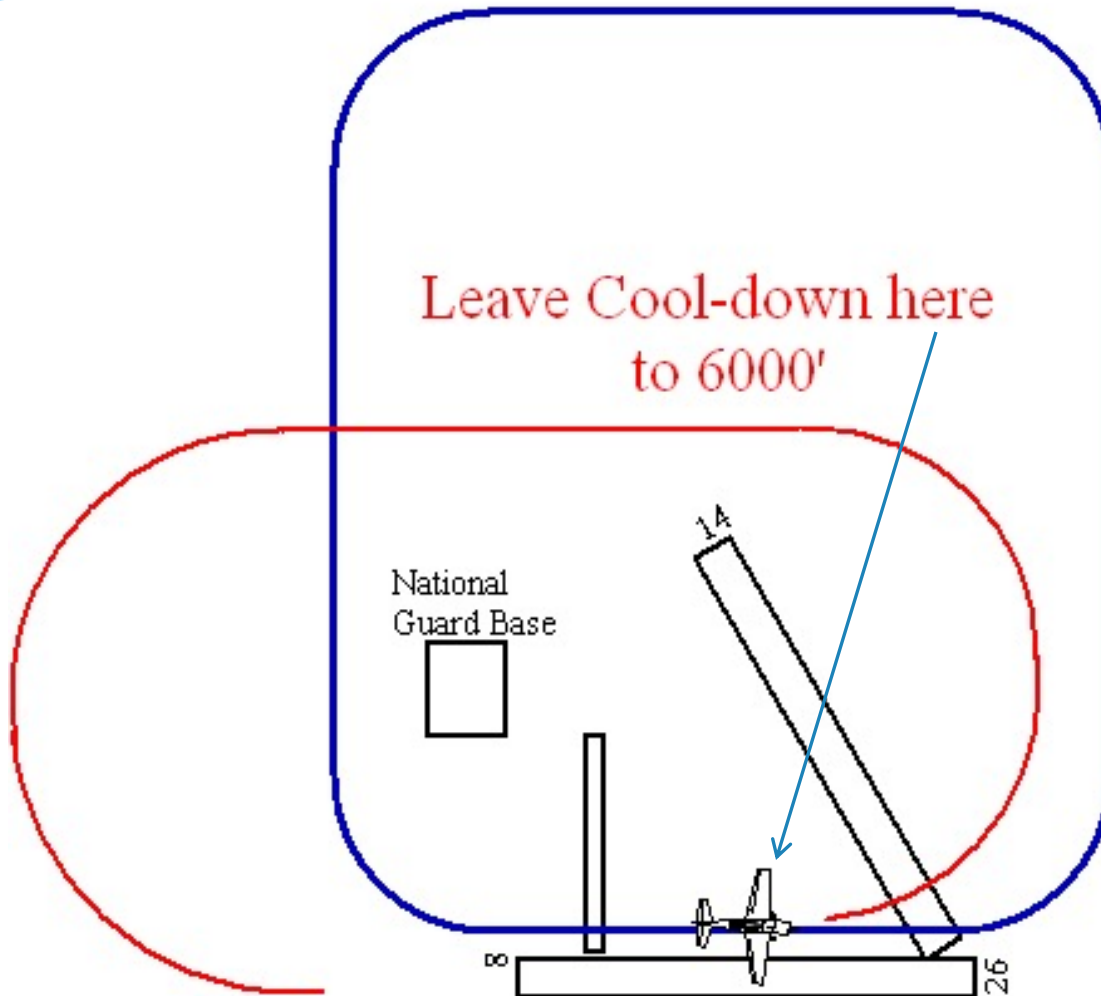


Report Base Gear Down



Pattern for 8

Rwy 8 Landing

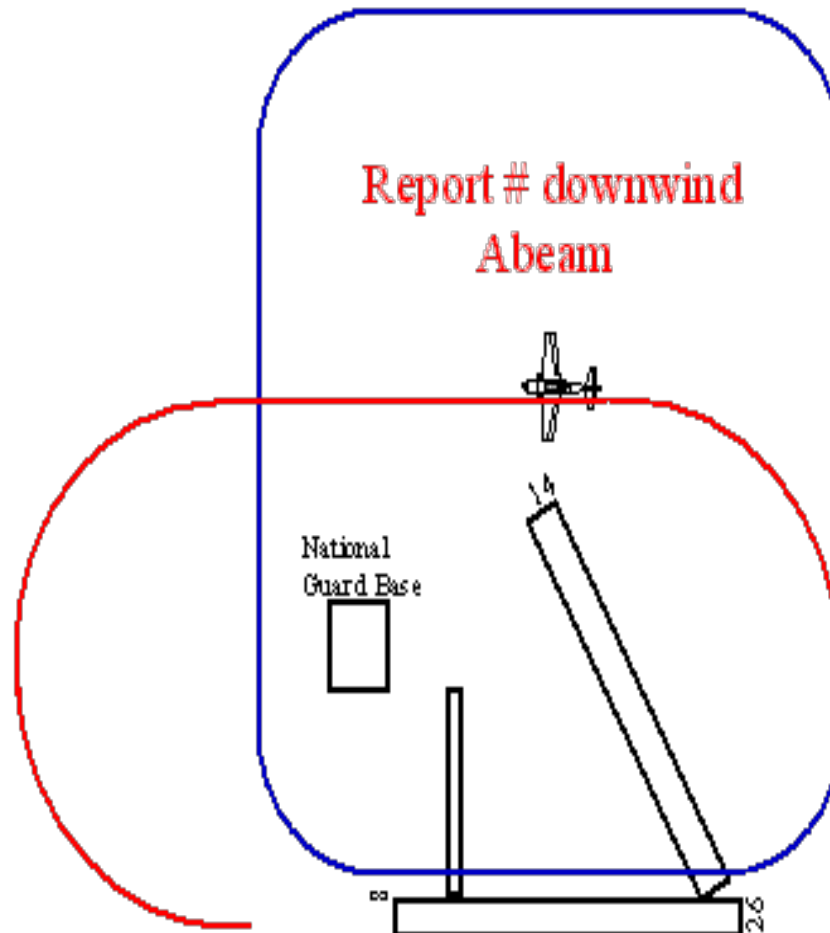




Pattern for 8

Rwy 8 Landing

Report # Base/Gear





Radio Calls

- * “Sport XX Leaving Cool Down”
- * “Sport XX Downwind abeam”
 - * Race Control may provide sequence at this point
- * “Sport XX Base / Gear”

