

FORMULA FORUM



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IF1 INC.



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MEMBERSHIP

Membership in IF1 is open
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For IF1 Technical and Procedure
rules, check on-line at:

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COVER PHOTOS

In 2006 (top), Zipper looked like Aggressor
with new paint. In 2007 (bottom), George
André completely rebuilt the plane that would
become Invictus in 2008. Stories pp. 8 & 10.

Photos by John Garrett (top) and Bill Rogers
(bottom).

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President's Page: Class Presidents Meeting

I have just returned from the annual Reno Air Race Association Class Presidents meeting. As usual, we discussed many items pertinent to the class and to the Reno Air Races as an event. Of course one of the main issues discussed, and one that seems to get the most attention from the membership, is purse.

As can be expected, ticket sales and sponsorship were down in 2009. In fact overall revenue for the event was down \$300,000 from the previous year. However RARA has committed to keep the class purses at last year's levels. This is good news for us and shows the air race association's commitment to keeping the races as financially viable as possible for the aircraft owners.

In class breakouts five specific items were reviewed:

1. Relief Stations at Race Start

While it may seem a bit ridiculous, I brought up the need for a portable restroom at the end of Runway 08. While staging for our races we can spend up to an hour out at the end of the runway. This year we will have a spot for relief that doesn't involve public exposure and the risk of being labeled a sex offender in the state of Nevada.

2. Contest Committee Airfield Access

The second thing we discussed was a need for our contest committee volunteers to have a credential that allows them access to their stations on the airfield. Again, RARA has committed to supply us with the proper credentials for all of our volunteers.

3. Trailer Access During Races

The third item on our breakout list was access to our trailers. Last year our trailers were placed in an area that some people considered off limits during races. We pointed out that our crews need unhindered access to these trailers during race week as we use them for tools and spare parts storage.

Along with this, I brought up the fact that there is some inconsistency in badges for authorized security personnel. Does anyone with an FAA badge have the authority to restrict movement of a properly credentialed crew member? We had one instance where a pylon judge tried to stop one of our pilots from going to his trailer.

If someone is properly credentialed as Security, please don't argue with them. Follow directions. The problem arises when people with no, or limited authority start to create problems for our crews. If you are in the right, I won't tolerate it and neither will RARA. I think this year will be better than last. By being pleasant and professional you make it easier for me to defend you.

4. Maydays

The fourth item we discussed was Maydays. Whenever an airplane pulls up off the course, rescue crews go on alert. It is assumed that you have an emergency. What happens next is that everyone from Race Control to Fire and Rescue is expecting the pilot to radio intentions. This allows airfield personnel to properly assist you. There is consternation with IF1 because we have had airplanes pull off the course and never radio intent.

Smokey Young

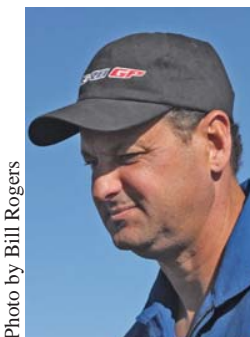


Photo by Bill Rogers

I brought up the fact that there is some inconsistency in badges for authorized security personnel.

I explained to Bill that part of the reluctance we have to declaring is a desire not to have recovery personnel manhandling our airplanes.

IF1 rookies touring in John Hall's RV-8, first-time warbird racers, empty stands. Must be PRS, the only chance to get course time without the pressures of race week. It's June 16-19.

Bill Eck made the statement "Maydays are free." Now Bill is a great guy but I had to disagree with him. Our airplanes are exotic and fragile. There are 100 man hours in my wheel pants alone. I explained to Bill that part of the reluctance we have to declaring is a desire not to have recovery personnel manhandling our airplanes.

Dragging "Madness" into the gravel can do unintentional damage that can take months to repair. The same holds true of most of our raceplanes, especially the ones running Gold. RARA and recovery in particular though has a requirement to keep the runway clear during a race.

It would be ideal is if we could dispatch our own crews to recover our airplanes. This isn't possible. However this year IF1 will be able to supply crew members (tentatively Tech inspectors) to ride with the recovery crews during our races. This allows us to have someone familiar with Formula One aircraft on hand to get our airplanes off the runway.

In exchange, any time we pull off the course prior to completion of the end of a race, airfield personnel will automatically consider it a Mayday.

5. Participation

The last item we discussed was our level of participation. Right now we have one probable for PRS in June. RARA is concerned about our ability to fill the field. I assured the staff that, as a group, we are doing everything possible to encourage new racers and get veterans to return. Economic times are tough and everyone knows that racing is an expensive hobby.

