

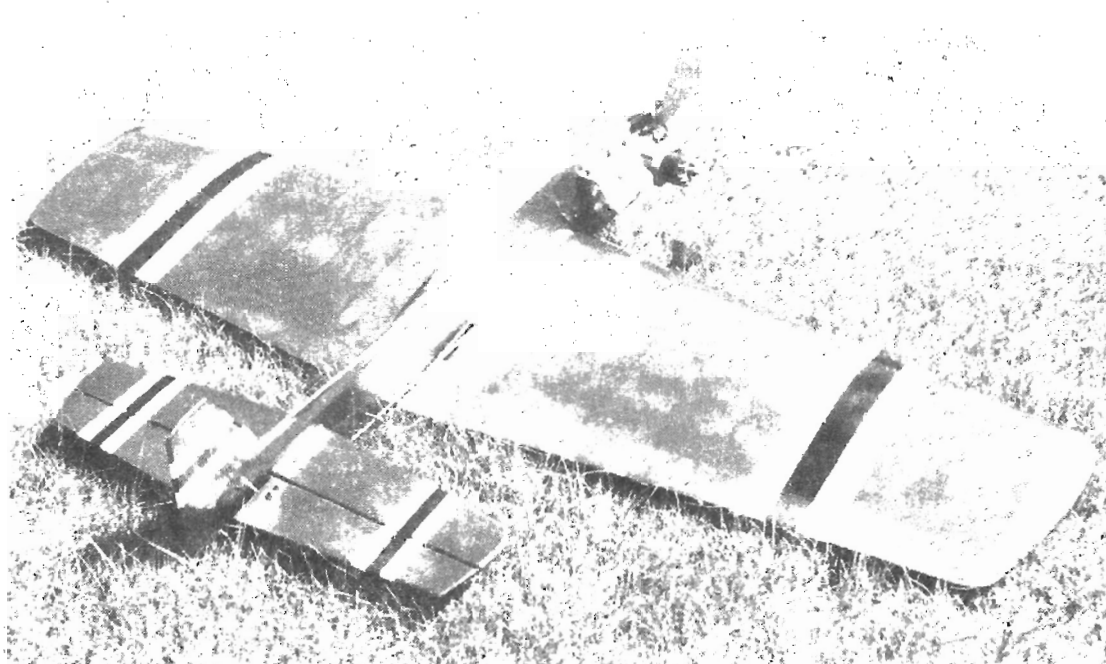
ISSUE #144

December 97 / January 98

Wow! Lots of great stuff in this first of the year issue.....

The final 1997 Competition Standings
Round & Round, by John Thompson
Engines, Etc., by Paul Gibeault
1998 Northwest Clown Race rules
Zoot's Mixture
Truss Ribs, by Mark Hansen
Favorite Planes, by John Thompson
AMA CL Endurance Rules
Plus.....
Photos, and lots more.

Pictured below: John Thompson built this Sterling design NAVION, from a replicated kit last fall. He flew it only once, and then permanently hung it up. Why? Find out on page 4.



COCKPIT CHATTER

miscellaneous notes and news from the editor

Greetings. all! We have got a big issue for you this time, so sit back and enjoy. For you new subscribers, welcome aboard. A question that we answer from time to time here is.....why are some issues big and others small? Well, we just kind of go with what we have to publish, a lot of which is determined by current activities. Plus, your subscription price works out just that way. All small issues wouldn't cover the news, but all big issues would break the bank on the revenue coming in. A pretty good balance seems to be achieved with the system in place.

Some of you sharper birds might have noted that you did not receive nine issues in the actual calendar year of 1997. Yeh, we fell a couple short. But remember, you are paying for the number of issues. So.....your subscription length on the calendar may vary just slightly. But we do shoot for those nine per year.

John Thompson did a nice writeup for our FAVORITE PLANES feature this time around. Be thinking about some of the plane designs you have built and flown over the years that you particularly enjoyed. The editor here may be calling on you next for a contribution.

Coming up at the end of this month, will be the MODEL EXPO in Puyllup, Washington. (yeh, I know I left RC off of the title, that's ok). Ye olde editor is planning on attending, and hope to see many of you there. I might try donning a football uniform to get in the swap meet doors first this time.

HOW LONG CAN YOU ENDURE?

Every now and then, something new just pops up on the Northwest CL modeling scene. At the recent Western Oregon Control Line Flyers New Years day fun fly, the AMA endurance event was included in the festivities. (by the way, the main festivities were rain and cold wind) Mark Hansen of Portland rolled in to put up a flight, which turned out to be the only flight of the day, due to miserable weather and his dogged persistence of wanting an official flight. Anyway, just from this date having the endurance event scheduled there is all of a sudden some interest in it. There are about a half dozen people with projects built or on the drawing board for this. Now some history.....

To our knowledge the last time the endurance event was officially scheduled at a contest was back in 1987. Dick Peterson put on a small meet featuring speed, carrier,and endurance. Wesley Mullens, son of former Skyraider sparkplug Dave Mullens, put up a flight of 18 minutes and 37 seconds, and the NW record has stood ever since. This is a record just begging to be bettered, considering the national record is just over 2 hours! (by the way, Mark Hansen's Jan 1st flight was just 8 minutes-engine cooled off and died with a nearly full tank of fuel!)

Just in case you are interested in giving this engineer's style of event a try, a reprint of the AMA rules are

included in this issue elsewhere. The rules are fairly simple and straightforward.

Many years ago the AMA event rules called for a plane with a maximum weight of four pounds, *including the fuel!* This gave the possibility of some very long flights, taking much of a day. The current rules specifying a maximum of four ounces of fuel make a lot more sense.

The conventional wisdom would dictate that a small diesel engine would be the best choice for economy. But glow engine enthusiasts should not rule out being competitive, as some creative fuel brewing can yield some good results. Stay tuned for more news on this.

NORTHWEST REGIONALS NEWS

Yes, the big one will again happen on Memorial Day weekend, and again in Roseburg, Oregon. A special planning and management committee met last December to start working out details. This committee is comprised of members of the Umpqua Valley Modelers in Roseburg, and others from the Eugene Propspinners and WOLF. The work of planning and putting on the Regionals has changed in scope, in that this group is operating somewhat independently from the clubs. This means that only the best interests of the competitors are in mind for the contest.

There have been some event scheduling changes, which are responding to the ever increasing entry levels of the scale and stunt troops. Also returning for 98, will be the float plane activities, which should work out better with the addition of a better waterway. More specifics on that, and other details will be soon forthcoming.

COMING EVENTS

Be watching for the return of the NW Contest Calendar in the next issue. Meanwhile, here is an abbreviated version for the events we know about so far.....

March 28 & 29 Portland, Oregon for Mouse Race I, NW Sport race, NW Supersport, Beginner Clown Race, Expert Clown Race, and CL Endurance.

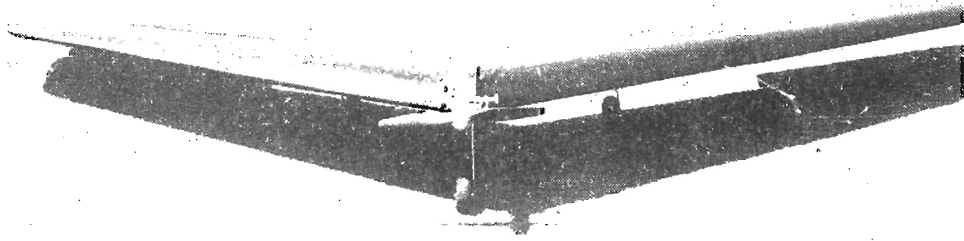
May 3 Salem, Oregon Speed Contest (tentative)

May 22-24 Roseburg, Oregon NW CL REGIONALS
Most all control line events known to carbon-based lifeforms in this galaxy.

August 29 & 30 Salem, Oregon events/details tentative.

October 10 & 11 Portland Really Racing/Fall Follies

CONTEST DIRECTORS AND CLUB LEADERS: Get your scheduling information into Flying Lines headquarters ASAP. We hope to have a good calendar, even if tentative, for the next issue.



Bill Darkow was seen flying this interesting flying wing design at a Seattle Skyraiders contest. Yer editor was intrigued to get details about the plane. Bill provides the following.....



"Regarding my Flying Wing - I found it on the last page of Air Trails, December 1951 which makes it Old Time Stunt legal.