Use only Sport #

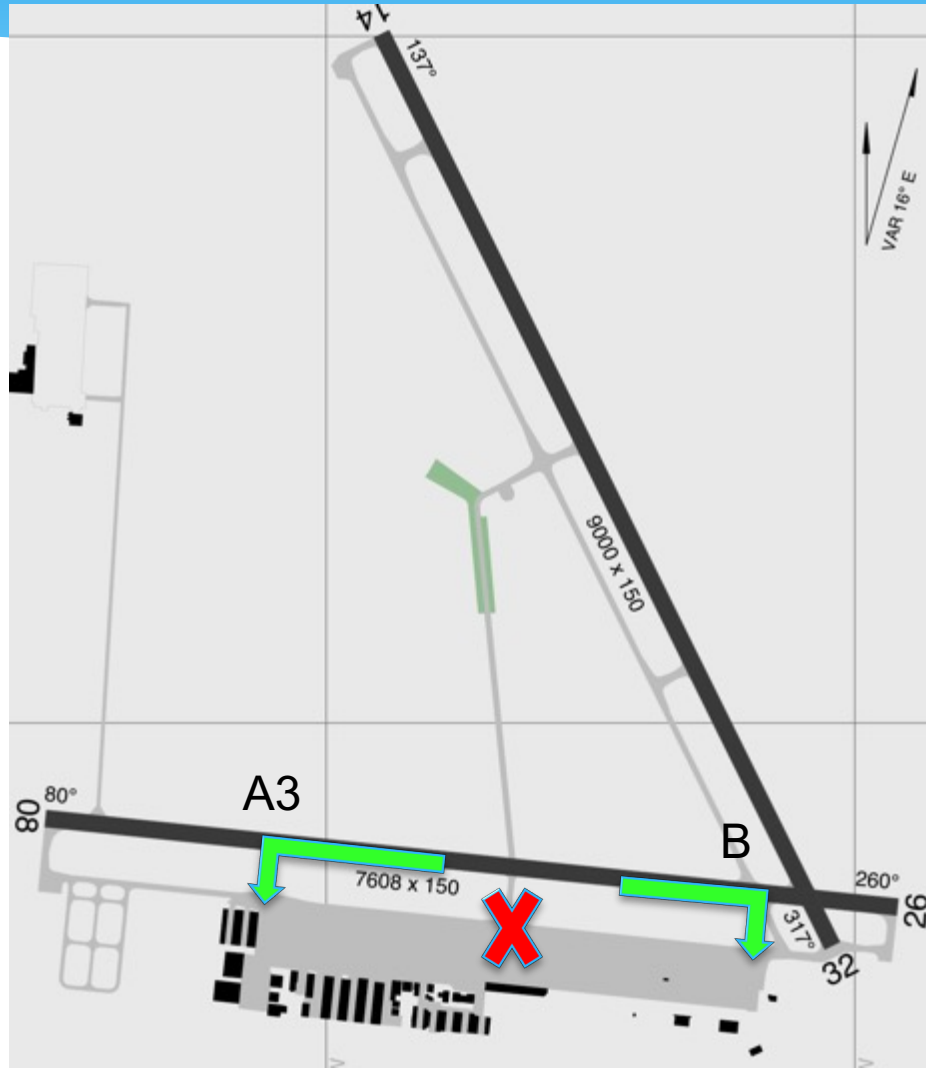


Landing

- * Landing with Sport Aircraft still on roll-out is authorized
- * Land on Hot Side, Check Brakes (as req), Clear to Cold Side
- * Do not turn off mid-field
 - * RWY 8 Exit B
 - * RWY 26 Exit A3
- * Meet at Pace Plane / Lead Aircraft for debriefing
- * Get Gas if required for next flight