If you are reading this as a potential racer, send me an email. We'd love to see you at PRS. If you are a veteran, get that airplane ready. We need you in the fall.

As always I will close by saying, if you need help drop me a line. We will do anything we can to help get you to Reno and keep you racing.

—Smokey



Photo by Birgitta Nurmi

VP Report: PRS – Not Just for Rookies

Last issue I talked about the value of flying your plane, and encouraged all Formula One pilots to take advantage of their hard-earned privilege of flying a thoroughbred race plane. These IF1s are remarkable little critters—not only for their performance, but also for how well they handle. They can also be like a second language—a short time to learn, but a lifetime to master.

This issue I'll mention another way to stay sharp in the off season—training. If you are near an airport that offers aerobatic or upset attitude training, consider yourself fortunate. This is a great way to hone skills and it transfers very well to racing, but it can be hard to find in some locations.

Another option is getting your formation card or some add-on formation training. The crosscheck and management of geometry exercised in simple formation maneuvers, such as rejoin overruns and position changes, is a great way to keep the mold off of your racing skills.

This also can be difficult to find, so if you have it available in your area, you are again fortunate. None of these, however, can compare with Pylon Racing School (PRS).

Who must attend? PRS is required for a pilot or alternate pilot who falls into one of the following categories:

1. Never raced at the National Championship Air Races (NCAR) in Reno.
2. Raced in a different race class at NCAR at Reno.
3. Not raced in the same race class in Reno within the past three races.

At PRS, IF1 also conducts initial and (3-yr) recurring race pilot qualification checks. These are the minimums. If your schedule will permit it, though, why not consider PRS every year?

For prospective pilots, PRS is a chance to build a knowledge base, see some of the aircraft in the field, and network with the race community. For veteran racers, it is not only the best race prep you can get, it can be a very enjoyable, flying-centered mini-vacation in a great location at a perfect time of the year to visit.

The academics are comprehensive, and tweaked every year. What a great way to get up to speed on the latest rules and procedures!

The flying environment is relaxed and casual, not driven by the race timeline and an event staff worried about keeping 275,000 fans happy.

Most importantly, the runways and race course are exactly like the ones you use during NCAR week. You can dissect all of the emergency procedures, alternate starts, and race procedures with your fellow pilots over a beverage.

Best of all, if you bring a plane, you get some thrilling laps at race speeds and altitudes, with full approval of the FAA and a chance to get another set of eyes across your aircraft before tech.

Finally if you have an alternate pilot, or want to get your team some practice, PRS is the place. The deadline is 20 May 2010, so keep it in your crosscheck.

—Jethro

Doug Bodine



Photo by Bill Rogers

PRS is a chance to build a knowledge base, see some of the aircraft in the field, and network with the race community.

Secretary/Treasurer Input

Mark Johnson



Photo by Lista Duren

Results are in from our procedure and technical rules proposed revisions ballot. We received 37 responses—a pretty good turnout. The voting results are tabulated below.

I have verified these results against our membership list and will retain the ballots as required in our bylaws. Some members voted only on the tech rules or procedure rules, but there was an equal number of each, so all totals balance and equal 36. These rules will become effective February 1, 2011 in accordance with bylaw 19.1.

Out of our end-of-2009 membership of 96 total members, 41 full and 14

associate members have renewed for 2010—about 60%. I will be sending out reminder e-mails to those who have not yet renewed. We also currently have 37 airplanes registered.

I was in Florida in February and had a rare afternoon off. I dropped in on Thom Richard at the Kissimmee Warbird Museum. Thom took the time from his busy day to show me around and give some info on the displays and interesting projects. This is truly a first class operation and I can recommend it to anyone. While you're there get a ride in one of the immaculate T-6s they operate. Thanks, Thom!

— Mark Johnson

I will be sending out reminder e-mails to those who have not yet renewed.

RULES REVISION VOTING RESULTS

	<i>Technical Rules</i>	<i>For</i>	<i>Against</i>	<i>Result</i>
1.5	Engine aspiration	34	2	Passed
1.6.1.6	Electric Fuel Pumps	32	4	Passed
1.8.1	Cylinders	34	2	Passed
1.10.1	Smoothing of metal parts	33	3	Passed
1.12.2.1	Valve guide seals	34	2	Passed
1.13.1	Ignition Systems	33	3	Passed
1.13.4	Spark Plugs	34	2	Passed
	<i>Procedure Rules</i>	<i>For</i>	<i>Against</i>	<i>Result</i>
3.1.1	IF1 add membership requirement	34	2	Passed
3.3.4	Add IF1 membership requirements	34	2	Passed
3.3.4.1.A.2	IF1 membership part of paper review	33	3	Passed
3.3.4.C	Renewal of racing license for significantly different aircraft	28	8	Passed
3.6.1.2	Add IF1 membership requirement	34	2	Passed
3.6.2	IF1 membership required for inspection	34	2	Passed
Appendix C.A.2	Add IF1 membership requirement	34	2	Passed

Editor's Note: These rule changes will NOT take effect before the races this September. Before they do go into effect (on 2/1/11) your editor is requesting that IF1 directors and/or committee chairs provide information in the Forum about the changes and their impact on race planes and race procedures.