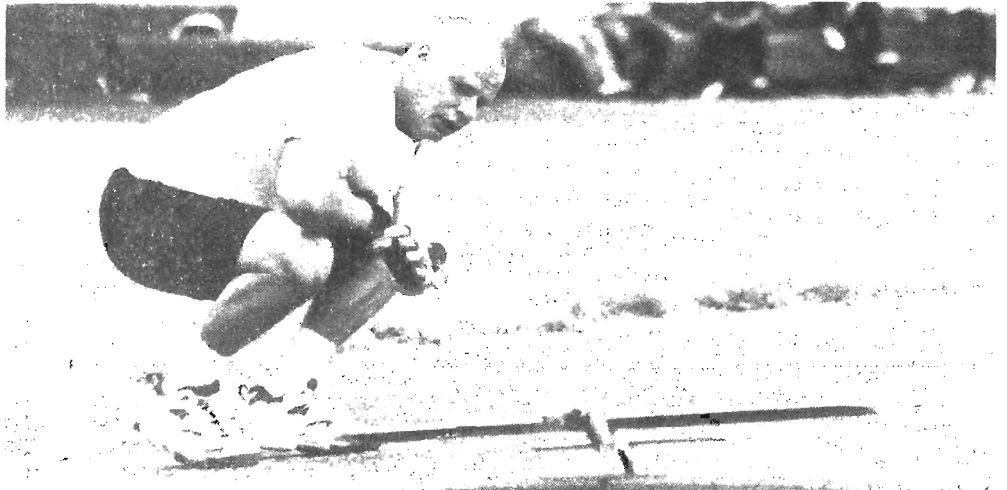
The designer suggests that a stunt model of "extreme agility" can be had by moving the CG about a half-inch further aft than he shows it. We shall see. It has 30 degrees LE sweep with 20 degrees on the TE. Tip to tip is 52 inches with a true span of 58 inches. Wing area (excluding elevons) is 390 square inches, so it's about the same as a Ringmaster.

Power is a Veco .19BB swinging a 8 x 6 prop which moves it along smartly. Still flight trimming it before attempting to stunt as the elevons need to act like differential flaps and the CG has to be just right, but it's showing definite potential. Quite clean and fast for its size and power. The trike gear makes takeoffs and landings sweet."

Tom Strom makes a clean release of NW Super Sport entry fielded by the Salter & Strom team of Seattle.

Action was at racing contest in Portland, at Delta Park.

(photo by Gary Harris)



Our Favorite Planes

Nostalgia for the Navion

By John Thompson

I'm not normally the sentimental type when it comes to model airplanes. I was born too late to remember the old-time stunters of the '40s — to me they're interesting airplanes, nothing more. I'm not a collector of models. I build 'em, fly 'em, and when they're worn out or broken, I salvage the usable parts and throw 'em away.

But when *FL* editor Mike asked me to contribute to his "Favorite Planes" feature, he touched my one nostalgic nerve: The Sterling Navion.

I started flying model airplanes in about 1960. The first plane, as with many kids, was a plastic Cox PT-19. There followed for the next couple of years a succession of Guillows flying boards, Baby Ringmasters, Lil' Satans, etc. In those days, kids helped each other learn to build and fly.

Several kids in my neighborhood built and planes and flew them on the nearby Catholic school's concrete playground. A few of the older kids had big planes, and when one of them wanted to fly, we traipsed the several blocks to a bigger public schoolyard. There we often encountered the adults flying combat with their Ringmasters, and one super modeler (to us kids) with his sleek black Nobler. This same guy had a sport plane with a Dynajet on it; it was always the last thing flown in a day, so we could leave the schoolyard before the noise got us chased out. This motley amalgam of kids and grown-ups eventually became the short-lived Port Angeles Glow-Pluggers club. I think the club put on one contest in about 1964.

But my serious involvement in modeling resulted from a fateful decision made by my dad. Dad and I watched the model fliers in the big schoolyard. We also regularly attended the go-kart races at a local track. Man, did I love both models and go-karts! Dad pondered the question: What would be a good hobby for the two of us to do together: build model airplanes or race a go-kart?

I think financial matters finally came into play, and the models were definitely more affordable.

Through the hazy distance of time, I can't

remember whether I had already been building the little models when Dad pondered this weighty issue, or whether his decision was what led to the PT-19.

In any case, the decision to pursue models together as a hobby led to the further resolve that we would, together, build a "big plane." This meant a .35 engine. It meant a McCoy Redhead .35, the sport engine of choice among the local modelers. During our planning the project, the price went up to \$9.95, but we pressed on.

What plane to build? I was enamored of a gorgeous metallic green Sterling Navion flown by the older kid across the street. It was a semi-scale low-wing profile. So Dad agreed that the plane would be a Navion.

Thus, in 1962, the kit was purchased and construction began.

Being an impatient kid, accustomed to slamming 1/2-A kits together quickly, the Navion seemed to take forever. Dad actually did most of the work. Then, as now, I was a clumsy builder — who knows what an abomination would have resulted if I, at the age of 12, actually had built the entire plane! We pre-glued the parts just as it said in the directions, and assembled the whole plane with Ambroid. We used a small bellcrank to make the plane easy to fly — that was Dad's idea. The wings were covered with silk. I painted it: Aero Gloss metallic blue. Originally it was just blue with no trim; later I added a white canopy, and black and white stripes on the wingtips, stab/elevator and vertical stabilizer.

By the time the plane was ready to fly, the modelers were flying often in a city park on the outskirts of town, so that's where the first flights took place. I did the honors. I can still remember my nerves, and the graceful takeoff and smooth, slow flight of the big plane. I was terrified, and didn't try anything but level flight. But it was glorious, and a success.

Dad also flew the plane. As far as I can recall, he only flew it once, and got dizzy. Since he had never flown a model before, there may have been a minor crash, a broken prop. But no damage was done.

From that day on, the Navion was my pride and joy, and went to every flying session, no matter what other planes I had. I progressed to wingovers and loops, but never had the courage to try much else with the Navion. It was in more or less continuous use — to the extent that I flew at all, through my high school years. The club faded away, but a few of us kept flying

occasionally. We flew (with permission!) in the turnaround of the local airport's main runway. The Navion was aloft one day when a West Coast Airlines DC-3 carrying passengers from Boeing Field in Seattle came in for a landing right over our circle. I swear that if I had done a wingover, I could have hit the DC's landing gear!

College years arrived, and modeling ended. The Navion, various other airplanes both flyable and under construction, went into storage.

About eight years passed. In 1976, now married, with a small child and a job in Astoria, Ore., I attended a softball game my wife was playing in at the local junior high school. A guy showed up with a yellow Shoestring stunter and started flying on an adjacent field. I shot over there and introduced myself to Dave Green, and my modeling career resumed.

All the old planes came out of storage and I thrashed to get something ready to fly for our weekly Sundays at Camp Rilea on the Oregon Coast. The Navion was worn and tired, but it was an airplane.

I stripped all the covering off, replaced all the softened Ambroid around the soaked wing joint, recovered it with silkspan, painted it black with orange lettering saying "Old Crow," and took it out flying.

The Navion flew for at least another year. Sport flying, learning to fly inverted, stunt, and our favorite Astoria pastime, "attic rat combat." Old, beat-up airplanes (Bill Varner's came from his actual attic, hence the name), were used in an informal version of combat that involved towing balloons, milk cartons, even streamers! Many crashes could not kill that Navion. I just kept replacing the Ambroid at the wing joint.

By the time I moved to the Eugene area in 1977, the Navion was pretty much beaten beyond reasonable further use, but it remained in the boneyard underneath a table in my workshop for several years. I got the idea to clean it up, make nominal repairs, recover it again and paint it up in its original colors and hang it on the wall as a conversation piece.

Years went by. I was heavy into competition of all kinds, building dozens of planes and repairing others, and finally, the Navion was just in the way. I took it apart, salvaged the bellcrank, and discarded it.

But I never got over the idea of restoring that Navion to it's original state. Finally, I was nagged with the idea of building a brand new Navion just for display. I put the word out — does

anyone have a Navion kit?

After a while, Bob Parker in Renton, Wash., found a kit. But he was aghast that I would actually *build* such a collector's item. So Bob and Joe Dill painstakingly reproduced the parts and provided me with a brand-new Navion kit, much higher quality than any kit Sterling produced.

I built the Navion with as much care as I have ever devoted to any plane. Not fancy, just trying to get everything right.

But, following the theme of recent years in regard to my attempts to use dope finishes, the final stages of the project were a disaster. I acquired Aero-Gloss metallic blue dope, but never was able to get a good finish. Multiple problems — including my own dumb mistakes (can you say, "incompatible thinner"?) led to a permanently blushed finish. The plane has more than 20 coats of color paint, and still is patchy and flat. But I forged ahead, added all the black and white stripes and a clear topcoat (which, of course, made the underlying color bleed through the white stripes!!).