Runway Exit Plan



**NO EARLY
TURNOFFS!**



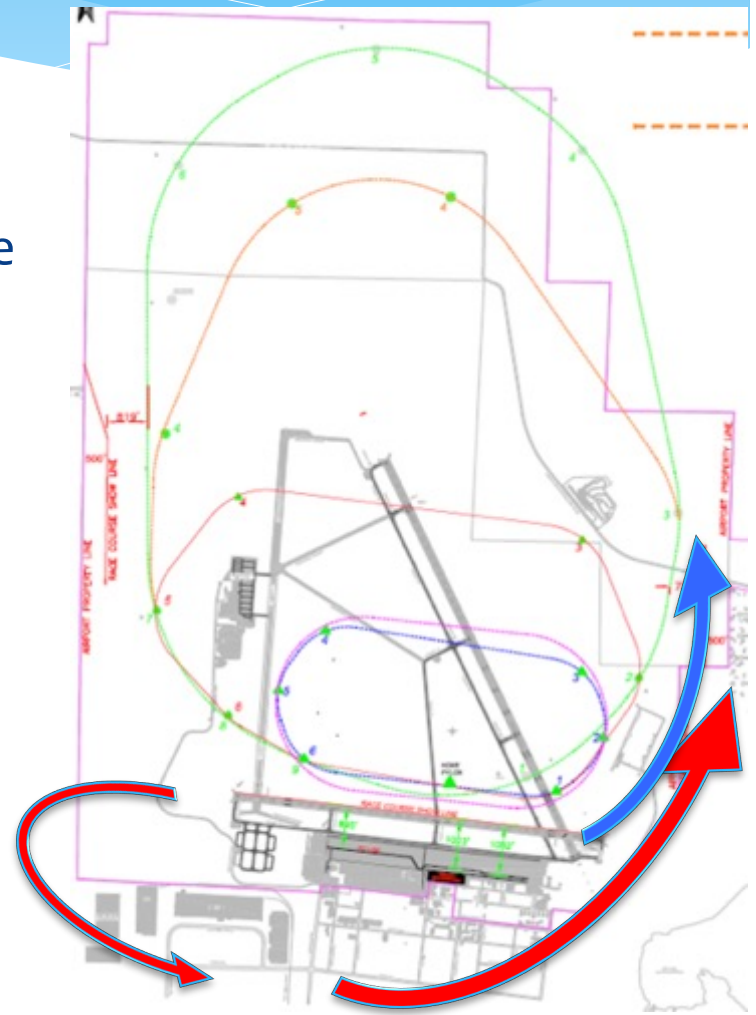
Second Flying Period and Beyond

- * Repeat of the Morning – Without Guided Tour
 - * Flight will now train on one course per period after 1 lap on outer course
 - * Lead Choice based on Wingmen Training Requirements
- * Expect potential Conflicts/Coordination when entering/exiting course
 - * Aircraft may enter course directly from takeoff (chute primary Th-Fr)
 - * Aircraft may enter course from Queue
 - * Aircraft may enter course from Chute
 - * Off at Home, Off at 7 or backside via the Escape Maneuver to deconflict chute traffic
 - * Lead will direct exit plan
- * Listen up - maintain Situational Awareness
- * Develop Course Awareness and Techniques
- * Ask Leads and Experienced Racers for clarification and assistance
 - * They might even tell you the truth! (But few secrets!)



Direct Entry to the Course on Take-off

- * **Runway 08**
 - * Left turn at end of runway
 - * Fly wide checking for traffic inside
 - * Join course at Pylon 3
- * **Runway 26**
 - * Left turn to 1500 feet
 - * Do Not Buzz West-end Hangars
 - * Behind crowd
 - * Join course at Pylon 3





Entering from Queue

- * Queue is flown at 7000
- * Clear traffic on course
- * Radio Call “Sport XX out of the Q, entering at Pylon 3”
- * Pylon 3 preferred, traffic permitting
- * Enter Wide and Give Traffic On the Course R.O.W.
- * Watch Your Speed!



Non Chute Entry - Tips

- * Entering Gold Course from takeoff or the Queue
 - * Give way to aircraft around outer 4-5
- * Entering Sport Course either from takeoff or the Queue
 - * Do not fly around start pylon
 - * Give way to aircraft around Sport 3-4-5
- * Entering Medallion Course from takeoff or the Queue
 - * Enter between 2 and 5 (back stretch)
 - * Control speed and enter wide
- * Any course entry requires caution and traffic in sight
 - * Work your way onto the course line slowly
 - * Yield as needed



Situational Awareness

- * One of the key skills to acquire and develop at PRS
 - * Understanding the Flow of the events
 - * How airplanes enter and exit the course
 - * Where to look for airplanes
 - * How airplanes fly the landing pattern
 - * Listening to the radio and interpreting
 - * Anticipating what will happen next



Flight Discipline

- * Essential to Safety
 - * Do what you say you are doing
 - * Fulfill the formation “contract”
 - * Remain predictable
- * Must be Standardized to avoid potential conflicts:
 - * Take-off with airplanes on course
 - * Entering/exiting the course
 - * Landing Pattern/Chute/Cool Down
- * Must fly your plan



PRS Day 2 and 3

- * Format the same as Day One Plus:
 - * Simulated Emergencies
 - * Passing
 - * Check Rides