Kirk Murphy



Photo by Lista Duren

Hello Racers. It's already the middle of March and the 2010 PRS (Pylon Racing Seminar/Rookie School) is only THREE months away. The dates for this year's PRS are Wednesday, June 16th through Saturday, June 19th. The entry packets can be found online at www.airrace.org. Completed forms are due Thursday, May 20th.

Last year's PRS was another great success and I am beginning to plan this year's event as you are reading this. This year we are so lucky to have John Housley back to teach the ground school. For those of you who have not seen his presentation, it's wonderful.

At this date I know of only one firm participant for PRS. It is still too early and nearly impossible to forecast how many students we will actually have, so I am not quite sure as of yet who the instructors will be. I am planning on attendance similar to last year, so we will be staffed appropriately.

As of now I am a little concerned about the number of racers we will have in September, so it is very important that we get more new blood involved in International Formula One. We already know that a few racers will not be coming in September so talk to your pals who have shown interest in racing and get them to PRS. Remember, there are some really nice Formulas for sale right now!

Just like last year, enrollment is \$800 for rookies and racers out of currency and \$600 for current (certified) racers. We will have at least one instructor aircraft again this year. The price per ride will be \$100 to help defer some of the cost for fuel and the insurance policy covering passenger liability. Depending on the number of students, additional rides may be available at a lower cost.

RARA has also set aside a block of rooms. We are back at the Eldorado again (details are in the PRS application package). Please remind all of your friends about PRS and sign up sooner rather than later so we have time to plan and make this the best experience possible for everyone!

Now get your airplanes out and go fly! I haven't talked to all that many people since September, but I am sure most of us have done nothing. It's not only good exercise for the pilot; it's good for these machines to leave earth on a regular basis. Most importantly it's FUN, so go fly and be safe!

—Kirk

...talk to your pals who have shown interest in racing and get them to PRS. Remember, there are some really nice Formulas for sale right now!

2010 Calendar

Now	PRS entry packets at airrace.org
May 20	Application deadline for Pylon Racing Seminar.
Apr 30 - May 1	26th Annual International Air Racing History Symposium, Brookpark, Cleveland, Ohio.
June 16-19	Pylon Racing Seminar at Reno Stead Field.
Sep 15-19	Reno Air Races



Photo by Birgitta Nurmi

Jay Jones lands Quadnickel after placing 6th in Heat 1A at Reno in 2009.

N603R Below the Radar

Gene Hubbard



Photo by Lista Duren

The designation #57 Knotty Boy began to appear on the race record when Todd placed fourth in the Bronze [in 1991] at a speed of 194.5 mph.

Some winning Formula One racers start slow, then catch up with their competition years later. N603R is one of these, staying way below the radar for over 15 years, then taking another 15 to start winning at Reno.

Calvin Russell of Boise, ID built the plane in the mid 70s, and obtained its first airworthiness certificate on July 7, 1976. Intending to race at Reno, Russell obtained the race number “03” from PRPA. He had hoped to get the registration number N03R to go with his race number, but it wasn’t available and he settled for N603R instead.

Between 1977 and 1986, the plane was sold three times—to Howard Naylor (Boise, ID), Scott Morris (Evansdale, IA) and Doug Hamblin (Corvallis, OR). In that time it acquired 100 hours of flight time, and the original McCauley 62x62 prop was replaced with a Waranke 61x64 inch prop. There is no record that any of these owners raced the plane. Hamblin kept the aircraft only a few months, and sold it to Hep Porter in September ‘86.

Hep flew 603R from Weed airport (about 30 miles south of the OR line) home to Watsonville, and described it as the most unstable plane he had ever flown. Something had to change. He stripped 603R down to the frame for a total rebuild. New covering, new Kevlar cowling, and the repaired high-aspect ratio Wilson wing from the recently damaged *Okie Streaker*. N603R was sitting in Hep’s hangar waiting for a wing and engine details during the 1988 races when Hep decided he needed a plane NOW, and bought #43 *Aero Magic* from Jon Sharp, starting his own racing career.