Nevertheless, I bolted on a nearly new McCoy .35 redhead (acquired from the collection of old buddy Dave Green), the obligatory Top Flite 10x6 prop, the big wheels, etc.

This fall I took the new Navion out to the Eugene flying field. With a few Prop Spinners around to witness, I turned over the old (new) McCoy. It started on the first flip! As I walked to the handle, I was as nervous as I was on the very first flight of the original Navion.

The flight was precisely as I remembered the original Navion. Smooth, graceful, gorgeous round maneuvers, unlike any other profile I have flown. Not quick responding (the elevator is fairly small), but accurate. It probably wouldn't make square corners. I did a few loops, a few outside loops, a couple of laps of inverted flight, and then let it run out of fuel and glide to a smooth landing.

I took the Navion home, cleaned it up and hung it up in a back corner of the workshop.

The dope-finish disaster will prevent the Navion from hanging in the family room (Kathy is determined to get some kind of airplane to display there).

But, back in the corner of the shop, where the light's a little dim, the Navion is a beauty. It reminds me of my days as a kid flying model airplanes, it reminds me of the earliest joy of flying, and it reminds me of my dad.

It won't fly again, except in my mind, where it keeps on flying forever.

Below, straight from the A.M.A. rule book, are the rules for the control line endurance event.

CONTROL LINE ENDURANCE

For event 332.

1. Applicability. All pertinent AMA regulations (see sections titled Sanctioned Competition, Records, Selection of Champions, and General) and the General Control Line rules shall apply, except as specified below.

2. Objective. To fly a Control Line model airplane powered by internal combustion reciprocating engine(s) so that it remains in the air for the greatest period of time. CDs should take note of this objective and be prepared with sufficient flight circles and judges for the prolonged periods involved.

3. Engines. Engine(s) shall be of the reciprocating internal combustion type with piston displacement of from .0900 to .3600 cubic inches. Sixty percent of the actual piston displacement of four-stroke cycle engines shall be taken for compliance with this regulation. Jet assist, catapult or other launching device is not permitted.

4. Fuel Capacity. The maximum fuel capacity permitted is four (4) fluid ounces. This capacity is to be checked through the use of an accurate system by visual examination of the volume of fuel put into the tank(s) and fuel lines. All lubrication shall be contained in the fuel, and may not be recirculated. Capacity checks shall be made before the first attempts, and shall be verified after a winner or record is established.

5. Control Mechanism. See chart for line specifications and pull test.

6. Type of Model. The model must be of the heavier-than-air type equipped with a permanently affixed gear for takeoff and landing. Fuel tanks must remain attached to the model throughout the entire flight. No gases, as for example helium, shall be employed.

7. Number of Flights. Each contestant will be allowed three (3) attempts for completion of one (1) official flight. All official and unofficial flights described below are attempts.

8. Official Flight. Any attempt during which the model becomes airborne before three (3) complete laps have been completed and flies for three (3) full laps shall be considered official.

9. Unofficial Flight. An unofficial flight occurs when the model fails to become airborne within the first three (3) full laps from the point of release. If the model becomes airborne but does not fly three (3) full laps without touching the ground, this, too, is considered an unofficial flight. Bouncing of the model due to terrain shall not be considered within the meaning of this ruling. In the case of an unofficial flight, the flier should make every reasonable effort to stop the forward progress of his model so that another attempt may be made. The Contest Director may, at his discretion, add further definitions because of local conditions, such as a time limit to start engines, so long as adequate notice is given all contestants before competition begins.

10. Flight. The model shall take off from the ground or runway under its own power and without outside assistance. In releasing the model, no portion of the launcher's body may move in the direction of the takeoff run. The engine(s) shall remain running during the entire flight except for at most five (5) minutes for landing. Only one (1) pilot is permitted during the entire duration of a flight. He must control his model from within a five (5) foot radius circle, and he must maintain the average flight altitude above the height of his controlling hand.

11. Timing. Timing will commence the instant the model is released and will continue thereafter until the wheels next touch the ground. Two (2) timers are required, equipped with stopwatches. The official time will be the average of the two (2) watch readings to the nearest second. One (1) judge shall count laps so that the average speed and distance flown may be computed.

12. Contest Site. Only outdoor flying sites shall be permitted. Spectators, if any, shall be kept a safe distance from the flying circle, that distance depending on the site and on the judgment of the Contest Director.

13. Acceptance of Records. Endurance records may be set at any sanctioned contest or record trial which includes control line event(s), providing prior Contest Director concurrence has been obtained. A single contestant may make a record attempt if prior sanction is requested and granted.

CL Endurance								
Class Engine Size (cubic inch)	• Max. Model Weight	Minimum Line Length	Required Minimum Diameter of Each Line					Pull Test
			Single Strand			Multi-Strand		
			1 Line	2 Lines	3 Lines	2 Lines	3 Lines	
.0900-.3600	4 lbs.	52'6"-70'	.016"	.014"		.018"	—	10G

"FAST IS COOL"

..... **ZOOT ZOOMER**



ZOOT'S MIXTURE

Greetings, fellow go-fast fans, long time no see. Happy New Year, and may 1998 be the fastest ever for ya.

We have a brand new event being cooked up for the speedsters in 1998. It's NW Sport Jet Speed. I can hear the groans now from some people. Oh no, not another event, and one with a weirdo power source flown by wacky people. No folks, it's not like that. The AMA jet event is just fine and dandy, but this new event should appeal to anybody who likes something just a little different, and isn't a "wuss" about noise.

First off, this will be a two-wire event. This means just about anybody can fly them, especially those with monoline-phobia. And basically stock engines will be required. This will be a great equalizer, and the rules are very specific on the thou shalt, and shalt nots. Several of the top NW speed fliers have been confering regarding this event, so there should be some significant participation. If you have ever been interested in speed flying, this actually could be a good first event. The engines are easy to maintain, and the operating cost is very reasonable. (plus no props to break, dummy!) If you are interested in some no-obligation information (no arm-twisting!), contact the editor of Flying Lines.

Speaking of noise, it never fails to amaze me when modelers get freaked out about the noise of a pulse jet engine. Yeh, they are loud. But oddly enough they don't

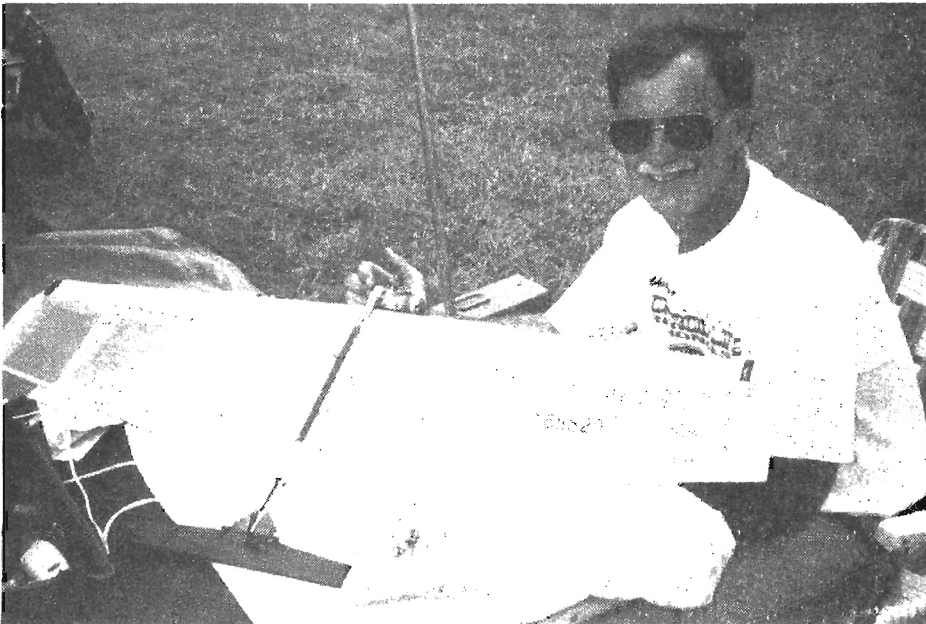
register as high on the db scale as some all out two-cycle racing engines, such as formula one pylon engines, or even some CL goodyear racers. Some knuckleheads equate noise with danger, which is rather silly. If they were as quiet as, say an electric powered plane going the same speed, would that make them safe? Negatori, my dear nimrod. But some noise is good, as it does keep most people from getting too close, and that goes for all kinds of models.