Learning Objectives

Fly-Days 2-3

- * Integrate and Automate knowledge gained on Day One
 - * Make it part of your Racing DNA
- * Learn Passing techniques
- * Demonstrate proper Simulated Emergency Landing procedures
- * Demonstrate Upset recovery/Wing Vortex Knowledge



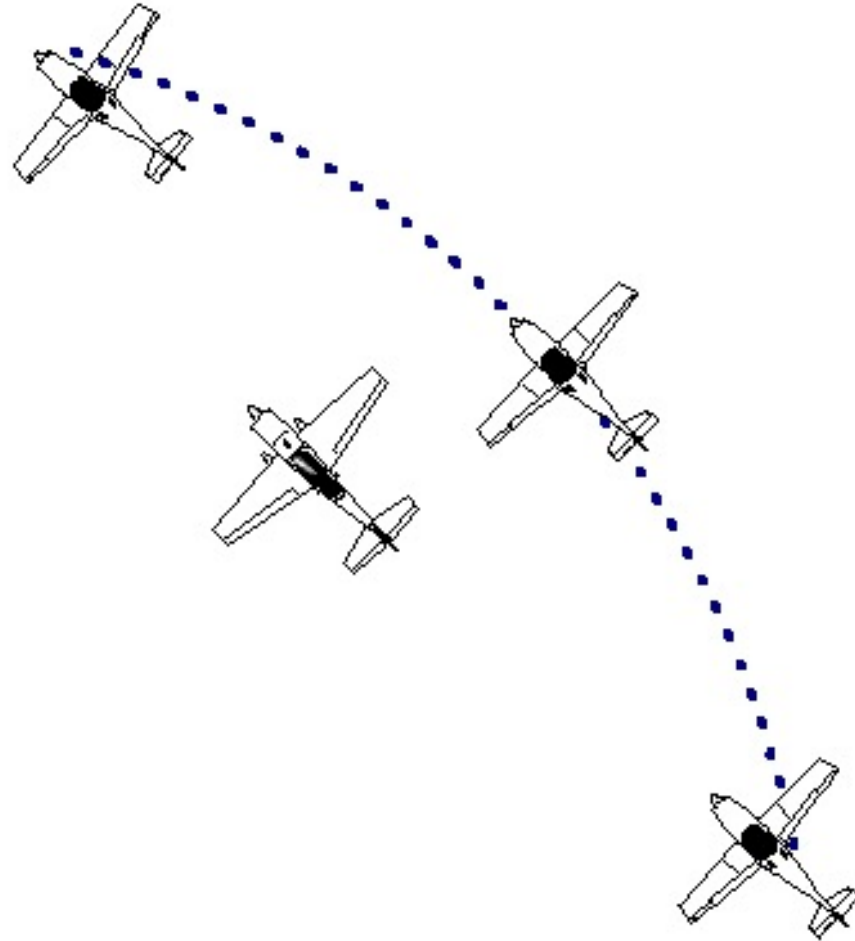
Passing

- * **Passing** –It is overtaking aircraft’s responsibility to pass well clear.
- * **Pass on right unless racer being passed is way wide and you can keep him in sight.**
- * **Formation on course**
 - * *Just because you are racing does not mean you can ignore formation contract with plane on your left.*
 - * *You are the Wingman until the pass is complete*
 - * *Defined by a “Clear” call or obvious nose to tail and opening*



Passing

Good Pass!