In 1991, Hep sold N603R to Rick Todd. The designation #57 *Knotty Boy* began to appear on the race record when Todd placed fourth in the Bronze that year at a speed of 194.5 mph, with a listing as a “new” aircraft. For N603R, the race was finally on.

Rick Todd continued to modify #57 *Knotty Boy*, installing a high-aspect-ratio horizontal stablizer and a longer engine mount for the 1992 race, and a new cowling and prop extension for 1993. These mods brought #57’s speed solidly above 200 mph and usually into the silver races. Todd put #57 on the market just before the 1994 races, and let Ray Sherwood fly the plane in the 1995 and 1996 events.

Years later, Ray Sherwood described a series of events in an interview with Silver State News Service. On the last lap of a race at Boundary Bay in Canada in August 1996, #57 suddenly pitched down and lost pitch authority. The plane recovered by itself and Ray finished the race, attributing the event to dirty air.

In September 1996 at Reno, Ray qualified at over 217 mph. However, in the first heat race, he experienced the pitch-down again on the back stretch of Lap 4. The plane recovered, Ray throttled back, let the rest of the field pass, and landed safely. They grounded #57 for the rest of race week, except that Dave Morss spotted the plane in the last row of the Bronze final so the team could claim a DNS and get the last-place prize money.

On inspection, it was determined that the Wilson wing had delaminated, and that at high speed, it flexed and blanked the horizontal stabilizer. Rick

Todd cut up the wing and sold the rest of the plane, along with the original slab Cassutt wing, to Robert Jones in December 1996.

Jones renamed #57 *Aggressor*, and got it back in the air at Reno '97. With the original slab wing, he qualified at just under 200 mph and finished both the Bronze and Silver races under 170 mph. Back to square one, but the next years would be better. In 1998 with a new Grove wing, the qualifying speed was back over 217 mph and #57 finished in the middle of the Silver for the first time. 1999 saw a first place Silver finish at 220 mph. In 2000 and 2002 Jones raced in the Gold with speeds over 225 mph.

In August 2003, Jones sold *Aggressor* to Charlie Greer, who already owned and flew #69 *Miss B. Haven*, also a mid-pack Gold racer. That year, Charlie borrowed engine parts from *Aggressor* to race #69 to a fourth-place finish in the Gold. In 2004, Charlie ran both Gold racers, flying *Miss B. Haven* himself while Robert Marshall flew *Aggressor* at speeds in the 225-230 mph range for sixth place overall.

The only substantial change they made was to remove lead ballast from the firewall. Robert says the plane was "horrible in pitch, ridiculously sensitive at all speeds." Charlie says, "All the fast ones are spooky light in pitch...you get used to it...brace your arm on your leg and don't make any sudden moves." Charlie also says that it flew better than *Miss B.* partly because the Grove wing "was straight and stalled straight ahead."

Regardless of handling characteristics, running two planes in the same heat is

a lot of work. Charlie sold *Aggressor* to rookie Steve Temple in March 2005. Steve replaced the tail, recovered the fuselage, added a new propeller and spinner, and qualified at Reno 2005 at over 241 mph, the best yet for #57. For all of this work, Steve was rewarded with a fifth place Gold finish in his rookie year.

After Reno, Steve took *Aggressor* to Aviation Nation at Nellis AFB near Las Vegas. This was a "demonstration" race, but nobody wants to demonstrate the slowest airplane. Halfway through the last lap, Steve noticed low oil pressure and heavy vibration. *Aggressor* had thrown a rod and punched a hole in the crankcase. He pulled up and landed safely, but his engine was toast.

At this point, Steve already had his eye on a languishing former winner, which would become #87 *Madness*, and George André, from the biplane class, was looking to get involved in IF1. It was a match made in heaven, and in March 2006, George hauled away #57, broken engine and all, for its most radical facelift yet.

...nobody wants to demonstrate the slowest airplane.



Photo by Lista Duren

*Aggressor in 2007
flown by Steve
Temple*

Zipper the Racer — Pioneer of Invictus

George “Zip”
André



Photo by Bill Rogers

My only training was advice from my old aerobatic friend Ed Bowes who said these birds don't slow down on final.

I decided to finally get into racing about 35 years too late from when I had my first exposure to Reno. I was at Lockheed as a test pilot, working for the great Tony LeVier, and I flew to Reno with Tony for the 1966 races. Also in that same long ago time period, my fellow pilot at Lockheed was Darryl Greenamyre, who does pretty well at Reno, and I remember helping him on his first Bearcat. Even with this golden opportunity to get involved, my interests somehow shifted to Air National Guard and other mundane activities, so I lost out on many years of great Reno racing fun.

