

# FLYING LINES

1411 BRYANT AVENUE  
COTTAGE GROVE, OREGON 97424

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PUBLISHER: MIKE HAZEL

February 1983 NEWS OF NORTHWEST CONTROL LINE MODEL AVIATION Number 42

## REGIONALS PLANNING WELL UNDER WAY -- CONTEST DIRECTOR'S REPORT

By Dave Green, Northwest Regionals '83 contest director

I thought I'd let you know that the sanction for the 1983 Northwest Regional Control Line Championships has been sent to the Academy of Model Aeronautics.

There are a couple of changes that should be known. First, I split up the carrier classes into three individual classes (I, II and profile). If the entry is way down in Class I and II they may be combined again next year. It all depends on how many fliers show up.

Second, I combined intermediate and advanced stunt, providing three stunt classes instead of last year's two (beginner, intermediate/advanced, expert). There again the change is not etched in stone. If I get enough negative feedback about this the classes can be realigned. You stunt freaks let me know. I'll have to know before the order for the trophies goes in (by April 1).

I guess this is the place for the yearly CD's plea for volunteers to be event directors. I have volunteers for registration. I need help with all the other events (speed, carrier, stunt, racing, combat, scale, balloon bust).

The format for the events will be essentially the same as last year, as will the time schedule. Team race was added this year and will be run after slow rat on Saturday. Sport Race and Super Sport Race will again be run over the domed grass circle. That seemed to work out pretty well with few complaints.

I have an idea that might make some money for Flying Lines. I was at a garage sale the other day and it occurred to me that the contestants at the Regionals might have some things they would like to donate to FL or sell on commission. We could set up a sale table under the tarps after registration closes at noon. My family has graciously "volunteered" to run the sale. All the items would have to be tagged and marked as to whether they are donated or sold on commission, so the sales people don't get confused. I myself have a good used Starret 1" micrometer and several engines that I will donate to FL. The tags would give the asking price and who it belongs to.

Let me know what you people think. Hopefully it would be a way to get Flying Lines out of hock, maybe for good.

--Dave Green, 200 W. Franklin Ave., Astoria, Oregon 97103. (503) 325-7005.

## DRIZZLE CIRCUIT DRIES OUT FOR CONTEST 2

Confident they had gotten wet enough at the December opener to last the season, Northwest Sport Race Drizzle Circuit riders gathered again Jan. 9 for the second installment of the series' fifth season. This time the weather was dry and only slightly chilly with a steady but not strong breeze.

It wasn't a day for super times, confirming the claim that engines like most air for their best performances. But there was some good close racing and a "perfect" day for super sport, with every plane finishing every heat.

Greg Beers of Vancouver, Wash., strengthened his hold on the Northwest Sport Race series lead by taking his second straight first place. Dave Green of Astoria, Ore., was forced to share first place in Super Sport with Rich Schaper of Kelso, Wash., who finished second, one spot ahead of Green.

Beers blasted to the head of the pack in sport race with an 8:54 feature, backing up heats of 4:47 and 4:54, all good times. John Thompson of Cottage Grove, Ore., won super sport with an 8:40 time after slipping into the final with times of 6:25 and 4:00.

SKARE Team, Dick Salter and Tom Knoppi of Seattle, Wash., turned the best sport race heat time at 4:34. Thompson and Green shared super sport speed honors at 4:00.

The Drizzle Circuit continues in Portland Feb. 13. There's still plenty of time to climb aboard!

Here are the complete results:

### NORTHWEST SPORT RACE (9 entries)

1. Greg Beers, Vancouver, Wash. -- 8:54. Sterling Yak-9, 40" span, balsa, epoxy finish. Fox .35 stunt, Grish 9x8 nylon prop, Fox plug, Sheldon's 15% nitro fuel.
2. SKARE Team, Seattle, Wash. -- 9:07.
3. Dave Green, Astoria, Ore. -- 9:33.
4. John Thompson, Cottage Grove, Ore. -- 10:04.

NORTHWEST SUPER SPORT RACE (6 entries)

1. John Thompson -- 8:18. Cro-Magnon Super Sport (Mike Hazel design), 36" span, balsa, bass, spruce, plywood, Monokote and K&B Super Poxo finish. K&B .35, Dark Ages Racing Equipment 9x7½ glass prop, Thunderbolt long plug, Sheldon's 15% nitro fuel, mechanical fastfill, shutoff, DARE 4-oz. tank, Fox handle.
2. Rich Schaper, Kelso, Wash. -- 8:40.
3. Dave Green -- 9:24.
4. Will Naemura, Portland, Ore. -- 4:39 heat.

AMA RAT RACE (2 entries)

Four or five rat racers showed up but that first-of-the-season shakedown testing eliminated all but the Dark Ages Racing Team from Astoria, Ore.

1. Bill Varner, Astoria, Ore. -- 6:45.2. Yippie (Mike Hazel design), 30" span, 29 oz., balsa, bass, maple, magnesium, K&B Super Poxo clear finish. OS Max .40, DARE 8x7 fiberglass prop, Hobby Shack long plugs, DARE 50% nitro fuel, crankcase pressure, K&B needle assy., fastfill, shutoff, hot glove, DARE uniflow 4-oz. tank, modified Fox handle.
2. Dave Green -- 123 laps.

HEAT WINNERS

NORTHWEST SPORT RACE: Round 1: G. Salter (5:41), G. Beers (4:47), D. Green (5:26).  
 Round 2: SKARE Team (4:34), Beers (4:54).  
SUPER SPORT RACE: Round 1: Rich Schaper (5:04), Dave Green (4:19).  
 Round 2: John Thompson (4:00), Green (4:00).

CHAMPIONSHIP POINT STANDINGS AND STATISTICS

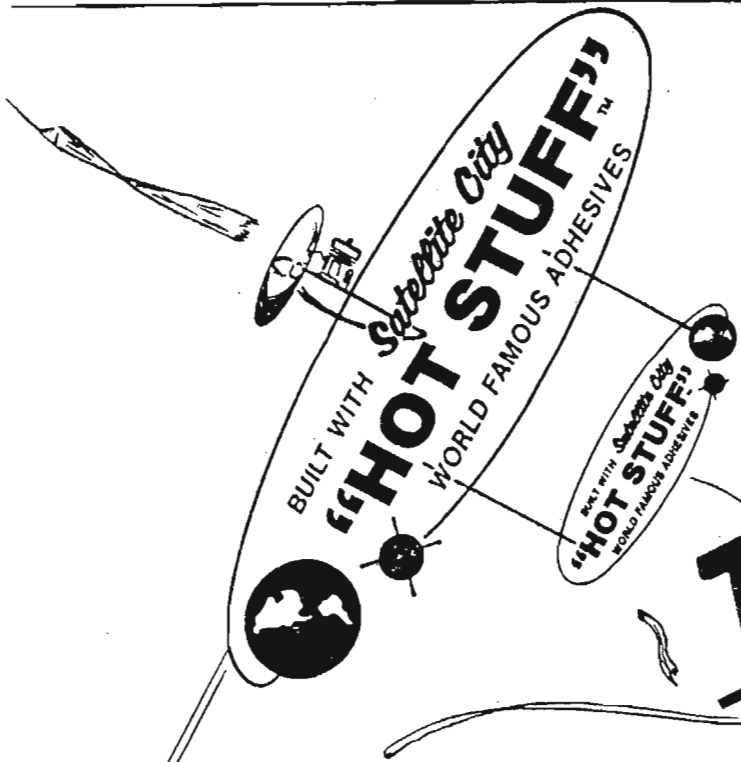
<u>NORTHWEST SPORT RACE</u>	<u>SUPER SPORT RACE</u>
1. Greg Beers . . . 17	1. Dave Green . . . 11
2. Dave Green . . . 14	Rich Schaper . . 11
3. SKARE Team . . . 9	2. John Thompson. . 8
4. Bill Varner. . . 8	3. SKARE Team . . . 5
5. Glenn Salter . . 7	4. Alan Stewart . . 4
6. John Thompson. . 6	5. Dick Peterson. . 2
7. Dick Peterson. . 1	Will Naemura . . 2
Rod Watson . . . 1	Mike Hazel . . . 2
9. Drew DePauli . . 0	8. Bruce Guenzler . 1