I remember when I was a real young knee-high zoomer at one of my first contests, and recall my dear old dad commenting on how the speed guys were kind of strange "because that's all that they fly". Reflecting back, maybe that may have been true, but I doubt it.

Taking a look at about a dozen of the Northwest's speedsters, one can see some real diversity in modeling tastes and disciplines. Of this group of one dozen, only two that I know of are exclusively into speed. With the other guys, other modeling interests include: racing, combat, navy carrier, hand launch glider, RC sport, RC pylon racing, power free flight, CL sport and yes, aerobatics. So you can see that the speed guys are in reality fairly broad-based all-around type modelers. Not to be taking potshots, but the stunt troops as a group are probably the most single-minded in terms of varied modeling interests.

Time to go, until next time remember to fly fast!

ZZ.....



Jim Green is busy at work doing some repairs on one of his combat ships at the Bladder Grabber in 1997.

This annual meet held in Snohomish, Washington draws combat fliers out of the woodwork by offering big bucks prizes.

(Gary Harris photo)

The Scoreboard
 Northwest control-line
 competition standings.

Ryan repeats!

You've heard this one before.

Todd Ryan continued his string of seasons as Mr. Competition by topping all competitors in Northwest standings points in 1997.

But it was a closer race in 1996, with new Northwesterner Paul Gibeault only 21 points behind in the race for overall competition glory.

Todd scored 125 points in two event categories — Navy Carrier and Racing. Gibeault had 94 points in Racing, Speed and Precision Aerobatics.

Overall, the number of people scoring points in competition was down just a bit in 1996. A total of 85 individuals scored points (which means they scored in the top four at an AMA-sanctioned competition in AMA District XI and British Columbia. In 1995, 101 individuals scored points. As always, many more fliers participated who did not score points.

In a new way of analyzing the competition, it emerged that stunt — including Precision Aerobatics, Old-Time and Classic Stunt — has now equaled racing as the most popular event. A total of 34 individuals scored points in either PA, OTS or Classic in seven contests. In racing 33 individuals or teams scoring points in 15 days of competition.

Junior competition dropped off a bit in 1996, but the Cox family of British Columbia remained at the top of the heap. Stephen Cox scored 82 points in competition, followed by James Cox with 52 point.

Anyone who would like a printout of the complete 1996 Mr./Ms. Competition standings for 1996 can get one by sending a stamped, self-addressed envelope to the standings coordinator. The address is at the bottom of the column.

It's 1998 now and time to remind contest organizers to keep track of standings through fourth place in all of your sanctioned contests, and send those results to *Flying Lines* for calculation in

the standings.

Following are the Final 1996 Mr./Ms. Competition rankings. Initials after the names indicate the events in which points were scored.

C=Combat.
 NC=Navy Carrier.
 R=Racing.
 S=Speed.
 SC=Scale.
 ST= Precision, OTS or Classic Stunt

1997 OVERALL STANDINGS

1. Todd Ryan — NC, R	125
2. Paul Gibeault — R, S, ST	94
3. Stephen Cox — R	78
4. Rick Meadows — C,NC,R,SC,ST	62
5. Nitroholics Racing Team — R	55
6. Mel Lyne — C,R	53.5
7. James Cox — R, S	53
8. Mike Conner — R	43
9. S&S Racing Team — C, S	41
Ron Salo — R, S	41
11. Bruce Duncan — R	40
12. Dan Rutherford — ST	39
13. Chris Cox — ST	38.25
14. Bob Parker — ST	37.5
15. Rich McConnell — C,NC,R,ST	35
16. Don McClave — ST	34.5
17. Paul Walker — ST	31.5
18. Joe Rice — NC,R	31
19. Jeff Rein — C	29
20. Paul Dranfield — C	25
Cleaver Team — R	25
22. Emil Kovak — ST	24
Dick Salter * — C,S	24
24. Derrick Meadows — C,NC,R,S,ST	21.5
25. Jack Pitcher — ST	20.25
26. John Leidle — ST	20
27. Henry Hajdik — C, R	19.5
28. Travis Morgan — R	19
Tom Strom * — C	19
Pat Johnston — ST	19
Alan Olson — NC	19
32. Jerry Eichten — ST	18
Gary Harris *	18
34. Keith Varley — ST	17
35. Mike Potter — NC,SC	15
Ken Burdick — C	15
Chuck Schuette — S	15
37. Howard Rush — C,ST	14
Dennis Matthews — R	14
39. Scott Riese — ST	13
40. Mark Hansen * — C,R	12

Bob Emmett — ST	12
42. John Thompson * — C,NC,ST	11
John Howell — R	11
44. Nathan St. John — R	9
45. Troy Lyne — C	8
Rich Salter * — C	8
Jerry Thomas — S	8
Frank Boden — NC,R,SC	8
49. Hube Start — ST	7
Chris Sackett — S	7
Bob Spahr — S	7
52. Norm McFadden — C	6
Kirk Hagman — R	6
Karl Brown — ST	6
Barrie Shandel — NC	6
56. Lee Uberbacher — ST	5.5
57. VM Racing Team — R	5
Tim Strom * — C	5
Mike Hazel * — S	5
60. Randy Powell — ST	4.5
Alan Resinger — ST	4.5
62. Roy DeCamara — ST	4
J&J Racing Team — R	4
Euan Edmonds — NC	4
Chris Hazel — S	4
66. Tasha Howell — R	3
Shawn Parker — NC	3
S&S&Sons — S	3
Remy Dawson — R	3
Nick Stratis — SC,ST	3
Jasha Wondratschek — ST	3
Aaron Olson — R	3
73. Adrian Duncan — C	2.5
74. Lloyd Marohl — NC	2
Greg Nelson — R	2
76. Ronald Canaan — SC	1
Nils Norling — ST	1
Michael Nelson — R	1
Leo Mehl — ST	1
HaHa Racing Team — R	1
David Thompson — ST	1
Dave Shrum — R	1
Bill Darkow — R	1

* Also scored points with a team entry.

1997 Final Standings

The last contest of the year counted in the Northwest control-line competition standings was the .15 sport race contest on Nov. 2 in Richmond, B.C.

The .15 sport race is not an official racing event for Northwest standings, but results count in

the overall racing category. Junior standings also were affected.

The standings below are the final Northwest standings for 1997.

Contests counted in 1997: March 9, Coquitlam, B.C.; March 15, Richland, Wash.; April 6, Richmond, B.C.; April 20, Mission, B.C.; April 20, Portland, Ore.; May 10, Vancouver, B.C.; May 23-25, Roseburg, Ore.; June 14-15, Kent, Wash.; June 28-29, Snohomish, Wash.; July 6, Mission; July 19-20, Coquitlam; July 26, Richmond; Aug. 10, Mission; Aug. 23-24, Salem, Ore.; Aug. 31, Vancouver, B.C.; Sept. 13-14, Kent; Sept. 29, Vancouver, B.C.; Oct. 4-5, Richland; Oct. 11-12, Portland; Nov. 11, Richmond, B.C.

Following are the standings for updated events:

1997 STANDINGS final

MOUSE RACE CLASS I

1. Stephen Cox	35
2. Bruce Duncan	34
3. Paul Gibeault	31
4. James Cox	22
Todd Ryan	22

MOUSE RACE CLASS II

1. James Cox	17
2. Travis Morgan	15
3. Stephen Cox	14
4. Cleaver Team	2
5. Nitroholics Racing Team	1

AMA SCALE RACE (GOODYEAR)