I bought #57 *Aggressor* from Steve Temple at Minden NV, broken engine and all. At this time, Dave Morss was advertising a whole gaggle of engines and engine parts for sale so I swung by San Carlos and picked it all up, drove to Minden, and got to work getting #57 back in the air. The engine was built up by some ex-Ferrari mechanic who wanted to see what he could do to a Continental four banger using auto racing ideas. I got the engine installed, it ran, and I taxied out for my first flight in a Formula One racer. My only training was advice from my old aerobatic friend Ed Bowes who said these birds don't slow down on final.

In all my years, I have never flown a plane with worse handling characteristics, especially in pitch control. There was absolutely no stick feel in pitch, no stick force gradient of any kind, and no centering either in pitch or roll. The stick force was identical at one G and at five Gs. I got two flights in at Minden, and left for Stead as rookie school was about to begin. I suffered with the handling and

got through rookie school, packed the trailer and tugged it back to St Louis.

Back at my home field, I designed an artificial stick feel system which made handling bearable, and we set out to prepare for my Reno debut in 2006. Our only change that year was to cover the orange paint with bright yellow and I was lucky enough to acquire the race number of 1. We also renamed the plane *Zipper*, the common name for the F-104 Starfighter that had been one of the planes I tested at Lockheed, so many years earlier.

Two days before we were to leave for Reno, on one of the last test flights, the engine suddenly quit at about 50 feet on takeoff due to a carburetor malfunction, and I made the big error of trying to get it back running by fiddling with the mixture. Meanwhile the airspeed dropped and soon, so did I, resulting in a sprung landing gear leg. I saw Reno suddenly and probably removed from my near term plans. Unbelievably, in St. Louis, Missouri, I was able to borrow John Housley's gear off of #43 *Aero Magic* and still get to Reno that year. We had a great time and finished second in Silver behind Jason Somes.

In 2007, we were determined to finish in the Gold. Complicating our plans was the fact I had bought back a racing biplane I had built from scratch in 1986 and had sold to Larry Teuber, who raced it for two years as race #18, *Wily Cock* (a type of wild pheasant). 2007 would find us fielding two racers in two classes.

With lots of advice from local St. Louis aviation folks, including some real smart aero engineers from Boeing,

we figured that *Zipper* could go faster with less drag. So the cutting began in an effort to reduce the wetted area. Nearly all the old fiberglass was destroyed and it was shocking to see the thickness and weight of some of the fairings we removed. We replaced most of the fiberglass with carbon fiber. We lowered the firewall 3", and lowered the instrument panel and canopy and rollbar 4-5". We designed and installed new wingroot and stab fairings in addition to Sam James carbon fiber wheel pants. In all, we wound up taking about 50 pounds off the plane. I had a new canopy blown to match the new top fuselage profile and lowered the turtledeck area to match the appearance of Gary Hubler's winner machine.

But the big secret to our hoped-for speed would be the butcher-like job we did to the fuselage frame. Our airport in St. Louis is the de-facto Monocoupe capital of the world. Because they were built mostly in this area, there are more flying Monocoupes at our airport than anywhere else. The Monocoupe was a very fast racer in the 1930s and one of its design secrets was the aft fuselage concave profile. This is an early application of the drag reducing 'pressure recovery' idea seen on other high speed aero shapes. My intention was to borrow that aero idea and apply it to the Cassutt.

After removing the fabric and discarding the old turtledeck, we severed all of the cross members of the steel tubular frame and reshaped the existing longerons to mimic the Monocoupe concave look. Resulting test flights showed we had picked up about 15 mph over our previous speed

Photo by Carol Kerner



runs at St Louis' 500 foot elevation. Off we went to Reno with high hopes.

Our 2007 race year started with a 1400 mile trailer pull to Reno. My faithful crew chief, Frank Kerner was at hand and we had an additional talented wrench turner in Jimmy Johnson, who is now my biplane crew chief. We qualified fifth behind Gary Hubler, David Hoover, Scotty Crandlemire, and Jason Somes. Things were looking up and for once, we were firmly ensconced in the Gold field.