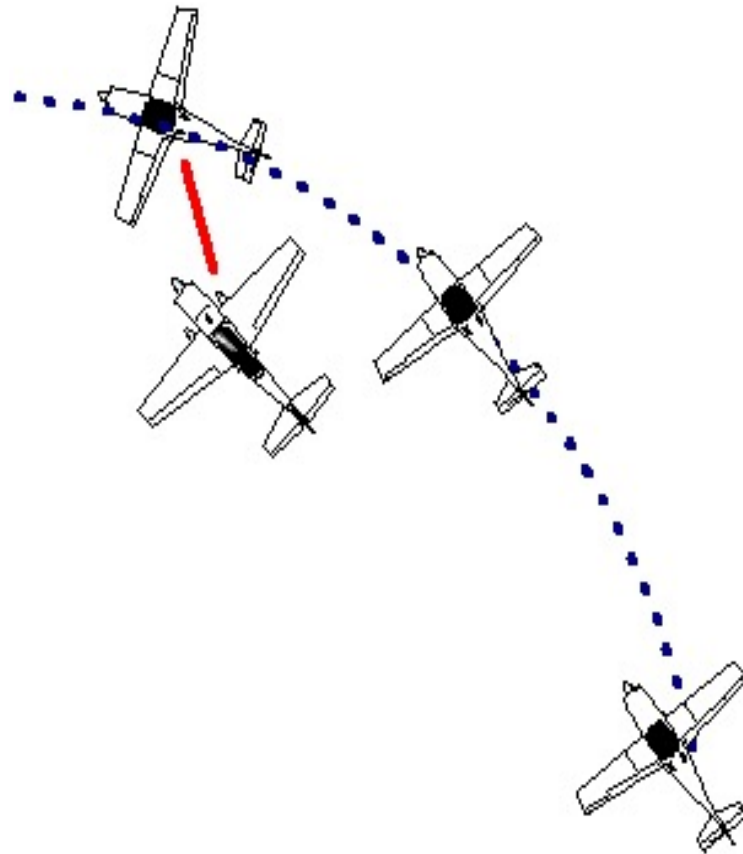




Passing Geometry

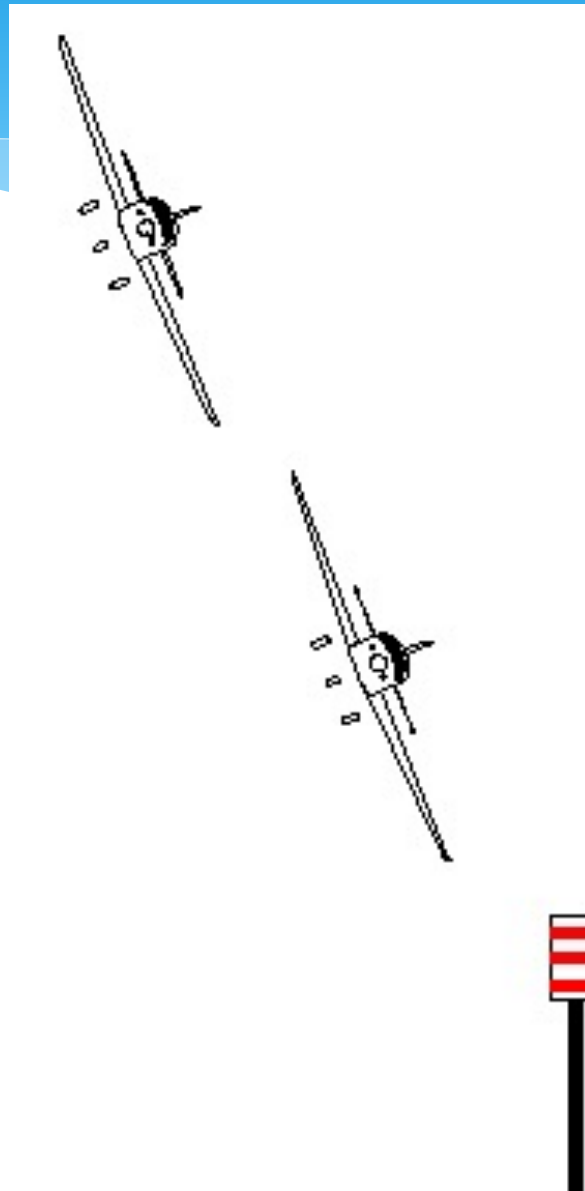
Pull too soon/too hard and you slow...

The Nose to Tail and Opening you thought you had...disappears!



