

FLYING LINES



NEWS OF NORTHWEST CONTROL LINE MODEL AVIATION

1073 WINDEMERE DRIVE NW
SALEM, OREGON 97304

EDITOR: MIKE HAZEL

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IMPORTANT MESSAGE TO ALL FLYING LINES READERS

As announced to the FL staffers a few days ago, this publication will cease to exist after the next issue.

Your editor (and publisher) will be hanging up his journalism hat. The reasons for this decision will sound familiar to other ex-editors.

- 1) time required to do this job- and corresponding lack of time to model.
- 2) burn-out- I hope that a detailed explanation is not necessary on that.
- 3) this one is a bit different- finances. We are broke. The subscription rates have long been under the actual cost to put this thing out. The advertising, donations, and raffles and other fund-raising activities have been necessary to help subsidize. All of those have been quite light during the last year. Yes, perhaps I could have tried harder, but one can do so much, and besides several pleas were issued with no significant response.

Since we are broke, the next issue will be basically funded out of my own pocket. Some of you have your subscriptions expire with this issue. If you wish to receive the next one, please send a "donation" of at least \$1.50 to cover the cost.

Many of you will go without the issues you have paid up for...Sorry. What I can do is to credit you with an appropriate amount of back issues of your choosing. The next issue will have an updated listing of all back issue numbers and dates that are still available. For those of you who are not long time subscribers, some of the older issues may have dated information in them, such as contest and rules reports, but they still contain a wealth of information regarding your favorite events.

There are several ramifications that need discussion. FL has been very instrumental in building the level of control line interest up to the point where it is today in the Northwest. When it is gone, there will be a void. Hopefully, things will be more self-sustaining than they were when the newsletter was conceived.

Other points will also need discussion. However, all of that will wait for the next issue. All of you having some input are encouraged to drop a line.

The next issue will contain the year end competition standings, NW competition records, all known contests scheduled, and some various event columns. See you then.

1988 DRIZZLE CIRCUIT

And not any too soon is the news on the DC sport racing circuit. This five contest series of meets featuring NW sport race and NW super sport race will kick off December 13th, at Delta Park in Portland. (the usual place).

Dave Green is the coordinator and contest director for the first installment. (coordinator for the season). At least for the first meet, there will be no secondary events. There is some opposition to this, but the majority is in favor of just running racing all day. With no secondary event(s), each racing class will have three complete rounds of prelims instead of two like last year. Dave indicates that we can change this after the first meet, depending on how it works out and what the entrants want.

The second date will be January 10th, with Dick Salter doing the head officiating. The remaining three dates will be announced in next months FL.

For more information write or call Dave: 200 West Franklin, Astoria, Oregon, 97102. phone: (503) 325-7005

By the way, Dave reports that the fuel used this year will have a 50/50 mix of castor and synthetic oils.

SEE YOU AT THE RACES!

This fine piece was contributed by Gerald Schamp.....

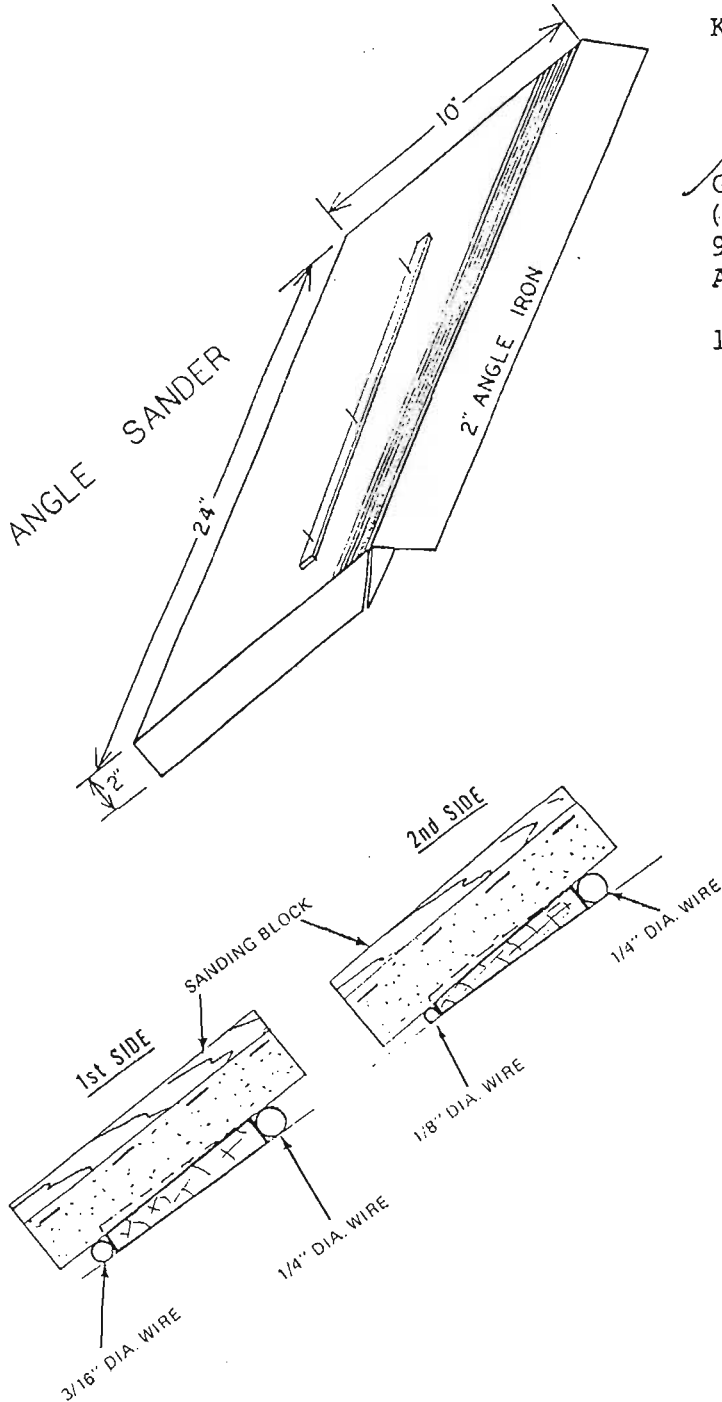
I don't know how many of you enjoy building flaps and elevators as much as I do, but they can be a pain. To help ease that pain, here's some ideas that make the task a little easier and more precise.