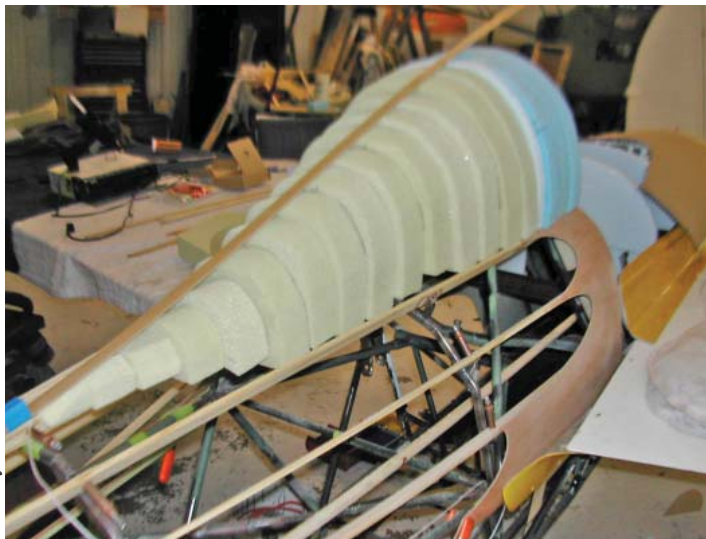
In consultation with our Boeing support group back in the Midwest, we determined that the aft end of the canopy was at an excessive slope. Following their directions as to angle, chord, and length, we constructed seven vortex generators and applied

Lofting up the new, hopefully faster, aft fuselage shape.

the big secret to our hoped-for speed would be the butcher like job we did to the fuselage frame.

Working out the upper turtledeck shape which will prove to be too severe.

Photo by Carol Kerner



Continued: Zipper the Racer — Pioneer of Invictus, by George “Zip” André

Vortex generators fashioned from plastic beer cups contributed to Zipper’s speed advantage.



Photo by Carol Kerner

them to the mini turtledeck. These were skillfully made from Miller Highlife beer cups and we honestly picked up a couple of miles per hour! With our light weight, the acceleration off the start grid was great and in both heats I was able to pass both David and Scotty by pylon 1.

Then on Gold heat 2A, I was following Gary and coming up on pylon one when the collision occurred with Jason. The sky before me was filled with debris from what I believed was shattered fiberglass in millions of pieces. Something large went by above me in about my 2 o’clock and then it was over. After landing, we found several small nicks on *Zipper*, and I considered myself very lucky.

The Gold final found David, Scotty and myself on row one. I was able to out-accelerate them and led for the first 2 laps, until David and *Endeavour* blew past for the win. Scotty was on my tail the whole race and I knew he

had a faster plane and it would be over if I made just one mistake, but *Zipper* and I held on, scraped the pylons as close as possible, and took home the second place trophy. Aside from the tragic events of that year, we were happy with *Zipper’s* performance.

Along came Tim Neubert, in the market for a racer, and I sold *Zipper*, knowing I would soon be sorry and sure enough, I was. Tim has become a good friend and I am unashamed to claim some small credit for his and Thom’s success in winning the Gold this past year. I will always consider Team *Zipper* a pioneer of *Invictus*.

Along came Tim Neubert, in the market for a racer, and I sold Zipper, knowing I would soon be sorry and sure enough, I was.

The following chart compares qualification speeds and fastest race speeds over the years N603R has been racing.

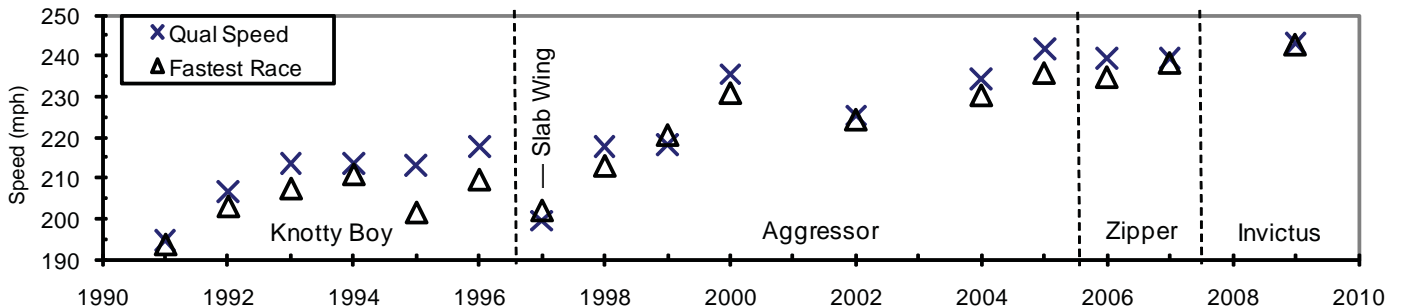


Photo by Neal Nurmi

George André flies Zipper to second place in 2007. The lightweight construction and concave Monocoupe-inspired shape are keys to this plane’s ability to get off the ground quickly and maintain position in the race.

Carbon Monoxide — Beware!

I've been flying and working on my Cassutt a lot lately, refining it & getting ready for racing. I had sealed up some gaps in the cockpit, making it pretty air tight, so I figured it was time to check for CO. I installed one of those plastic indicators and lo & behold; it turned black almost immediately on my next flight. There is a pretty good fresh air source, but this probably explained some post flight headaches.