<u>FAST HEATS</u>	<u>(Race)</u>
NWSR: 4:27	-- G. Beers (1)
NWSS: 3:24	-- D. Green (1)
<u>FAST FEATURES</u>	
NWSR: 8:48	-- Beers (1)
NWSS: 7:30	-- Green (1)
<u>PRELIMINARY HEATS WON</u>	
NWSR: 4	-- Greg Beers
NWSS: 4	-- Dave Green
<u>PRELIMINARY HEATS FINISHED</u>	
NWSR: 4	-- Green, Beers, G. Salter, B. Varner
NWSS: 4	-- Thompson, Green, Schaper, Stewart
<u>TIMES MADE FEATURE RACE</u>	
NWSR: 2	-- Beers, Green
NWSS: 2	-- Green, Schaper

RACING SAFETY OPPORTUNITY -- Flying Lines has located a source of cheap helmets good for racing and combat pit use. These are light plastic industrial hard hats with chin straps. Price is \$7, delivered by FL rep in person, or \$8 if mailed. Contact FL if you are interested. These helmets are now being used by several Drizzle Circuit crews this season. FL urges use of helmets in multiple pilot events, whether ours or others.

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# NW COMPETITION STANDINGS

FLYING LINES' COMPILATION OF EVENT PLACINGS BY NORTHWEST  
MODELERS COMPETING IN NORTHWEST REGION CONTESTS

Here is the first installment of 1983 Northwest control line competition standings.

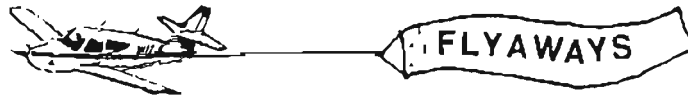
For newcomers, here's how the standings work: Placing in the top four of a Northwest contest earns points for Northwest fliers. First place is worth the same number of points as the number of entries. Second place is worth the number of entries minus one, third place is the number of entries minus two, and fourth place is the number of entries minus three.

Flying Lines maintains standings and reports on them each time they change. Standings are kept for all AMA events, Northwest Sport Race, Northwest Super Sport Race, Northwest Sport Combat, and profile/sport.scale. Speed and aerobatics classes are combined. Expert and advanced aerobatic pilots are scored at 1.5 times their actual score.

Only Northwest residents and Northwest contests are scored. Northwest is defined as AMA District XI (Oregon, Washington, Idaho, Montana, Alaska), plus British Columbia.

Below are the 1983 standings through Feb. 1:

NORTHWEST SPORT RACE (1 contest, 9 entries)	NW SUPER SPORT RACE (1 contest, 6 entries)	RAT RACE (1 contest, 2 entries)
1. Greg Beers . . . 9	1. John Thompson . . . 6	1. Bill Varner . . . 2
2. SKARE Team . . . 8	2. Rich Schaper . . . 5	2. Dave Green. . . . 1
3. Dave Green . . . 7	3. Dave Green. . . . 4	
4. John Thompson. . . 6	4. Will Naemura. . . 3	



## RANDOM TIPS AND RIBS FROM THE FL WORKSHOP FLOOR

====Pete Bergstrom of Tacoma, Wash., writing in the Seattle Skyraiders, Skywriter, reports of an injury that cost him the loss of half a fingernail and three stitches. Pete was launching one of Gary Byerly's FAf combat planes when this unusual mishap occurred. Seems Pete's hand was hit by the prop as he opened the hand to release the plane. Pete advises crewmen to move their hands outside the prop arc before letting go of a combat plane, in order to save a trip to the local hospital.

====Another manufacturer has bit the dust because of careless modelers' actions. In this case the carelessness was also tragic for the modeler. It's another case in point about safety -- it seems the most simple and obvious

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safety warnings can't be repeated enough. Here's the story as told by Bert Quenzer, owner of Sturdi-Built Model Mfg., maker of CL handles; in a letter to Flying Lines: "At the present time we are involved in a lawsuit where a 42-year-old man used a U-Reely and flew into a power line and got burnt. U.S. Law states that U.S. manufacturers are liable if their product was associated in any way. Foreign products are excluded. This has cost thousands of dollars in lawyers' fees and has completely broken the company. Therefore we are out of business. I suggest to your modelers to buy foreign products."

====J&J Sales, operated by Joe Just of Sunnyside, Wash., announced recently he is making Class I and II mouse racer kits. Class I goes for \$7.95 and Class II is \$8.95. Write J&J Sales Co., 713 Crescent, Sunnyside, WA 98944 for information and the J&J catalog.

====The old Portland Aeroliners and some new friends have gotten together to re-form the Aeroliners and change the name to the Northwest Aeroliners. Look for some activity out of the Rose City in the coming year, says Steve Lindstedt, one of the kingpins.

====Two hard-working Eugene Prop Spinners got well-deserved awards at the Spinners' annual winter banquet. Jeff Shelby, avid early-morning sport flier, carrier official, carrier flier and -- most noteworthy -- Regional Championships field preparation crew chief, received one Golden Prop Award. Jeff is Prop Spinners vice president. Tom Kopriva, active CL and Free Flight competitor, won the other Golden Prop for his successful 1982 competition and his service as secretary-treasurer and newsletter editor. The awards were presented by Mel Marcum, Prop Spinners president.

====Frank McCune of Blain, PA, reports that his fellow fliers are looking for an intermediate event between their sport race and slow rat. Frank asked for the Northwest's super sport rules, which may become a model for the Northeastern racing class.

====Dave Mullens said not to print this, but his recent letter had the proud father's glow when he told of the flying exploits of his sons Wes (4) and Shawn (7). Seems both boys, even tiny Wes, can fly with no more than a little help at takeoff. A hearty round of applause, readers, for two accomplished kids and one fine dad! (By the way, Shawn flies a "Flip" that Dave Green gave him. We've long since lost count of how many kids Dave, of Astoria, Ore., has gotten started on those Flips.)

====We've had a chance to try Satellite City's new Hot Shot cyanoacrylate adhesive accelerator, and it does speed the setting of Hot Stuff and other instant glues. It's best for those times when for some reason -- oil on the wood or moisture, or old glue -- it just doesn't want to set. Keep the Hot Shot bottle close by and give 'er a shot. Poof! She's set! It's similar to the old technique of using a cigarette or fireworks punk to heat the joint. The pump spray dispenser on our bottle was a bit leaky and we seem to get more accelerator than we need. A little squirt from 6" away is just right.



### navy carrier notes by orin humphries

To make a hook for your carrier bird, you have to solder things on to it, right? Ever had one of these added things start turning inside the wrapped solder joint? I also. I tried re-soldering from the outside only to have the darn thing (such as the catch or rope trap) start turning again. Through trial and error, I've found there's only one way to...

#### SOLDER WIRES TOGETHER

A decade ago, piano wire was pre-tinned at the factory. Since then, it is not tinned, as a cost-saving measure. You used to be able to just stick the wires together and solder them. Any more, if you do that, they won't stick; they just turn blue. Resin core used to work, but not it takes acid core.