1. Cleaver Team	4
2. S&S Racing Team	1

NORTHWEST GOODYEAR

1. S&S Racing Team	6
2. Cleaver Team	5
3. Bruce Duncan	3

SLOW RAT RACE

1. Nitroholics Racing Team	7
2. Cleaver Team	1

RAT RACE

1. Cleaver Team	3
2. Nitroholics Racing Team	2

NORTHWEST SPORT RACE

1. Paul Gibeault	28
2. Todd Ryan	19
3. Ron Salo	18
4. Nitroholics Racing Team	16
Henry Hajdik	16
James Cox	16

NORTHWEST SUPER SPORT RACE

1. Todd Ryan	11	3. Rick Meadows	17
2. S&S Racing Team	10	4. Ken Burdick	12
Nitroholics Racing Team	10	5. Jeff Rein	11
4. Cleaver Team	7	<u>AMA COMBAT</u>	
5. Rich McConnell	2	1. Mel Lyne	14
<u>CLOWN RACE</u>		2. Nomn McFadden	6
1. Todd Ryan	39	3. Gary Harris	4
2. Stephen Cox	27	4. Mark Hansen	3
3. Mike Conner	24	<u>1/2-A COMBAT</u>	
4. S&S Racing	19	1. Mel Lyne	6
5. Rick Meadows	16	2. Jeff Rein	5
<u>OVERALL RACING</u>		Tim Strom	5
1. Todd Ryan	95	4. Ken Burdick	3
2. Stephen Cox	78	Tom Strom	3
3. Paul Gibeault	65	<u>SLOW COMBAT</u>	
4. Nitroholics Racing Team	55	1. Mark Hansen	3
5. James Cox	51	2. Gary Harris	2
6. S&S Racing Team	41	3. Jeff Rein	1
7. Bruce Duncan	40	<u>80-MPH COMBAT</u>	
8. Mike Conner	35	1. Dick Salter	16
Rick Meadows	35	Tom Strom	16
10. Joe Rice	27	3. Jeff Rein	12
<u>PRECISION AEROBATICS</u>		4. Rich McConnell	9
1. Chris Cox	38.25	5. Rich Salter	8
2. Paul Walker	31.5	<u>OVERALL COMBAT</u>	
3. Dan Rutherford	23	1. Mel Lyne	41.5
4. Bob Parker	22.5	2. Jeff Rein	29
5. Jack Pitcher	20.25	3. Paul Dranfield	25
<u>OLD-TIME STUNT</u>		4. Tom Strom	19
1. Emil Kovac	24	5. Rick Meadows	17
2. Rich McConnell	14	6. Dick Salter	16
3. Mike Conner	13	7. Ken Burdick	15
4. Bob Emmett	12	Gary Harris	15
5. Dan Rutherford	11	9. Henry Hajdik	10.5
<u>CLASSIC STUNT</u>		10. Rich McConnell	9
1. Don McClave	24	<u>.15 NAVY CARRIER</u>	
2. Rich McConnell	7	1. Todd Ryan	10
3. Dan Rutherford	5	2. Alan Olson	8
John Leidle	5	3. Mike Potter	6
5. Lee Uberbacher	4	4. Joe Rice	4
<u>OVERALL STUNT</u>		Rick Meadows	4
1. Dan Rutherford	39	<u>PROFILE NAVY CARRIER</u>	
2. Chris Cox	38.25	1. Todd Ryan	20
3. Bob Parker	37.5	2. Alan Olson	11
4. Don McClave	34.5	3. Mike Conner	8
5. Paul Walker	31.5	4. Mike Potter	7
6. Emil Kovac	24	5. Barrie Shandel	6
7. Rich McConnell	21	<u>OVERALL NAVY CARRIER</u>	
8. Jack Pitcher	20.25	1. Todd Ryan	30
9. John Leidle	20	2. Alan Olson	19
10. Pat Johnston	19	3. Mike Potter	14
<u>VINTAGE DIESEL COMBAT</u>		4. Mike Conner	8
1. Paul Dranfield	25	5. Barrie Shandel	6
2. Mel Lyne	21.5	6. Rick Meadows	5

Derrick Meadows	5
John Thompson	5
9. Joe Rice	4
Euan Edmonds	4
Frank Boden	4
<u>SCALE (all classes combined)</u>	
1. Rick Meadows	3
2. Frank Boden	2
Nick Stratis	2
3. Derrick Meadows	1
Mike Potter	1
Ronald Canaan	1
<u>SPEED (all classes combined)</u>	
1. Paul Gibeault	27
2. Ron Salo	16
3. Chuck Schuette	15
4. Jerry Thomas	9
5. Dick Salter	8
R.J. Spahr	8
7. Chris Sackett	7
8. Mike Hazel	5
9. Chris Hazel	4
10. S&S&Sons	3
<u>JUNIOR OVERALL</u>	
1. Stephen Cox	82
2. James Cox	58
3. Derrick Meadows	21.5
4. Nathan St. John	9
5. Kirk Hagman	6
6. Euan Edmonds	4
Chris Hazel	4
8. Greg Nelson	2
Mike Nelson	1
Nick Hagman	1

Flying Lines keeps track of standings in all AMA rulebook and Northwest official events, in all Northwest sanctioned contests.

Your FL editors do their best to keep up on the results, but contest directors can help keep the standings up to date by making sure to send the results to *FL* immediately after the contest. When you send your report to AMA, remember to send the results to *FL*, too. If you spot any errors, please let us know.

Results must include the placing in each event through fourth place and the report also must list the number of contestants in the event, in order for the point standings to be counted accurately.

Also, please include in your report the hometown of the contestants. Only Northwest residents are counted in the standings (AMA Dist. XI and British Columbia). The score of each contestant also should be listed for general reporting purposes and for checking against the Northwest records, another popular *FL* feature.

Send results to statistician John Thompson at the address listed below.

Remember, only results that we receive can be counted, so send them in. If you flew in a contest that doesn't appear to be counted, contact the contest director or *FL* and let us know.

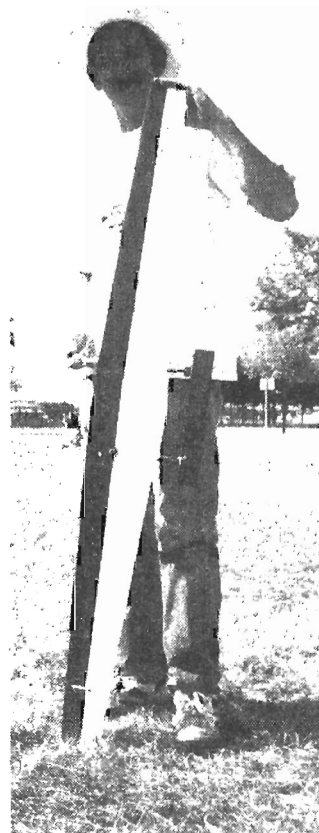
Send contest results, corrections and other correspondence regarding Northwest Competition Standings to John Thompson, 2456 Quince St., Eugene, OR 97404, e-mail John4051@aol.com. For a printed copy of complete standings for any event, send a self-addressed, stamped envelope.

BELOW: One of the Northwest's top Combat fliers is Jeff Rein. Placed 2nd in overall combat standings for 1997.

Jeff is showing off his for fun combat ship, the "Double Edged Sword of Death". Powered by two of his souped up VA .049 engines.

(Hey Jeff, how about following up with a version for two Nelson combat specials!)

Photo was taken at the 97 NW Regionals by Gary Harris.



ENGINES, ETC.

by Paul Gibeault

BREAK-IN PROCEDURES FOR A.B.C. BALL-BEARING TYPE ENGINES PART TWO

For those of you unfamiliar, perhaps a few definitions are in order. ABC: is a silicon aluminum alloy piston running in a brass cylinder sleeve that has been chromium plated. ABN: is a silicon aluminum piston running in a brass sleeve that has been nickel plated. AAC: is a high (24%) silicon aluminum piston running in a lower (18%) silicon aluminum alloy sleeve that has been chrome plated.

For the most part, these engines can be treated all the same. Some of these piston/sleeve (P/S) assemblies, notably the AAC types originally come squeaky tight. This means that when turned over slowly the piston cinches up so tight at the top to the stroke that it actually squeaks or feels like it has partially seized. Consider this normal and don't bother loosening up the fit unless you really know what you're doing and have a good reason for doing so. Tight engines like this very often loosen up quite a bit in just a few short runs.

These metallurgical combinations are designed to optimally work best when hot (i.e. with the engine running). Combustion heat allows the sleeve to expand at the top, where it is the hottest, just enough to allow for a very free nearly parallel fit, while still maintaining a good pressure seal. Generally the brass sleeve (liner) is machined with a tapered choked bore. (tight @ t.d.c. and a few thousandths of an inch looser at b.d.c.) The exact amount of taper for a given application varies but is generally referred to as a "speed secret" (more about that later).

For optimum performance, a new piston should stick somewhere near t.d.c., exactly where is speed secret #2. Should you be able to push the piston up through the liner, much past the flange, the fit is considered to be too loose for best performance. Note: during the life of an ABC engine, the piston can become much looser, but not initially when new. Have you ever read the M&B break-in instructions for their 6.5 cc pylon engine? Basically, they tell you to fill it up with 50% nitro and rev it up to 20,000 rpm (rich) with a small prop. Strange as it may sound, this is the correct break-in for that type of an engine. It follows a couple of sound principles such as:

1. Break in the engine on the fuel that it's expected to run on. You are needlessly prolonging things by running in on 5% nitro fuel if you intend to end up flying on 15% nitro fuel. Note: An exception here for example, is when you run "exotic fuel", such as 50% nitro. High nitro contest fuels, especially those containing propylene oxide are critical to run and require a well run in engine to work properly.