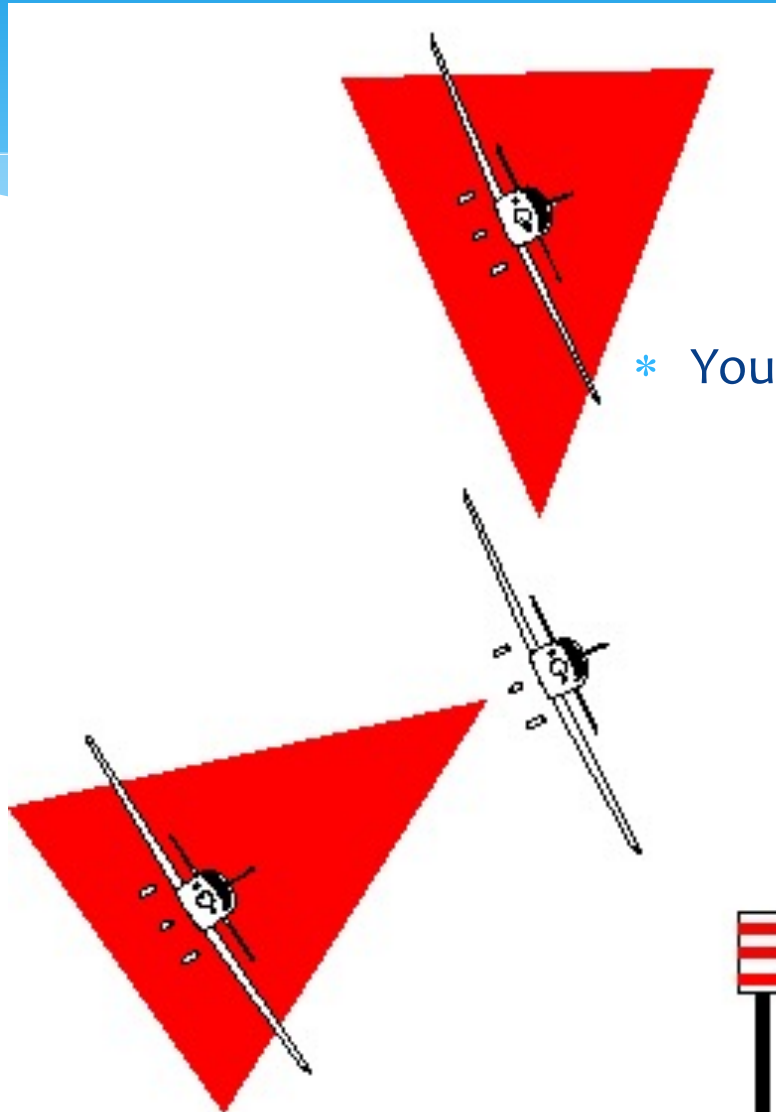


This is the perfect position for passing





- * Not so perfect areas for passing!
- * (Actually, BAD areas!)



* You can't see them!

* They can't see you!





SAFETY



Preparation

- * MINDSET – Heads into the game as you walk to the planes.
- * Think out contingencies—engine failure, airframe malfunction, other aircraft MayDays, closed runway.
- * FUEL - enough to hold for 20 minutes and divert to Reno International or other divert fields.

Divert Fields

Beckwourth/Nervino
4900' MSL
4600' Runway
122.8

Reno INTL
4415' MSL MSL
11000' Runway
118.7

Truckee
5901' MSL MSL
7000' Runway
122.8



Carson City
4705' MSL
6100' Runway
123.0

Dayton Valley
4414' MSL
5300' Runway
122.9

Silver Springs
4265' MSL
6000' Runway
122.9



Emergencies

- * Each Aircraft type presents different challenges
 - * Pre-think your plan
- * There are automatic responses that will help your chances of success
 - * They result from preparation and practice (muscle memory)