For men the only way I can get another piece of wire to stay rigidly fixed to my hook or pushrod is to pre-tin BOTH pieces first. Not just one. Then, of course, wrap copper wire around the two pieces to be joined and solder them.

For the benefit of the new people out there, you must use wire bought at the hobby shop; other wire may have an invisible shellac coating on it that will block soldering, even if you scrape it.

As for flux, I know that the watery kind works great, but they make an acid, hydrochloric, when heated. Sooner or later you will get tired of the acid drops on your workbench and the rusting of the soldered joints. I use a paste called "No-Corrode."

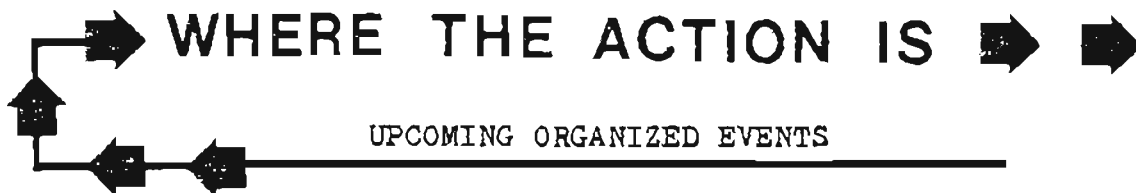
No matter what flux you use, you must wipe the joint with an ear swab dipped in baking soda paste. This will block rust for a fairly long time.

If you get good at soldering, maybe 90 percent of your joints will stay

put.

Well, I gotta run. I owe some space to other columnists. Can you remember without looking what you have to do to keep two soldered pieces from turning?

--Orin Humphries, 5208 N. Elgin, Spokane, WA 99208.



Listed below are the control-line model aviation events currently known to Flying Lines. If you or your organization is sponsoring an upcoming event, contact FL now. All events listed here are AMA-sanctioned unless otherwise noted. There is no charge for listing here, and FL will distribute contest flyers free as well. All AMA-sanctioned events are open to all AMA members unless otherwise noted.

- February 13...PORTLAND, Ore. -- Northwest Sport Race Drizzle Circuit Contest 3. 1/2A combat, 9 a.m. NW Sport Race, 11 a.m. sharp. NW Super Sport Race follows NWSR. NWSR/NWSS 2-heat+feature, points accumulating for circuit championship. Site: Delta Park. Entry fee: \$4 for first event, \$2 for each additional event. Contest Director: Dave Green, 200 W. Franklin Ave., Astoria, OR 97103 (503) 325-7005. Sponsor: North Coast CLAMS. Prizes: Merchandise.
- March 13.....PORTLAND, Ore. -- Northwest Sport Race Drizzle Circuit Contest 4. Northwest Sport Combat, 9 a.m. NW Sport Race, 11 a.m. sharp. NW Super Sport Race follows NWSR. NWSR/NWSS 2-heat+feature, points accumulating for circuit championship. Site: Delta Park. Entry fee: \$5 for first event, \$2 for each additional. Contest Director: John Thompson, 1411 Bryant Ave., Cottage Grove, OR 97424 (503) 942-7324. Sponsor: Eugene Prop Spinners. Prizes: Merchandise.
- March 27.....SEATTLE, Wash. -- Seattle Skyraiders 3xl Event. Three events (NW Super Sport Race, stunt and balloon bust) with one airplane. Site: Carkeek Park. Contest Director: Dave Mullens, 15559 Palatine Ave., N., Seattle, WA 98133. (206) 365-5436. Trophies through third place for overall winners, first place trophies for individual events.
- April 10.....PORTLAND, Ore. -- Northwest Sport Race Drizzle Circuit Contest 5. Slow rat race, 9 a.m. Northwest Sport Race at 11 a.m. sharp, NW Super Sport Race follows NWSR. NWSR/NWSS 2-heat+feature, points accumulating for circuit championship. Site: Delta Park. Entry fee: \$3 per event. Contest Director: Mike Hazel, 1040 Windemere Dr. NW, Salem, OR, 97304. (503) 364-8593. Trophies. Circuit championship trophies and perpetual awards handed out.
- May 15.....KENT, Wash. -- Seattle Skyraiders Spring Tune-Up. Precision aerobatics (3 classes plus junior novice), sorta scale. Site: Boeing Space Center. Contest Director: Dave Mullens, 15559 Palatine Ave. N, Seattle, WA 98133 (206) 365-5436.
- May 28-29.....EUGENE, Ore. -- Northwest Regional Control Line Championships. Rat race, slow rat race, Goodyear, NWSR, NWSS, Class I mouse race, Class II mouse race; AMA, FAI, 1/2A and slow combat; AMA and profile scale; Class I, II and profile carrier, precision aerobatics (three PAMPA classes); balloon bust, 1/2A, A, B, D, jet, Formula 40, and FAI speed. Displays, concessions, camping, hobby shop, party,

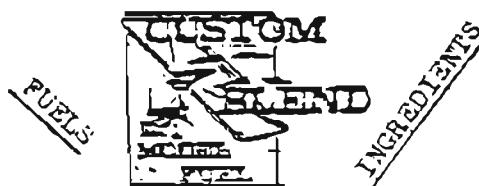
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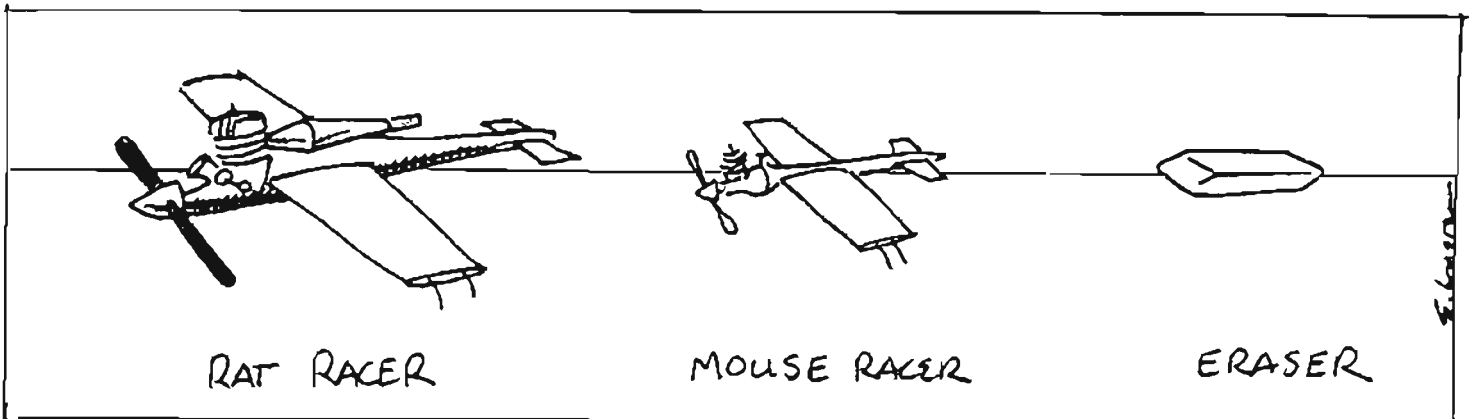
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ACTION, continued

rest rooms, restaurant, airline connections. Site: Mahlon Sweet Airport. Sponsor: Eugene Prop Spinners in cooperation with other Northwest clubs. Prizes: trophies and \$2,000 worth of merchandise. Contest Director: Dave Green, 200 W. Franklin Ave., Astoria, Ore., 97103. (503) 325-7005.