2. Use a fuel with at least 20% lubricant by volume in it. If you want to, you can safely use all synthetic oil on ABC engines. That being said, I still feel 5 to 10% castor oil never hurts at this stage. It's a bad practice to break-in an engine on poor or unknown type of fuel.

3. Run rich, but at high rpm's (but not slobbering rich). Since most ABC type engines originally come fitted fairly tight, please keep the following in mind: you will strain your con-rod and wrist pin holes if you run your engine overly rich

for too long. Running too rich does not allow the liner to expand enough and therefore the piston continues to cinch up tight at top dead center every stroke. This causes undue stress on the rod which leads to strain (elongation) which if allowed to continue long enough, will lead to failure.

4. Use a prop load that allows the engine to wind up while still rich. As per part one, for Rat/F-40/Pylon, I have a series of 3 test props. Used on my very best engine, I trimmed them to turn up like so: test prop #1: 22,000 rpm- high load, test prop #2: 24,000 rpm- normal load, test prop #3: 26,000 rpm- light load. An engine that turns up TP #1 the best is considered a "torquer", whereas the engine that turns up TP #3 the best is considered to be a "rev-er". RPM readings from these various test props give me an idea of what type of prop loading a given engine may prefer. In theory, all stock engines ought to be the same, but in reality they most certainly are not.

R/C type ABC engines run just fine a low rpm since the fuel/air mixture is metered to be quite lean. Although running slow, the engine cylinder head temperature is still up there. You can certainly cause damage by running your engine throttled down slow with an overlean mixture setting, so do be aware of this.

I suggest that if possible, you don't use the throttle or muffler until very near the end of the break-in runs. The reason being is that the muffler causes increased localized heat. You don't want to operate the throttle much because: A) it's high rpm, not low rpm that breaks in your engine the quickest. You want to run fast and then cool off the engine by running rich using the needle valve to do this. (or you can raise & lower the tank position). B) many engines don't throttle particularly well until after the engine is broken in. Fine carb. adjustments are best made after the initial break-in is complete.

As previously mentioned, most engines are ready to fly after a dozen or so 2 minute runs allowing the cylinder to cool off between runs. Providing the engine holds a peaked setting without distress or black residue, you are ready to go.

Note: For those fliers who insist on the most performance and who can safely disassemble an engine, you may want to consider the following: For some high performance applications, there's little point in going flying unless the aluminum piston has stabilized somewhat, to check on this condition remove the piston after some initial running and examine it carefully under a good light (magnification helps here if it's available). Often you will encounter one or more small highly polished spots on the piston. These indicate areas of high friction rubbing. So high in fact the spot is actually caused by the metal becoming so hot that it has actually flowed at one point. These spots must be very gently removed with: 1) a rubber stone by hand 2) an arkansas stone by hand 3) 1200 wet/dry paper used with oil by hand. Since these growth areas are so small you only want to polish them dull with an absolute minimum of metal loss. Since we are not using a hone or piston lap, you don't want to risk rubbing/sanding a flat spot anywhere on the piston. Great care is required here, especially in the piston crown area, but it

is not in the least bit difficult for the average guy to do this procedure. Scott Newkirk, one of the MW's more notable engine men, show me first how to do this. Thanks, Scott! If you notice that the piston is scratched up (from burrs or otherwise) you can restore the finish by wrapping the piston/rod assembly tightly with a piece of 1200 - 1600 silicon used dry. Then rotate the piston once or twice by holding onto the rod. Upwrap the piston and rinse well with lacquer thinner, and your shiny like new piston is ready for installation. Note: with slightly heavier paper and more rotations a slightly tight or sticky piston can be used to relieve even more, even right at the field if necessary. This technique was observed being done by top engine man Alexander Gievsky, on his Stels combat engines.

Upon observing the growth of shiny spots, the normal course of action is to remove / re-install / test run and re-inspect again. Usually, only once is required.

CONCLUSION

As you can see, break-in procedures for both engine types (iron-steel, plain bearing) and ABC ball bearing are very similar. The older type engines required castor oil and a bit more of it (up to 25%), whereas current ABC ball bearing engines can use synthetic oil and a bit less of it (17 - 20%). If in doubt, it never hurts to:

- 1) read the engine manufacturers instructions thoroughly.
- 2) Contact the engine manufacturer / dealer for assistance.
- 3) Talk to people who successfully run the same type of engine.

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EXPIRATION DEPARTMENT**

This is the last issue for the following:

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In the oops department, your issues were hand addressed last time because of a problem with the computer's mailing label program. It is now fixed, much to the relief of the editor!



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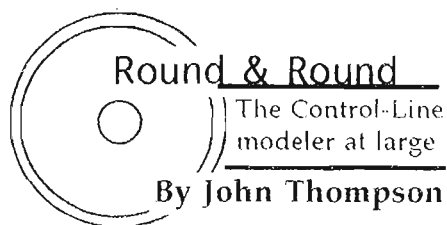
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Round & Round

The Control-Line
modeler at large

By John Thompson

Modeling thought for the month:

The most expensive component is the one that breaks.

— Farrell's Law of Newfangled Gadgetry

Happy New Year!

I straggled back to work on the day after Christmas with the realization that if my holiday vacation had lasted a day longer I would have died from exhaustion. Ah, work, and rest!

But the holidays were happy, as we at *Flying Lines* hope yours were, too. Wayward grown kids returning from far-off places (Boston and South Texas) were among the many highlights. So, of course, was the opportunity to spend a little concentrated time in the workshop — though the disappointment was that events and field conflicts prevented any toy airplane flying.

The holidays also provided the chance to review 1997 and consider what was accomplished and what is to be done in the modeling hobby for '98.

Here at the R&R workshop, it was a mixed year. The T-Bird suffered horrible damage, but may become a '98 restoration project. A couple of combat contests led to no victories, but most of the planes survived, notwithstanding some damage repair. Finally recovered from 1996's move, the shop became productive again. A couple of old projects were completed (the Navion, mentioned elsewhere in this issue, and the All-American Old-Time Stunt project, another Thompson Dope Disaster). Kathy now has her own plane to fly (a Clown, of course), so she can resume her training without worrying about breaking one of my old planes. Another Clown for racing is nearing completion.

What about '98? The new Nitroholics sport racer is supposed to come out of this shop. A few new combat planes (one can never have too many, eh?). And an Oriental. Yes, a stunt plane, and I will finish it this year or bust. (Some of you are laughing, but you'll see.)

On a regional scale, good news and bad news. The Regionals head for their third year in

Roseburg with the potential of being the best contest ever. A new management committee, made up of officials of the Eugene Prop Spinners and The Umpqua Valley Modelers, assisted by ex-officio members from other Northwest clubs, has taken over planning of the contest from the clubs. Details previously left until late in the process are now already being nailed down. The contest will look similar to past years, but the behind-the-scenes efforts should be vastly improved. There's a real new spirit of cooperation and enthusiasm.

The WOLF club in Salem's new field is turning into a real hotbed of CL activity, helping bridge the contest gap created by the city of Eugene management, which rendered the fine Eugene site unusable for competition (though it's still used for lots of casual flying).

Flying Lines, one of the key ingredients of the success of CL in the Northwest, keeps on keeping us all informed, but it needs more help — more subscribers, more articles, photos and letters from the readers. I hope that in '98 *FL* readers will consider themselves *members* and participate as contributors to the content and as promoters of this vital communications network. Longtime readers recall that in the early days, *FL* was full of letters and friendly debate of all kinds.

It appears that activity has declined in one other of modeling's hot spots, the Tri-Cities. Also, we saw a drastic dropoff in the junior ranks in '97. Here's hoping that both groups make comebacks in '98.

Nationally, the new rulebook will be finalized this year, and it looks as if the combat shutoff requirement will become a reality (contingent upon a final vote this fall).

I'm entering the new year with a renewed enthusiasm for this great hobby, and I hope the first crocuses of 1998 will bring with them renewed spirit among the rest of the fine people who share it in the Pacific Northwest, the country's finest CL region.

Modelers communicate in all kinds of ways. Newsletters, the phone, letters, magazines, and now, increasingly, by e-mail. The latest thing is the World Wide Web. Lots of CL-related sites are popping up (in addition to hundreds of RC sites). In a small effort to assist in this communication, I've set up a Web site for exchange of Northwest CL modeling information. It's pretty crude at this point and under development, but it contains a couple of items of possible

interest.

One is a constantly updated version of the *Flying Lines* contest calendar, with e-mail links to the contest officials. Another is information and links to special interests groups (MACA, PAMPA, NASS, NCS, NCLRA), the AMA and some other modeling sites. I plan to add some other features in the future, as time permits.