Next on the agenda was an extensive leak elimination program. My exhaust stacks are pretty short so I figured some CO was getting back into the engine compartment. I sealed these as best I could and improved the firewall-to-cowling seal. That helped some, but I was still getting a pretty solid CO indication. A flashlight in the cockpit in a dark hangar revealed an unexpected number of firewall leaks. I was also surprised at the amount of

exhaust stains at the upper surface of the wing on the rising propeller blade side. Weather-stripping the cockpit enclosure took care of the slight indications I was still getting. I watch the CO indicator pretty closely and have been CO free for over 10 hours.

There have been some good articles in the Forum on this subject in the past, but I figured a reminder might help. I don't know about you, but I sure don't want to take a nap while flying this machine. CO is very sneaky as it is tasteless and odorless. There are some good portable detectors out there for less than \$200 which would be good for those who fly multiple airplanes. At the very least, one of those plastic indicators will warn you of impending doom. Just remember, that type has to be replaced every three months. A little creativity in looking for leaks helps—they can be in unexpected places. Let's be safe out there!

Mark Johnson



Photo by Lista Duren

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IF1 Family News

HEARD THROUGH THE GRAPEVINE

Ray Cote says he is coming to PRS to fly Holbrook Maslens' #44 *Judy*, the Shoestring that carried Ray to two Gold Championships (1984 and 1985)

Rumor has it that Dan Gilbert is bringing Shadow II to PRS. Will the elusive Gilbert finally return?

AIR RACING HISTORY SYMPOSIUM

The 26th Annual International Air Racing History Symposium will take place in Cleveland, Ohio April 30 - May 1. For information, contact Don Berliner at rofuf@konsulting.com

WHAT DO YOU THINK?

Ray Sherwood wrote a provocative letter about propeller safety which

we published in the Nov/Dec Forum. Mark Johnson wrote about CO in this issue. Who else has opinions or concerns to share? This publication is a forum for discussing issues and sharing information -- about props, rules, attract more racers to IF1, safety, whatever's on your mind. Let us hear from you!

IF1 WEB SITE INTERRUPT

We lost our website host due to hackers. Realizing the importance of a strong web presence, the IF1 Vice President and webmaster are exploring options for reinstating it. Our desire is to get a new site up and running as quickly as possible, to have a quality site, and to do this at minimal cost to the organization.

IF1 Marketplace

AIRCRAFT FOR SALE



Race #3 Sly Dog Western Air Race Special built in 1983. Aircraft has raced in the Formula 1 Gold since 2007. Race engine built by Pacific Continental Engines. RCATS telemetry system. Price \$42,500. Pace cargo trailer, 27' also available with interior set up to hold the aircraft, \$6,500
Contact **Smokey Young** at (916) 715-8605 or flies2fast@aol.com



Miss Demeanor, N96SR, Race 96
Race ready FLYING Formula one: Battery, Alternator, Starter, GPS, GRT EIS, MicroAir Radio and encoding transponder, NEW CYLINDERS AND PISTONS IN 2005, ENGINE OVERHAUL by LyCon in 2006 W/ NEW CASE, CRANKSHAFT, VALVES, ETC. Twisted Composites race prop. Sturba cruise prop. Uninstalled tapered horizontal stabilizer and elevators, produced by Craig Catto, designed to fly with Miss Demeanor's tapered wing. Sport fly during the year, race at Reno in September. Win the Silver, fly in the Gold! All for \$35,500. Contact:
Steve Senegal (650) 346-6967 ssenegal@sanbrunocable.com

Prior to purchase of any aircraft, please contact the Technical Director for any IF1 rules or compliance items that may apply.

CASSUTT WANTED

Looking for an entry level, basic Formula One airplane to race at Reno. Must comply with IF1 technical rules.
Contact Ira Saligman: (610) 324-5500 (Philadelphia)
isaligman@saligman.com

PROJECT PARTS & PRODUCTS

CASSUTT PROJECT

Stock wing, aluminum gear, cleveland brakes. Contact: **George Budde**
(405) 733-1449 patbudde@earthlink.net



Cassutt Racer Aircraft Kit/Project Plans. One piece wood spar. Welded fuselage frame (factory welded). Rudder complete...Horizontal Stab to be completed. All wing ribs complete. Aircraft plywood for wing covering. Fiberglass canopy frame. Steel landing gear with Goodyear brakes, tires & tubes. Sufficient aircraft tubing, wood and plywood to complete the project. \$3900
Contact: **Laslo Zamolyi, Jr.**
Home: 610-746-2618 Cell: 610-746-2618
zamalama@aol.com
EAA Chap. 70, EAA Technical Counselor