- June???. . . . . ASTORIA, Ore. -- CLAMBash. More details to come. Contact Dave Green, 200 W. Franklin Ave., Astoria, OR 97103 (503) 325-7005
- July???. . . . . KENT, Wash. -- Boeing Hawks Air Fair. Will somebody tell us what's going on, for a change?
- July 24. . . . . SPANAWAY, Wash. -- Seattle Skyraiders and Bill's Hobby Town Spanaway Spectacular. (tentative). Precision aerobatics, slow, AMA and 1/2A combat. Contact Dave Mullens, 15550 Palatine Ave. N., Seattle, WA 98133 (206) 365-5436.
- Sept. 10-11. . . . . KENT, Wash. -- Raider Roundup/Washington State Control Line Championships, sponsored by the Seattle Skyraiders. FAI team race, rat race, NWSR, NWSS, Class I&II Mouse race, balloon bust, profile carrier, Class I-II carrier, slow, 1/2A and AMA combat, precision aerobatics, sorta scale, sport or precision scale, Formula 40 speed, record-ratio speed. Trophies and merchandise. Site: Boeing Space Center. Contest Director: Dave Mullens, 15559 Palatine Ave., N., Seattle, WA 98133. (206) 365-5436.
- October 8. . . . . PORTLAND, Ore. -- Old-timers Fun-Fly, featuring several events to be announced later, 9:30 a.m.-2:30 p.m. Site: Delta Park. Sponsor: Northwest Aeroliners. Information: Frank Macy, 5200 SE Jennings, Milwaukie, Ore., (503) 653-7436. Field available for Stuntathon practice after 2:30 p.m.
- October 9. . . . . PORTLAND, Ore. -- Stuntathon '83. Four PAMPA precision aerobatics classes, 9:30 a.m. Site: Delta Park. Sponsor: Seattle Skyraiders. Information: Don McClave, 7719 SE 28th Ave., Portland, OR 97202, (503) 771-8453. Contest Director: Dave Gardner, 8133 184th St. SW, Edmonds, WA 98020 (206) 771-4787.



SECRETS OF COX ENGINE DIFFERENCES EXPOSED

Below is some useful information about Cox 1/2A engines, stolen from the MACA Newsletter, the journal of the Miniature Aircraft Combat Association. The author is Dale Kirn.

"Needless to say, there is a difference in the various number of cylinders that Cox has produced over the years.

STANDARD -- means that the bore/hone is straight through (no taper).

Below the exhaust ports there is a taper to the bottom of the cylinder (approx .002).

NO FREE PORT -- Free port occurs when there is a gap between the bottom of the piston and bottom of the exhaust port when the piston is at top dead center. This permits a fresh charge of air to be sucked in at the top of the stroke.

The 7904 cylinder does not have this feature -- as it was designed to operate on a muffler. Free porting robs power in a muffled engine.

The 7904 cylinder was first used on the QZ .049 brought out in the late 60s. Later it was used on the QRC .049 until 1979. Then the cylinder was replaced with the 7905 (no free port and two thin exhaust ports).

"The 7904 is larger at the top of the honed area than the 1784 because it has no taper. The 1784 will not accept a "standard" .049 piston because it is tapered.

"Prior to 1979 all of the "standard .049 pistons (Babe Bee, Black widow, etc.) had approximately .0002 taper on the piston (smaller at the top). Now all of the standard pistons have no taper.

"Tee Dee .049 and .051 pistons still have the double taper. Luckily they haven't changed it -- and it still works great.



"Hope this clarifies some of the mystery of the terminology on the cylinders."

Membership in MACA, a worldwide combat organization, can be obtained by sending \$9 to secretary-treasurer Jordan Segal, 8314 West Oak Ave., Niles, Ill. 60648.

# SUNDAY FLYER

BY LARRY MILES

## COMBAT PLANES FOR SPORT FLYING

This column is supposed to be for the sport flier and so it shall. But there are sports and there are sports. And they don't always agree on what constitutes sport flying. This article as the title implies is about combat flying for the sport flier.

Combat planes have a lot going for them to make them worthy of a sport flier's attention. They are quick to build, inexpensive, easily repaired, straightforward (relatively) building techniques, space-saving, fast like a speed or racing job, more maneuverable than a stunt plane. They are a blast to fly even if you never fly in a combat match as such.

With minor modifications they could be flown in a race format or even on a fun-type speed basis. Using a venturi restrictor they will perform a credible stunt pattern and if a person's kicks are gotten from variable speed a few minor modifications will get that feature as well. You scale-type sport fliers may as well go to the next article.

Enough sales of the virtues of combat planes. Now, how about a peek at the style of combat plane that is likely to give the most satisfaction per dollar, man-hours, and the least frustration and material consumed.

There are basically two styles of combat plane (canard designs excepted). Those include the one where the stabilizer-elevator is separated from the wing whether the separating device be a monoboom, twin boom or profile fuselage and the style where the elevator is basically an extension of the wing, sometimes referred to as the European style combat plane even though Sterling kitted many, many years ago a plane of that type called the T-Square and though there are plans in old magazines for this type of plane. Where that style plane originated from (birds, perhaps) really isn't that important, nor is the title of the style. For all I know the first modeler to propose one of these style planes may have been DaVinci. What is important is what if any advantage is to be had from this type plane over the typical US-style combat plane or vice-versa.

I am not going to try and extol the virtues of the US-style combat plane as they are generally known and written about elsewhere. What I do propose

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is to mention some of the advantages of the European-style plane.

1. It has no monoboom, so you don't have to build one.
2. Monobooms have weight--that means the wing has to be strong enough to withstand twisting moments that tend to wrench the monoboom-stabilizer from the wing in crashes.
3. The necessity of beefing up the wing to withstand those twisting movements adds weight.
4. The added weight of the monoboom plus the added weight of the wing reinforcement means a heavier plane that accelerates slower.
5. To have same wing loading with heavier air frame and boom or booms means larger wing area required.
6. Larger wing areas plus heavier craft means more crash damage.
7. All of the above means more material for boomed-type ship and more expense.
8. More crash damage means more repair time--more expense and less air time.

Yes, there are some distinct advantages to the boomed-type plane. One of these is ready availability of several plans for some great flying planes. For the average sport flier flying combat planes for fun, and it is fun, I think the European style combat plane has more going for it, however. But, you may have to design your own.

--Larry Miles, Apt. 89, 7707 Mission Gorge Rd., San Diego, CA 92120.



## AIR MAIL

COMMENTS.....NEWS.....VIEWS  
FROM THE FLYING LINES READER



DEAR FL:

Congratulations on your #1 spot in the Editors' Hall of Fame. We knew Flying Lines was the best and now the nation does too.

Also very pleased with your position on the CL contest board.

Have read the rules proposals in Model Aviation and would like to indicate a "yes" vote to all rules.

I plan to attend the Drizzle Circuit this season.

Also wish to thank you for your kind words in Profiles. Am quite impressed with your writers' talent applied to the disjointed chicken scratches I mailed to you.

--Dick McConnell, 14828 Military Road S. #208, Seattle, WA 98168.

DEAR FL:

This letter is written to confirm some of the hot rumors that are circulating the area. The Portland-Vancouver area once again has a control-line club. We have decided to include RC and free flight into our scope of interest but deep down I think we all love getting dizzy.

I have only been flying for about a year and a half, but have learned quite a lot since falling in with this bunch of guys. The cross-section of the club membership is vast, and from present indications, I think it is bound to grow quickly.