If you'd like to check it out, try this address: <http://members.aol.com/JohnT4051/Page4.html>. The address may change, so if you can't find it at that address, send me an e-mail and I'll give you the updated URL.

Combat fliers with a nostalgic bent might like to contact Barry Baxter for his extensive catalog of plans of old combat plane designs. He's got 'em all, from the All American Combateer (1959) to the Zilch Xpendable (1954). He sells the plans for \$4 each. He also has an extensive Old-Time Stunt plans archive.

Write Barry at 3292 Greenleaf Drive, Brea, CA 92823.

Congratulations to the Western Canada fliers on the Canadian world championship team for '98: Paul Gibeault and Chris Sackett in speed, Chris Cox and Bruce Perry in stunt (Ken Bird alternate).

Speaking of congratulations, they go out also to Alice Cotton-Royer, new president of the Northwest Fireballs in the Portland area. That's an active and excellent club, and Alice's leadership should push it even to greater heights.

It's probably a sign that we're all getting to be old codgers: There seem to be more and more old-time events being created. How else would you explain Vintage Diesel Combat?

Here's another: In the Southern California area, they're having fun reliving the 50's with Classic B Team Race. There are new rules for the old event, but they're designed to preserve the spirit of the original activity.

Information and rules can be obtained from Kenn Smith, 521 Jansen Ave., San Dimas, CA 91773, e-mail SMP KENN@aol.com. Kenn also has full-size plans for all the legal airplane designs, for a price of \$4.

A major contest for the event is planned for March 28-29, in Tucson, Ariz.

Space left over at the end of a column is an invitation to the writer to delve deep into the

memory banks for little technical tips, goofy ideas, crazy notions, and the like. That explains items like this one...

Have you ever spent some time in a fabric store?

Oh, sure, just the place for a macho combat flier or a Joe Cool stunt flier to be caught dead, right?

Well, think again. Some of us good ol' boys have been missing a bet.

Fabric stores (and craft and artist's supply stores, too!) are excellent places to find all sorts of unexpected, well, stuff. Pins of all variety, snaps, fasteners, cutters, strange glues, marking pens and whatnot. Check it out: I'll bet you one Albertson's donut that you can't spend 10 minutes in a fabric store without finding at least one item that might come in handy in the workshop. Same thing with stationery stores and a number of other nonmodeling retailers.

This line of thinking explains the presence of several odd kitchen utensils in my workshop. A while ago Kathy was inspired to clean out a lot of duplicate tools from the kitchen. She had a whole bag of spoons, corkscrews, spatulas (or is it spatulae?) and other vaguely identifiable gizmos. "Hmm," I thought. "Those might come in handy."

So, instead of Goodwill, I got 'em. Now, if I should need a very large spoon for some reason in the workshop, there it is — and for free. I haven't needed a very large spoon in 27 years of modeling, but if there's one thing we know about model airplanes, it's "there's always a first time."

As we embark upon 1998, I'm looking forward to several other "first times" for me personally in modeling. I vow that in 1998, the following "firsts" will occur for me:

- A five-foot pullout into inverted from a reverse wingover.
- A 300-lap Clown race feature.
- A year without an argument about whether some racing pilot is flying too high.
- A full weekend of one-flip starts at the Bladder Grabber (on my own entry!).

...and the ultimate:

- A dope finish that shines and the fillets don't bubble up.

Send comments, questions, and topics for discussion to John Thompson, 2456 Quince St., Eugene, OR 97404...e-mail John4051@aol.com. World Wide Web: [contest calendar: http://members.aol.com/JohnT4051/Page4.html](http://members.aol.com/JohnT4051/Page4.html)

Constructing an Oblique Wing Section on a Straight Wing

-Or-

Truss Ribs and How to Make 'Em

--By Mark Hansen

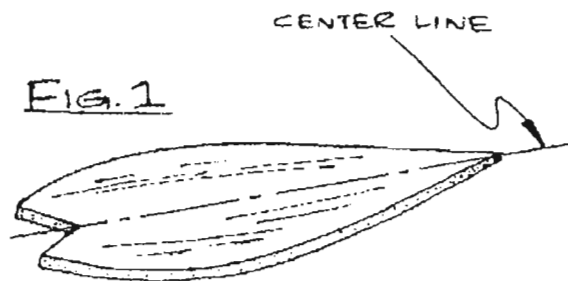
What is an oblique wing section and a truss rib, you might ask? An oblique section is a cross section of a wing not in the direction of airflow. A typical section might be from the trailing edge of the first rib to the leading edge of the second rib.

The oblique rib now turns the rectangular rib bay into a triangle, forming what Barns Wallace called geodetic structure.

The advantages of the truss construction method have long been exploited by the free-flight community; but this sturdy, lightweight framework is seldom seen in control-line designs. The truss wing has exceptional torsional strength, and where but in control-line is the truss warp resistance more needed?

Some flyers have expressed concerns over the truss ribs deflecting air on the wings' surface. The truth is that a stringer meets the airflow at 90 degrees with no ill effects, and most truss ribs run at less than 45 degrees and have no effect on air flow at all. Not even at speeds above 100 mph!

Let's look at how to make a truss rib for a constant chord wing. First take a rib from a plane you are building and draw a centerline down the middle of the rib.

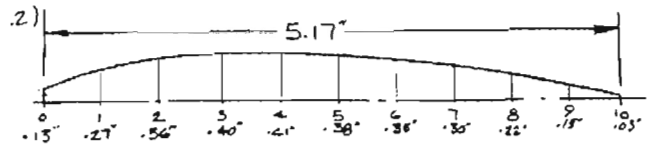


Next carefully trace the rib onto sheet of white paper. Make sure to use a sharp 3H or harder pencil.

Now mark the exact position of the centerline on the tracing. Draw the centerline on the tracing, making as this a line as possible. The fatter the line, the less accurate your measurements will be.

Measure the length of the rib along the centerline from the forwardmost part to the T.E. portion. This should be measured to the .01" tolerance to insure accuracy.

Figure Two



Next divide the length by 10 and round the answer to the nearest .01" (in our case this is .52"). Lay out 10 lines perpendicular to the center line and number them 0-10.

Carefully measure the elevation to the rib tracing at each station and record it below. (See Fig. 2) We now have elevations at the T.E. 10, 20, 30... 90, 100% chord.

Referring to the plans of the plane we're building measure the chord (inside t.e. to inside l.e.) and the rib spacing as accurately as possible. Now use the Pythagorean theorem to calculate the truss ribs' length. For the rib in Fig. 2 the spacing is 2". The formula calculation is as follows:

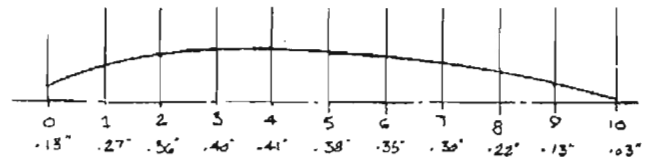
$$(\text{chord}) + (\text{spacing}) = (\text{Truss length})$$

$$(5.17) + (2") = 30.73 \text{ sq. in.}$$

Taking the square root gives: $30.73 \text{ sq. in.} = 5.54"$

Our truss rib will be 5.54" inches long. Divide that length by 10 as we did before with the original rib.

$$5.54 \div 10 = .55"$$



Draw a center line on a blank sheet and measure out 5.5" and divide it into 10 segments as before. Again draw perpendiculars to the centerline at all ten stations. Measure onto the perpendiculars the station elevation from the original rib. Connect the plot with a smooth curve, and you now have a proper truss rib! And of course you'll have to duplicate the process for the bottom of the rib. Next, make a template and you're done.

See you at the field!

-- Mark Hansen

Clown Race rules update approved

The proposed revision of the Northwest Flying Clown Race rules were approved by a ballot of *FLYING LINES* readers in late 1997, and are now official for 1998. A copy of the new updated rules are below. The changes were minor and intended to clarify gray areas.

Information about the rules or extra copies can be obtained from Northwest rules coordinator John Thompson at 2456 Quince St., Eugene, OR 97404, e-mail john4051@aol.com

NORTHWEST FLYING CLOWN RACE

1. PURPOSE: This event is intended for all fliers and pit crews interested in a simple racing event which uses a common aircraft, emphasizes both speed and economy, and encourages the use of a wide variety of engines.

2. All AMA control-line unified racing rules apply, except as follows:

2.1. Airplanes and the entire control systems shall undergo a pull test of 25 pounds. Lines are .015 stranded steel. Length is 52 feet, plus or minus 6 inches, measured from the center of the handle to the fuselage.