Mayday

- * Automatic response:
 - * Zoom climb inside the race course to Best Glide Speed
 - * Call “Sport XX Mayday”
 - * (CFR scrambles vehicles)



- * Race Control responds with winds—listen and pick your runway
 - * Announce intentions if possible
- * Aim 1/3 of the way down the runway



Engine Failure on Take-off

- * Maintain Aircraft Control
- * Right after lift-off--aim straight down the runway
- * Fuel Pump on
- * Consider switching tanks if time allows
- * Consider crossing runways if time and altitude allows
- * Consider Gear Up if landing off pavement
- * Fly the airplane as far “into the crash” as possible
- * Think through various scenarios before PRS and race week



Engine Failure at Start of Race

- * Maintain Aircraft Control
- * Zoom to best glide speed
- * Call “Mayday”
- * S turn behind formation if speed and altitude require
- * Runway 26 or 32 may be best choices from the Chute
 - * Lots of altitude... consider left downwind for 14
- * Aim 1/3 of the way down runway
- * Gear Down only after landing on runway assured
- * Know your system



Engine Failure/Emergency on the Race Course

- * Maintain Aircraft Control
- * Zoom up and to left (inside course) to best glide speed
- * Call “Mayday”
- * Choose appropriate Runway
 - * Resist temptation to favor the runway you took off from
 - * Plan your runway choices ahead of time
- * “Clock” Method (covered later)
- * 14 is very often the best choice (some say only)
- * Fuel Pump/switch tanks
- * State intentions if possible
- * Aim 1/3 of the way down the runway
- * Gear down only after landing on pavement assured
 - * Know your system



Loss of Control

Know your aircraft's characteristics

- * Consider flight control positioning
 - * Neutral? Anti-Spin?
- * Consider reducing power
- * Consider deploying speed brakes
- * Consider extending landing gear
 - * Caution if mains don't come down together!



Emergencies-continued

- * During Mayday, all other aircraft continue racing
- * Remember—Biggest problem is denial
- * Bernoulli determines aircraft position—not Marconi
 - * Aviate, Navigate, Communicate



Propeller Over-Speed

- * The single most common cause of Emergencies/Engine Failures
 - * Much has been written on the subject
 - * Can be caused by high oil temps or over-boost
 - * Counter-weighted Props recommended for high performance engines
 - * High Flow Governors
 - * Consider resetting the fine-pitch stops
- * Full RPM and Jam Accel Throttle at start is a bad
 - * Manage RPM after full throttle in may be better
 - * Know your plane and motor!





Simulated Emergencies

- * Divide race course in thirds and decide a plan of action for each third of the runway.
 - * Or Use The Clock Method
 - * Remain flexible—winds change everything
- * Zoom climb inside race course to best glide speed
 - * Initially climb towards course apex
 - * Manage Airspeed and Emergency
 - * Select Runway
 - * Delay Gear until necessary and runway is made
- * Call “Sport XX Simulated Emergency”
 - * Race Control will call winds
 - * YOU select and communicate runway
 - * Comm if able... but crash crew responds to your call!



Simulated Emergencies

- * Aim for 1/3 to 1/2 of the way down the runway
 - * Do not attempt sim emergency landing against traffic
 - * Of course a real Mayday has priority!
- * Terminate with a low approach if not on the active runway
 - * Early go around to prevent a conflict is a gold star
 - * Ask Sport 12!



Keys to Safety

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



State-of-Mind

- * No one makes money Racing at Reno
- * 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.



Final Objective

*Pass Check Ride and
Earn Racing License*



What it takes to Pass PRS

- * Close Formation
- * Turning Rejoins
- * Upset Recovery
- * Blind Breakout
- * Proper Start procedures and technique
- * Level turns on the course
- * Proper passing technique
- * Proper execution of Simulated emergency
- * Proper recoveries
- * Situational Awareness
- * Knowledge/Compliance with rules and SOP
- * Buy-in to the Sport Class Culture of Safety and Racing Excellence



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!