The Stunt-A-Thon '82 was just great. The spectator turnout was surprising much thanks go to the Nor'westers for putting it on...To Frank Macy for organizing the great history lesson during the lunch break...and thanks to Terry Miller for having the nerve to brave the elements with my very unpredictable Fireball Sportster on its maiden journey. The engine was installed barely an hour before it flew. And thanks to everybody who helped make it a success. Anybody who missed the world class stunt flying, the superb model display and the superb bull flowing in the pits sure missed one heck of a good time!

--Steve Lindstedt, Sec/Treas, Northwest Aeroliners, 8734 N. Fiske, Portland, OR 97203.

DEAR FL:

I have a couple of things to write about.

First, I just went back and reviewed the FL for September, '82. I noted that you had the speed results for both events at the Raider Roundup but I flew Formula 40 in record ratio and did 152 +. I would think this should be a new NW record, as I flew my Formula 40 plane in record ratio to the Formula 40 record. (Editor's note -- record has been confirmed.)

I understand the Formula 40 record is now 164 mph held by old Willy Wisniewski.

I am quitting the model prop business. My other businesses are taking too much of a priority at this time. By the way it is available for sale at a reasonable price.



I wanted you to list somewhere in FL that I am carrying most K&B, Rossi, Picco, and OS engines. I am not also carrying mostly products that cater to speed flying, i.e. speed pans, engines and engine re-work.

I am all for the rules changes for speed. Forty percent fuel sounds great and .020 lines for Formula .40 is OK. I don't think it's really necessary but I'll go along. Racing rules I think should be left alone but I am quitting flying racing anyway.

I am working on a bunch of new stuff for FAI speed and hope to have the record at a respectable level this year. Am also working on a new F-40 and a "B" model this year.

(In a later letter, Scott adds:) I also have in stock Rossi .15s and parts and HP .40s.

I'm building a new Formula 40 with a Picco .40. It ought to be interesting -- the engine is a real monster. I've got Picco making me a couple of .36 engines for slow rat. These will be interesting, also.

--Scott Newkirk, 4426 S. 124th, Seattle, WA 98178.

DEAR FL:

While it is not my intent to be a regular contributor to FL in the form of letters, articles or short spout-offs, it may appear that way at times. Perhaps it is because I find so many interesting people and friends in model aviation, that I feel compelled at times to share this with others.

Often we take each other for granted, not recognizing the talents and abilities of those around us. Sometimes we become so involved in our own little world that we don't see some of the neat things right under our nose. Something about the forest and the trees? Following is a true story I'd like to share with you.

Steve Lindstedt is a guy to keep your eye on. He's new to organized aeromodelling, having been involved for about a year now. Don't misunderstand, he's been a model builder for a long time. Just this past year Steve has been learning to fly control-line, and doing very well at it. In addition to this, he is now the secretary-treasurer of the Northwest Aeroliners. But I'm getting ahead of the story.

Steve and Pam Lindstedt are the parents of four children, co-owners of one dog, a bird and a fish. They live in Portland where Steve is the designer at American Sign and Neon. That's where I first met him, as I also am a designer and frequently do work for other firms.

As I was having lunch one day with Steve's boss, he told me he had a new employee that I should meet, since he was one of those wierd model airplane freaks also. That's how I first met Steve.

One of the first things I noticed at the shop was that all of the Playboy and Penthouse magazines were gone. In their place were stacks of model airplane magazines, and I really had to chuckle, for now I understood where his boss figured he was one of those "wierd" model airplane freaks. When we met, Steve was aware of my involvement and research in the Jim Walker/American Junior history, and was full of questions. I could see his enthusiasm and interest in modeling, and we got along great.

He had so many questions about model building, control-line flying, clubs and the like, that I felt totally unqualified. But I knew of people who could answer his questions, and suggested that he and his family attend the Northwest Regionals in Eugene, which was coming up in a month or so. This would give them an overall view of control-line modelling, and a chance to meet some of the people involved. He liked the idea, and said he would plan to attend. You know the old story, lots of people say that, right?

I didn't see Steve again until a few days before the CL event, and proceeded to remind him of it. He said, "I know, we drove down there last Sunday and nothing was going on. Must've got the date mixed up." Well, folks, they were there all right, in spite of their old Chev hitting on 5½ cylinders, two flat tires, no spare (by now) and tired, hot, fussy babies. They were there, and they've been with it since that day.

Since then, Steve has built and flown several trainers, (Pam has been learning to fly also) a couple of peanut jobs, five little Fireball models carved for trophy awards, complete with miniature engines that look like they'd run if you flipped the prop (he carved these for me for the fun-fly) and built his wife a real live flying Fireball Sportster version. Seems Pam had fallen in love with my white and gold 3-line version Fireball Sportster she had seen at Eugene. Now fellows, we all know what happens when a woman decides she wants something, don't we? She got her Fireball all right, and it flies. On the morning of the fun-fly, Steve finished the model at the field, at 11:55. He was so exhausted, nervous and uptight, that he felt he shouldn't attempt to fly it. It was very gusty that day, too. But he had worked so hard to finish it...to fly. This is where Terry Miller enters the life of the Lindstedts. Terry flew Pam's Fireball successfully in spite of strong winds. As I watched this scene, I learned a lot. Terry was having FUN, Steve was WHITE and in deep shock, and Pam was all SMILES, watching her Fireball fly, and her hero-husband.

I would like to mention the method Steve used to carve out the Fireball fuselage. Since he doesn't own any fancy carving tools, he made

AIR MAIL, continued

his own. To hollow out the inside, he had to have a gouge. For this, he cut a piece of conduit, hack-sawed half of the tube off (longitudinally), taped one end for the handle, and ground the other end to a sharp edge. Now that, friends, is determination. I now own that historic instrument.

At the risk of his not speaking to me again, I'd like to tell you one more thing about Steve Lindstedt -- no -- I'll show you instead. Enclosed are some samples of his cartoons. I think you'll enjoy them.

At the present time, we're discussing the feasibility of publishing a new control-line cartoon capers booklet, or some such thing. Let us hear from you if it would be of interest.

In closing, I'd like to suggest that if you haven't met Steve or his wife Pam yet, that you do so the next chance you get. I've got a hunch they're really gonna fly -- just for the fun of it!

Keep 'em flying...

--Frank Macy, 5200 SE Jennings Ave., Milwaukie, OR 97222

DEAR FL:

What the heck are you doing on the Drizzle Circuit? Haven't seen you up in your normal position. You just being nice or has the glitch bug got you? (Editor's note: Not the glitch bug -- the slow bug!)

The Skyraiders have a new contest director. Dan Cronyn has applied for his license. Hopefully Dan will be legal to run the 3xl in March. Dick Salter will be the primary CD for the Round Up this year. I'm going to CD the Stuntathon. After being the only CD in the club for a couple of years it is kind of nice to be able to spread it around.

We're still tentative on the Spring Tune-Up, Spanaway meet and the Roundup. Getting site approval from Mr. Boeing is a big pain. The more I have to deal with Boeing the less confidence I have in flying commercial jetliners. They still haven't found the carrier deck.

We're going to try the three-class stunt format at the Tune-Up. It will give everybody a chance to get used to the scoring system if Dave Green decides to go with it at the Regionals.

I made up a Flying Lines poster to display in our club booth at the Expo. Hopefully we can drum up a little business for you. I made up copies of your What's Happening form and the T-Shirt order forms. You should be getting an inquiry from Troy Benham, from Bremerton. He is another new control-line flier in the area.

--Dave Mullens, 15559 Palatine Ave. N., Seattle, WA 98133

DEAR FL:

Thanks for running my cartoons in the newsletter. It's rather gratifying to see one in print. My thanks go out to my friend Frank Macy who submitted them and gave me a hearty plug in a letter to you guys.

As a "control-line historian," as he has been called, he has chronicled the sport and its people from its inception years ago.