3. Engine: Any design or make of piston engine is allowed, except that maximum engine displacement is limited to .19 cubic inches. Modifications are not restricted within the limits of the AMA safety code.

4. Fuel tank: Any design of fuel tank is allowed, including pressure systems, except as follows:

4.1. Fuel capacity is restricted to 1 ounce, with a +5% tolerance, 31cc maximum.

4.2. The fuel tank shall be fully external of the plane, on the outboard side of the fuselage, and entirely in front of the leading edge.

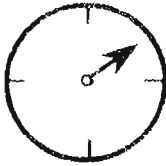
4.3. All tank vents are limited to a maximum size of 1/8-inch outside diameter. A spring-loaded pinchoff device capping the overflow vent on a uniflow tank is permitted.

5. Fuel: Glow fuel shall contain a maximum of 10 percent nitromethane with 20 percent lubricant and the rest methanol. Glow fuel will be supplied by the contest management. Diesel engines may use diesel fuel.

6. Aircraft: The only aircraft allowed is the PDQ Flying Clown or faithful replica. Changes to the planform, profile, or wing thickness are prohibited. Wheels must be at least 1 inch in diameter, and be spaced laterally about 7 inches.

7. Prohibited equipment: Hot glove electrical contact systems, fast-fill setups and fuel shutoffs are prohibited. Shutoffs may be installed on the plane for test-flying, but must be bypassed during races.

8. Races: All preliminary heats and the final race will be timed for 15 minutes from start to finish. The contestant with the most laps wins. Preliminary heats may be 7-1/2 minutes if agreed to by a majority of contestants or required by contest time constraints. Records shall not be established for heats less than 15 minutes. There shall be either two or three pilots in heat races. At least three aircraft shall advance to the feature race. The decision on the number of feature entries shall be made by the event director in advance before the start of any preliminary heats. If more than three planes advance to the feature, races will involve at least two and no more than three airplanes.



Northwest Competition Records

Record performances established between Northwest CL modelers in sanctioned competition

Here are the Northwest competition records as they stand for the end of the 1997 year. Note that there are still two vacant categories needing someone to put in an official score. There are a few scores that are just waiting to be bested. Look over this list, and start putting together your 1998 program with a goal to get your name posted.

1/2 A SPEED	99.78	BRUCE DUNCAN	5-29-94	EUGENE, OREGON
A SPEED				
B SPEED	168.47	RON SALO	6-14-97	KENT, WASH.
D SPEED	183.41	BOB SPAHR	7-14-95	RICHLAND, WASH.
JET SPEED	196.64	JERRY THOMAS	8-8-93	RICHMOND, B.C.
FORMULA 40 SPEED	153.13	MARTY HIGGS	6-26-94	RICHMOND, B.C.
21 SPORT SPEED	152.87	CHUCK SCHUETTE	7-20-97	COQUITLAM, B.C.
FAI SPEED	179.54	CHRIS SACKETT	8-17-97	COQUITLAM, B.C.
1/2 A PROFILE PROTO	101.60	CHUCK SCHUETTE	5-26-96	ROSEBURG, OREGON
21 PROTO SPEED	133.03	CHRIS SACKETT	5-25-97	ROSEBURG, OREGON
MOUSE RACE I -50 LAP	2:17	STEPHEN COX	8-23-97	SALEM, OREGON
MOUSE RACE I -100 LAP	4:42	REMY DAWSON	9-29-96	COQUITLAM, B.C.
MOUSE RACE II -75 LAP	3:40	DAVE GREEN	5-24-86	EUGENE, OREGON
MOUSE RACE II -200 LAP	10:00	JAMES COX	5-24-97	ROSEBURG, OREGON
AMA SCALE RACE -70 LAP	3:25	MARTY HIGGS	7-20-89	RICHLAND, WASH.
AMA SCALE RACE -140 LAP	7:47	JOE RICE	5-25-96	ROSEBURG, OREGON
NW GOODYEAR -70 LAP	4:12	JOE RICE	5-30-93	EUGENE, OREGON
NW GOODYEAR -140 LAP	8:01	JULIE RICE	5-27-95	EUGENE, OREGON
SLOW RAT RACE -70 LAP	3:10	HAZEL/THOMPSON	5-30-93	EUGENE, OREGON
SLOW RAT RACE -140 LAP	6:38	HAZEL/THOMPSON	10-17-92	EUGENE, OREGON
AMA RAT RACE -70 LAP	----	-----	-----	-----
AMA RAT RACE -140 LAP	6:32	HAZEL/THOMPSON	10-22-94	EUGENE, OREGON
FAI TEAM RACE -100 LAP	3:36	KNOPPI/McCOLLUM	6-84	SHANGHAI, CHINA
FAI TEAM RACE -200 LAP	7:40	KNOPPI/McCOLLUM	6-84	SHANGHAI, CHINA
NW SPORT RACE -70 LAP	4:00	BRUCE DUNCAN	5-12-87	RICHMOND, B.C.
NW SPORT RACE -140 LAP	8:48	TODD RYAN	10-8-94	RICHLAND, WASH.
NW SUPER SPORT -70 LAP	3:14	DAVE GREEN	4-13-86	PORTLAND, OREGON
NW SUPER SPORT-140 LAP	7:03	DAVE GREEN	3-8-87	PORTLAND, OREGON
FLYING CLOWN RACE, LAPS:	308	TODD RYAN	6-14-97	KENT, WASH.
CLASS I CARRIER	318.30	ROY BEERS	9-13-86	KENT, WASHINGTON
CLASS II CARRIER	330.25	ORIN HUMPHRIES	9-19-87	KENT, WASHINGTON
PROFILE CARRIER	314.00	TODD RYAN	5-23-97	ROSEBURG, OREGON
.15 CARRIER	224.19	ALAN OLSEN	10-6-96	RICHLAND, WASH.
AMA ENDURANCE	18:37	WESLEY MULLENS	8-15-87	KENT, WASHINGTON

records as of 12-31-97

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Listed below are the FLYING LINES issues that are still available. Here's your chance to complete your newsletter library. Most all issues include technical information, and certainly a nostalgic look back at past NW events and affairs. The issues are listed by issue number and date. Circle, check, or underline the issues you wish to receive. The price: Just \$2 for three issues, or \$6 will get you ten issues.

(4) Aug 79	(11) Mar. 80	(13) May 80	(23) Jan 81	(32) Jan 82
(33) Feb 82	(36) Jun 82	(37) Aug 82	(38) Sep 82	(39) Oct 82
(40) Nov 82	(44) Apr 83	(45) May 83	(49) Nov 83	(50) Dec 83
(52) Feb 84	(54) May 84	(61) Feb 85	(62) Mar 85	(66) Oct 85
(68) Dec 85	(70) Feb 86	(73) May 86	(74) Jun/Jul 86	(75) Aug 86
(76) Sep/Oct 86	(77) Nov 86	(78) Dec 86	(80) Feb 87	(84) Jul/Aug 87
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(98) May 92	(99) Jun/Jul 92	(101) Sep 92	(103) Dec 92	(104) Jan/Feb 93
(105) Mar 93	(106) Apr/May 93	(108) Jul/Aug 93	(111) Dec 93	(112) Jan/Feb 94
(113) Mar/Apr 94	(114) May 94	(115) Jun/Jul 94	(116) Aug/Sep 94	(117) Oct 94
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(124) Aug 95	(125) Sep/Oct 95	(126) Nov 95	(127) Dec 95	(128) Jan-Feb 96
(129) Mar 96	(130) Apr 96	(131) May/June 96	(132) Jul 96	(133) Aug 96
(135) Nov 96	(136) Dec 96	(138) Mar 97	(139) Apr/May 97	(140) Jun/Jul 97
(141) Aug 97	(142) Sep/Oct 97	(143) Nov 97		

FLYING LINES

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FLYING LINES is produced by a staff of volunteers interested in keeping lines of communication open between Northwest region control line modelers. *FLYING LINES* is independent of any organization, and is made possible by the financial support of its base of subscribers.

The *FLYING LINES* staff: John Thompson, Fred Cronenwett, Orin Humphries, Jim Cameron, Paul Gibeault, Gerald Schamp; Mike Hazel, editor. Contributions for publication are welcomed. Any material submitted to the editor which is not for publication, should be indicated as such. Duplication of contents is permissible, provided source is acknowledged.

FLYING LINES is published nine times per year. Subscription rate is \$13.00 for USA, and \$15.00 for Canada (U.S. funds). Subscription expiration is noted on the mailing label-issue number listed after name.



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