CASSUTT PARTS

National Aeronautics has Cassutt parts including Aluminum and Steel landing gear legs.
cassutt.lornet.com
Contact: **Ib or Sue Hansen**
(303) 940-8442
cassutts@aol.com

Carbon Race Prop

54x65 Twisted Composite carbon race prop with balancing kit. Used only 12 times and in excellent shape. \$1950.00
Contact: **Adrian Coop Cooper**
604-328-1431
cooperracing@gmail.com

Racer Prop and Parts

Great cruise prop and standby race prop. Prince PC P tip (carbon fibre over maple) 54 inch diameter with 66 pitch. This is a great accelerator and gets the plane of the ground quickly. It is rated to 3890 rpm but I have not gotten past 3800 rpm which gave my Cassutt 205mph at sea level. Condition is very good with a few small scratches. Make me an offer in the \$500.00 range. I will also have mags, my spare carburetor and two prop extensions for sale - one 4 inch and one 8 inch Sabre extension. Please call if any of this is of interest: Coop. 604-328-1431
cooperracing@gmail.com



Butler Emergency Parachute

Purchased new in 2006 for \$2800, offered at \$1300. Excellent condition, maintained and stored properly. Equipped with Butler 450 LoPo reserve, which utilizes Butler's unique slider assembly for properly staged openings. Available with fresh repack or open for your own inspection. Includes original Bill of Sale, Packing Manuals and Carrying Case. Contact Robert Marshall for more information: 760 533-0341

Cassutt Projects and Inventory

Cassutt 111M, 90% complete. Needs cowl and wing finished. Includes REBUILT engine.
Cassutt 111M fully welded with tail assembly.
Cassutt 111M wing needs skin.
Cassutt 111M wing complete.
Misc inventory: engine parts (3 O-200 engines), airframe parts and instruments, one sport prop.
\$15K for all.
Contact: **Gary and Linda Elliott** for pics and inventory list: 972-264-3857
lfelliott@att.com

NAC Aircraft Display Mat (20ftx20ft)

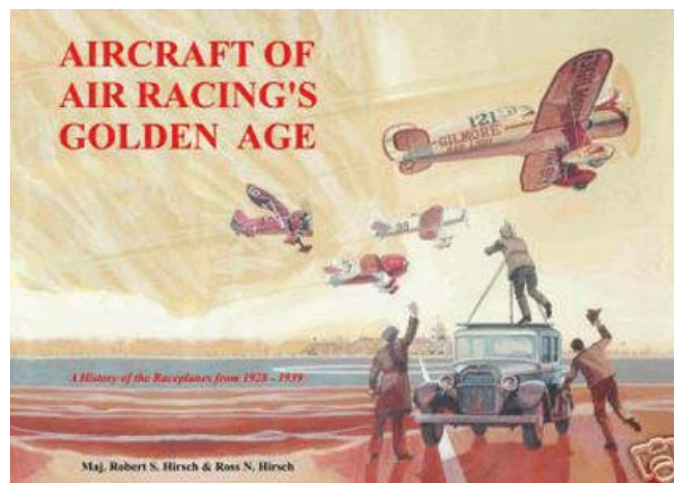
Plastic vinyl windscreen material with steel grommet boarder. Available colors: yellow, red, orange, green, blue, white, and black. Storage Bag Included
Price: \$300.00 plus ground shipping
Contact Tim Neubert 727.538.8744
TNeubert@airportnac.com

NEW COMPOSITE PARTS

Light Weight 9" Spinners, \$90
Wheel Pants, \$350.
CASSUTT PARTS: Assorted Tail Feathers, call for Quote.
LED Flashlights: Super Bright, Compact Size. Up to 155 hrs of run time on 2 AA Batteries, \$32.
10% Discount to IF1 members
Contact: **Ray Sherwood**
(530) 626-6106 rayjyay@aol.com

Graphite Race Props

Run One or Follow One
Twisted Composites, LLC
www.twistedcomposites.com
Contact: **Steve Hill**
(505) 832-1148 or (505) 321-6467
carbonprop@mac.com



AIR RACING BOOKS by Robert Hirsch
Aircraft of Air Racing's Golden Age 1928-1939,
2 Volumes, 1071 pages, 158 scale drawings: \$75 + \$10 S&H

Wedell-Williams Air Service
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Free S&H to IF1 Members
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Contact: Maria Hirsch (714) 828-7369



Photo by Birgitta Nurmi

#98 *What's Up Doc* and #9 *miss t'witchie* race towards takeoff in the Bronze Final at Reno, September, 2009



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