Whether he is aware of it or not, he is one of the best PR men for model aviation around today...

Enclosed are some pictures of racing action at the January Drizzle Circuit sport race. Feel free to use them.

--Steve Lindstedt, 1645 N. Church, Portland, OR 97217.

DEAR FL:

Well, you have done it again. Calling me names like gracious "carrier kingpin" and whatnot. Anyhow, just had to answer.

If anyone on the DC is not convinced that Dave Green's K&B .35 isn't stock, it is. Dave bought that engine from me. I had put in a new sleeve and ring. I found they had rusted on my garage wall. Dave proceeded to finish with the break-in and then changed the spray bar-venturi setup. Which proves the point that there is no hop-up like a good break-in. Of course, as you point out, races can be won or lost in the pits.

Now, to clarify the .36 size engine comments that I made pertaining to profile carrier engine use. At the time that the BB engines were being pushed for profile carrier, it was point out that this move would greatly increase the number of high-performance readily available over the counter low-cost (about \$60 to \$70) price range engines that would be an alternative to the limited production or specially modified high-cost engines. These engines did not materialize and only allowed these people with the special engines to convert them to BB engines. There are several low-cost sport-type .35 and .36 RC engines that can be used, and with good technique can do quite well at local meets. Yes, Duke Fox can still supply the Profile Carrier Special. When I wrote to him about it or the .36BB he made at the same time he himself told me that his Combat Special would be a better option and has more potential than the profile special, if fitted with a large Perry carb. This required the cutting off of the venturi stack to "square" it and filing the carb neck to square to fit the hole, and sealing it with silicone.

Some people have also fitted them with Supertigre carbs with good results. Surprisingly, they idle quite well without an exhaust restrictor and with work and familiarity should do quite well. Larry Miles' information that Duke plans

AIR MAIL, continued

to fit a carb on these shows again that Fox does care and recognizes the needs of CL fliers in any category. Thanks, Larry for the good information,

Also, Supertigre has reintroduced their S-36 engine, this time with the lapped piston and sleeve setup instead of a ringed engine. This is to be available in both CL and RC versions, being fitted with the same MAG V carb that is fitted on the S-40. The RC version will be in the \$80 to \$85 price range retail. Not too bad when you consider that the ST .35-C now retails around \$71. Also, it has been proposed again that the profile carrier rules allow .40 size engines. As NCAC member from this district, I am totally against this, and will so vote if it comes up in a proposal. I want to see it remain as is for a while.

If the engines and rules keep changing, the manufacturers will not meet the need, as Duke Fox is doing, and tried to do before with his Profile Special. We could then wind up with nothing available but the specially built engines and hot .40s, and models that could be too dangerous to fly. Anyone wanting to go to .40 to .60 size engines should go to Class I and II, instead of profile.

Thanks for reading and keep flying...

--Bill Skelton, Box 105, Warrenton, OR 97146.

DEAR FL:

In the August edition (Flying Models? -- Ed.) I read about Flying Lines, which I want to subscribe.

I also would be very glad if you helped me to subscribe on "The National Control Line Coalition NCLC Gazette" by Laird G. Jackson, which I read about in the December issue of "Flying Models."

I enclose our club decal and the SLIS decal (Swedish organization similar to PAMPA).

--Willy Blom, Evalundsvagen 40, S-138 00 Alta, Sweden.

(Editor's note: To subscribe to the "Gazette," send \$10 membership fee to the National Control Line Coalition, c/o Laird Jackson, 2322 Wilson Ave., Bristol, PA 19007.)

DEAR FL:

I am interested in CL stunt and would like a year's subscription to Flying Lines beginning with January or December '82 if that's a better place to start. Do you welcome slides, pictures or any material?

--Hube Start, 20 Frost Ave., Winnipeg, Manitoba, Canada R3K OE2.

(Editor's note: Yes, we welcome black and white photos or color photos with good contrast (no slides, please) and any articles or letters offered!)

DEAR FL:

Enclosed you will find a check addressed to your magazine for the 10 issues you offer.

It is interesting to find a publication on control-line flying exclusively. Especially in the state where it originated. Because there seems to have been a disenchantment with U-control with the introduction of radio control, inasmuch as so many former control-line fliers have left the ranks to swell the popularity of radio.

Although it has been some time since I have done any flying of any sort, due to illness, I am now contemplating becoming a little bit more active and my interest in control-line hasn't waned. You see, I have been involved with control-line since its inception in 1940 when I built my first self-designed control-line plane. The Fireball was the only plane at the time, although the Tiger Shark came out a few years later when Victor Stanzel tried to emulate Jim Walker with just the opposite type of flying what with his spiraled single-line control, and flying left to right instead of the popular right to left.

Your coverage is almost as complete as I can see, but perhaps you might expand later into a magazine format and incorporate construction articles. Perhaps you could use the whole page fold and wire bind in the fold, similar to regular magazines, which would be much nicer than the loose leaf single staple.

Do you not believe so? If I can be of any help, please let me know, although I am limited at present.

--Manford L. Helwig, 762 Cleveland Ave., McMinnville, Oregon 97128.

(Editor's note: It is great to hear from another control-line pioneer. Oregon is indeed the home of at least three men (Obie St. Clair, Jim Walker and Bob Smurthwaite) who are said to have more or less simultaneously invented control-line flying, at about the same time as an Englishman was doing the same. We note that the swing toward RC seems to be moving the other direction again, though we have doubts about whether the manufacturers and magazines have noticed. We certainly notice it in the growth of local clubs and special interest newsletters and garage manufacturers. Growth of FL into full magazine status is unlikely in the foreseeable future due to the economic factors at work. The newsletter at present is entirely a volunteer effort, and does not generate income sufficient to support a full-time staff, which magazine production would require. We appreciate the thought, though. Maybe some day... Regarding construction articles, we already do print occasional construction articles and will accept them from anyone -- at our usual rate of pay, \$0.00 per article plus fame and glory.)

# PROFILES

(Editor's Note: Here is another in a series of Northwest modeler biographical sketches, this one by and about "Fireball" Frank Macy of Milwaukie, Ore. FL solicits biographical information from all readers, which we periodically publish in an effort to help spread the friendship of model aviation. A simple form that will help in preparing your life story was in the November, 1981 edition of FL, Issue No. 30.)

## A BEGINNING?

Most people are reluctant to speak on a subject of which they know nothing, or at most, little. But not me, boy. On that one I'm an authority.

Being a newcomer to control-line flying (a shaky participant) and a charter member of the Backdoor Brigade, I feel qualified to address this subject. Yet it is with a feeling of trepidation that I do so. You see, I fear nothing -- in fact, it scares the hell out of me! Now that you're thoroughly confused with my verbal circle burning, let me explain a little bit. They say, "When your lines are loose, back up!"

Prior to a year ago, the last time I flew a control-line model was when I was 13, and that was Eons ago. Then last year, at the Jim Walker commemorative event in Portland, it happened. Two of my trusted friends got my lines all crossed up and threw me in a loop. Not the plane -- but me! The following story is how it all happened. The names were not changed to protect anyone.

The events of the day had been successful, and as things were winding down, everyone seemed pleased and quite mellow. Well, almost everyone. There were two fellows that obviously felt the show wasn't over yet. Clarence Pull and Bob McKain decided it was time for me to fly Clarence's Fireball. Now, understand that all attempts to reason with them (busy schedule, people to see, 13 since I had flown, etc.) proved futile. With fierce determination they insisted that I fly the Fireball. Finally, to avoid creating a spectacle (I thought) since the media people were still there, I agreed to fly. As we walked over to pick up the lines, I reminded Clarence that I probably could fly better if he released the hammer-lock he had on my right arm.

After the Fireball took off, Clarence handed me the little yellow handle that the lines are attached to and, dropping to the ground with a terrible giggle said, "Here, Frank, it's yours. It'll all come back to you." I kept stumbling and tripping over him as he rolled around giggling on the ground. He very cleverly avoided telling me that the Fireball had a Rossi .90 in it, with a tuned pipe, on 52-foot lines. (Unforgivable, Clarence).

When I realized this, I decided right then and there that I'd had enough of their little game. I flew four or five laps, enough to check out the controls to make sure it flew correctly, then got bored (actually I was pressed for time) and promptly landed it.

What's that you ask? Yes the engine was still running when I landed. What was your other question, sir? You'd like to hear my explanation for the bent landing gear? Yes, as I recall (it was a dark day in history, a year ago), the landing gear did bend a little. But you must remember, sir,

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I was pressed for time, and had to land in a hurry. You see, by then I had discovered that I had soggy socks. Have you ever tried to fly a Rossi-Fireball with soggy socks? (What's a squish-band?) No more questions, sir, just let me tell the rest of the story, OK?

After changing my socks, and the adrenalin had slowed to its normal trickle, I noticed Clarence and Bob had quit rolling around on the ground. I recall very calmly making the generous offer to rebuild the Fireball. For some reason, that statement started them rolling again in convulsions of laughter. I didn't really see what was so funny.

Finally, I got the message. Since I am so involved in the Walker story, and the history of American Junior Aircraft, it might be a good idea if I learned how to fly the Fireball -- or leave town on the first jet. Now you see -- there's the Back Door for you, albeit a simple case of coercion, methinks.

My good friends suggested I start flying with a nice simple trainer, and offered to help. In fact, many people have helped. I insisted on learning to fly the Fireball, if I was going to fly at all. Kind of a personal thing with me, you know. This past summer I built a replica of the 1945 Fireball Advance, which is my favorite version, installed a new OS Max .20 with muffler, and am learning to fly my Fireball. It's a great thrill to me, and I love it. Although I'm still only flying round and round, someday, if I can keep my socks dry, I'll loop it.

Meanwhile, I've noticed that others must have had problems with soggy socks, too, when they were starting. I keep hearing something about bladder-grabber? Where can I get one of those? I've been very hard on socks recently.

In conclusion, let me repeat something that has been said before, but which is just as true today: U-Reely are a great group of people, U-Control liners!

Question to Clarence: How come you took that Rossi out of the Fireball and replaced it with an O&R .29?

--Frank Macy, 5200 SE Jennings Ave., Milwaukie, OR 97222.

## COMBAT ZONE

by gene pape

A few quick notes worthy of passing on.

The original Cheap Imitation still seems to be the way to go for  $\frac{1}{2}$ A combat. It flies extremely well and is very durable. As you know, Tom Kopriva and I are still flying the ones we built two years ago. The design has won nearly every  $\frac{1}{2}$ A contest in the Northwest in the last two years including the Regionals.

My Voodoo project looks like a success. As you know, my first step was to build a stock kit Voodoo to see if it was a competitive flier. The only modifications were bladder tank and beefed up bell crank mount. The stock mounts will pull out.

The engine was your basic Fox Combat Special with no real modifications except a regulator which doesn't add any power. The plane flies well enough to be competitive in any contest.

All components used are available at most hobby shops, so if anyone out there has been putting off getting started in fast because equipment is hard to find, their excuse is not valid.

My next step is to modify the kit to make it easier to build and hopefully gain a bit more performance.

I have been dealing a bit with Bear Model Products, 17400 South Harlem, Tinley Park, Illinois, 60506. Bear has most of the things that are hard to find for combat fliers; easy-to-build kits, props, bladders, long-handled plug wrenches, etc. Of interest to all control line fliers are his bulk lines. They come out to about half the price of ready-to-use lines.

Bob Wicks wrote me noting a few more slow combat models in addition to those mentioned in an earlier Combat Zone.

Wayne Foster's Phantom kit, which is an all-balsa model is one of the best flying wood slow planes Bob has ever seen. The other model is Bob's Eagle. Bob sells cores and plans so you can built it as a slow or fast model.

Both of these along with other miscellaneous combat supplies are available from Triangle Hobbies, 1211 Brookgreen Drive, Cary, N.C., 27511.

Dick Tyndall writes that he is using the Eagle cores as a basis for the slow planes he uses. He uses Cartier's (Core House) cores for his fast models.

Due to customer demand my Devastator kits are again being made available.

The crankshaft project is on hold as it now appears that the Mark IV cranks can be made to work as well with less hassle. More on that later.

--Gene Pape, 4528 Souza St., Eugene, OR 97402.



# FLIGHT SCHOOL

by john thompson

Once the beginning flier reaches the stage at which he can now take off, complete a flight and land successfully, his troubles may seem like they've only begun. Now that he's flying complete flights, he's spending a lot more of his time dealing with engines -- starting them and trying to get them tuned so they'll run right for entire flights and through maneuvers. It's a stage at which discouragement can set in, particularly if there's not an expert around to help.

This article is designed for beginner fliers as a guide for trouble-shooting balky engines.

First, let's get one thing clear. We often hear someone come up to us at the flying field and say, "I had one of those, but the engine wouldn't work." The truth is, with today's modern engines, in 99.9 percent of those cases there was nothing wrong with the engine. Today's engines are extremely reliable, so it's up to the operator to make them work. Don't blame the engine if you can't get it started.

We'll break our discussion down into two parts, starting and running. Before we get to that, let's make sure the engine is ready to go.

## PREPARATION

When you get a new engine from the hobby shop, don't just bolt it on the plane and assume it's ready to go. Unscrew the backplate and remove it. Take a good look inside for any metal chips left behind by the manufacturer. Spray it out good and clean with W.D.-40. If there's too much metal, you may have to disassemble the engine, but don't do that unless it's absolutely necessary. Now, put the backplate back on (don't forget the gasket) and check all other bolts for tightness. With the engine well-oiled, put a prop on and squirt of fuel or oil on each area where there's a seal (around the glow plug, back plate, head, etc.) and see if the case is leaking air. If it is, the engine will run poorly and you need to lap the parts together or replace the gaskets. When all that's done, the engine should be ready to run. Follow the manufacturer's instructions for breaking the engine in.

If your engine is a half-a reed valve type (Cox) and this is your first, you probably shouldn't take it apart as recommended above, because there are lots of little parts to lose or foul up.

Now, if the engine and/or plane have been sitting for a long time, either because you bought the plane from somebody else or used it 10 years ago before you quit the hobby last time, don't assume it will run without some preparation.

Take it off the plane, oil it up and see how it feels. Tighten all the bolts and check for air leaks. If the engine is very gummy or frozen up, you may have to take it apart to clean it up; often just running some WD-40 or fuel through it will do the trick. Check that old plug and discard it if it's bad.

Once you've got the engine prepared, force yourself not to take it apart again unless it's absolutely necessary. Every disassembly degrades the fit of the parts and reduces the engine's running quality.

Once the engine is bolted on the plane, there are other things to check. First of all, did you bolt it on right? Lock washers or double nuts to make sure it stays on? Vibration will spin those nuts off just like that.

How about your fuel line. Is it good, new silicone tubing or neoprene? None of that old plastic junk, and nothing that's been on the plane for years. Surgical is OK, but remember that it will have to be replaced every few flying sessions because it deteriorates. A good clean filter in the fuel line is a good idea. Is the tank on securely with multiple rubber bands? (Watch out for metal strapping...it looks like a great idea but is actually very difficult to do -- vibration will break flimsy straps. Rubber is best because of its flexibility and adjustability.) Your tank mounting should be secure so the tank can't slide around. Leave just enough space between the mounting bolts or wires for the tank, so it can't move. Make sure the tank itself is flushed clean. There should be some foam rubber between the tank and fuselage to dampen vibration.

## STARTING

This procedure should be virtually foolproof with full-sized engines (.15 and up):

Open the needle valve several turns, based on what the manufacturer suggests. Open too far (rich) is better than not enough (lean). Put your thumb over the venturi and crank the engine two or three times. Flip the plane to put the exhaust up, and close the exhaust by turning the prop until the piston fills the opening. Put a little fuel in the corner of the exhaust port. Turn the prop to let it run in and then close the port again. This priming method is far superior to simply putting the fuel tubing in the port with the engine upright and gushing it. The engine should now start virtually on the first



## FLIGHT SCHOOL, continued

flip.

About that first flip: If you used the priming method above, the engine will be slightly loaded. Grasp the prop with your hand and slowly turn it over, holding the prop tightly. It should give a nice kick with the battery on. (Put the battery on after priming, not before -- doing so before invites fire) If you get that kick (called a "bump"), turn the prop so that it comes up against compression but not through it. Then haul off and hit it a good solid whack backwards. If you did everything else right, it'll start! If you didn't get a good hard bump, or if it didn't go right away, flip it through compression the normal way. Don't be afraid of the prop -- it won't start unless you give it a good strong flip, as much as it may kick and sputter.

If you can't get any pop at all, try another prime. If that doesn't work, you may have it badly flooded, which you can clear out by blowing in the exhaust or flipping the prop backwards through compression as you try to start it. A couple of primes with no result is enough to load it up, so don't keep on priming and priming if it won't start. Check your glow plug; that could be your problem, as could a dead battery.

A properly primed engine with a good plug and battery should start!

Now, if the engine starts but doesn't keep running, what's wrong?

Ninety percent of these situations can be traced to two things -- it's either set too lean or too rich. If it blows out a lot of smoke, sputters and blubbers, it's too rich. If it runs strong for a few seconds and slowly dies out, without smoking or sputting, it's lean. Adjust the needle valve accordingly and try again -- open it to richen, close to lean, and don't go too far!

If you've got the engine running, how to tune it for flight:

First of all, listen to its sound. Is it growling at a low note, or screaming at high pitch? The high pitch means it is two-cycling and is lean, the low note is four-cycling, rich. If it is two-cycling, back off the needle until you hear it change to a four-cycle.

Now listen, beginner, this is important! Don't tune that critter up to a screaming two-cycle and take off! A full-sized sport engine should run at a fast four-cycle or just on the edge of a four-two break at takeoff. Standard store-bought tanks will tend to run leaner as the flight goes on, the engine will speed up, then overheat, sag and run very lean or quit -- all of which chops many flights off the life of your engine. Send it up rich. Many sport and stunt engines, such as the Fox .35, will lean out in maneuvers, giving you the power when you need it. Always err on the side of rich if you're going to be off the setting at all!

If your engine is a half-A reed valve (Cox) engine, many of the above tips are true with some exceptions.

The  $\frac{1}{2}$ A prime is just a drop on the piston, with the piston closed. Just get the side of the piston wet. These itty bitty engines can get flooded easily. Give them a good strong flip through compression, or use the starter spring wound up about twice, to make sure it starts the right direction. ( $\frac{1}{2}$ A engines will start backwards!) If you're not getting even a pop, prime again. If the engine sizzles and sounds wet, it's flooded, and may need to be blown out. As with the big ones, a check of the plug and battery may be in order.  $\frac{1}{2}$ A plugs drain a battery very quickly.

The characteristics of an overly rich or lean start will sound the same. The vast majority of problems with  $\frac{1}{2}$ As seem to relate to over-lean conditions. If the engine will start and keeps dying lean even though you've opened the needle way open, your internal system may be gummy. Put your fuel bulb on the top vent and cover the bottom one with your finger and force some fuel into the crankcase. That should clear it out. This often is necessary the first start of the day.

Also, make sure you've got the right kind of fuel. Cox engines aren't happy on much less than 25% nitro, so don't try any 5% or 10% stuff in them.

## RUNNING

By the way, how does the engine act in flight? Does it slow down and sound sick in inside loops and consecutive maneuvers? Too lean. Does it run OK through insides but snort and almost quit on outsides? That probably won't do much harm as long as it does pick up again. If it goes rich and stays that way through outside maneuvers or inverted flight, your tank is not aligned properly with the center line of the engine. Move it up or down to correct for that (usually moving it up helps). Does the flight start rich and then go extremely lean by the end of the flight? That may be the result of tank design. Capping the overflow vent sometimes helps. Another good idea that stunt fliers use is muffler pressure. Mount a muffler on the engine, and tap the chamber with the tap that probably came with the muffler. Run a fuel line from the tap to the fill vent on the tank, and cap the overflow. That should help. Best, get a uniflow stunt tank from Carolina Taffinder or modify a standard one yourself by running the overflow vent all the way back to the same place the pickup tube goes inside the tank.

By the way, many engines will not react quickly to the needle valve. The K&B .35 in the sport set-up is a good example. So don't keep twisting

## FLIGHT SCHOOL, continued

wildly on the needle. Turn it a bit and wait to see what happens, and then turn more if necessary. Also don't just twist until it sounds right and run for the handle. Wait 10 or 15 seconds to let the engine's fuel flow adjust to the new position of the needle.

Half-A characteristics are a little different than full-sized engines. First of all, the  $\frac{1}{2}$ A engine should go up a little leaner. This does not mean we should go crazy, since most  $\frac{1}{2}$ A problems also stem from over-lean running.

Sneak up on a two-cycle from the rich side. Get the engine just barely two-cycling...a twitch too far and it's going to get hot and maybe even die. As soon as it breaks into the two-cycle, stop turning the needle valve.

In flight, the engine should hold that setting. If it continuously goes only a few laps and quits, your pickup tube inside the tank may be improperly positioned, or you may just be running too lean or rich. You can tell if it's rich because it will sputter and run slow. If it seems too lean, back it off for the next flight and see what happens. If you can't get it to go a whole flight, check that pickup tube. It should run to the outboard side of the tank when the engine is upright.

Notice that I have deliberately stayed away from discussion of high-performance engines in this lesson. Beginners should not be trying to run Combat Specials, Tee Dees and other zoot equipment before they can run a Fox .35 and a Black Widow, because there are complicating factors with the fancy engines that will just discourage them. However, with only a little practice and experimentation, your sport engines can become reliable, long-lasting sources of enjoyment.

--John Thompson, 1411 Bryant Ave., Cottage Grove, OR 97424.

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## FLYING LINES

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#### FIRST CONTEST ACTION OF 1983

FL photographers captured the faces and planes of the January Drizzle Circuit contest in Portland. Left column, top to bottom: SKARE Team pilot Dick Salter preparing the defending NWSR DC champion Ringmaster/Fox .35. Rear view of youngest DC competitor, Drew DePauli, helping John Thompson pit John's sport racer. Bill Varner, pit man, studies lap counter in timer Glenn Salter's hand. Right column, top to bottom. Tom Knoppi, crew half of the SKARE Team, juggling one of those "hot potato" catches. Roy Beers, left, and Loren Howard pitting Greg Beers' winning sport race Yak-9/Fox .35. Glenn Salter, with his Too High Too, sport race Yak-9/Fox .35. More DC pix next month. Photos by Steve Lindstedt and John Thompson.