First of all, lay out the shapes of all the elevators and flaps and cut the pieces. Trim and sand fairly close to finished size. Next as reference, I mark a centerline around all the edges of each piece. I use a Pilot BP-S Fine Point Ball Point Pen with the little chrome end removed so the tip will stay up against the guide I'm using to draw the center line. You don't have to press hard at all, so later on the ball point pen line will sand away and won't show through your beautiful 19 1/2 point finish. Next, I decide how thick I want the trailing of the flap end elevator and mark that reference line on each piece. This way I can be fairly sure of keeping uniform thicknesses. The next tricky little part, I copied for the Top Flite Gieske Nobler Kit. In the instructions, it explains and illustrates how to use some 1/4", 3/16", and 1/8" drill rod to use as sanding guides while shaping the flaps to a nice uniform taper. The idea originated around solid sheet flaps and elevators. The technique will work with built up assemblies just as well. First take a piece of wood about 24 to 30 inches long by 4 inches wide. Be sure it is flat, 1" pine works well. Attach some 80 grit sandpaper to a smooth side of the board with contact cement. The spray on variety works great. The sandpaper on the board helps keep the piece from moving while sanding the taper. After this has dried, you'll need three pieces of drill rod. It's available at hardware store and comes in 36" lengths. You'll need 1 each of 1/4", 3/16" and 1/8" diameters. If you're building from 3/8" sheet then you'll need 3/8", 5/16", and 1/4", maybe 3/16" too if you want to go 3/16" at the trailing edge. Next you'll need a sanding block with some 150 grit paper attached. The block should be as long as the sandpaper sheet the long way, and at least 3 inches wide. Still with me? Next, take whichever thickness of drill rod that is the same thickness as your flap/elevator sheet thickness. Attach this rod lengthwise 1/2 inch from one edge of board, over sandpaper. I use some small fence staples, one at each end is fine or at least spaced far enough apart so flap will fit between staples. Now lay flap on sandpaper up against this rod, take the next smaller thickness of drill rod and put at the trailing edge of the flap. IE, if you have 1/4" at front of flap then 3/16" at trailing edge. Now clamp this rod down with C-clamps or spring clamps. Now sand the flap trailing edge down so it is flush all over with the rods. If you've drawn the reference lines, the flap should be sanded to one of the reference lines. Now remove the flap, and vacuum the balsa dust up. Don't blow it. You should wear a dust mask, you'll probably breathe a lot longer. Next turn the flap over, put it on the board with the thick side against the thickest rod, ie 1/4". Now, clamp a 1/8" drill to the trailing edge of the flap. Make sure it is snug against the flap. Now sand the trailing edge down again. Be sure it is uniform all the way

along the edge. Your reference lines should still be visible. Don't get too carried away here, you'll need to leave some wood to smooth up and get rid of those scratch marks. Vacuum up the dust again, and inspect your work. You should have a nicely tapered flap front to back, 1/4" at the front and 1/8" at the trailing edge. I have made the mistake of sanding all the taper on one side - DON'T DO IT. It warps profusely and will be impossible to use. Now take some finer grits of sandpaper and smooth up your piece. Do the same procedure with each elevator and flap. It seems like a lot of work, it is, but the end result is a set of nicely shaped elevators and flaps.

Now for the next of a 3 part series. Cut the slots for your hinges. Mark out the positions for all the hinges and do this tedious little task. You already marked the center reference lines so see how easy that was. Now, for the fun part. For a long time, I wondered how everyone got those neat angles on the hinge line with the flap and elevator edges. So one night it came to me, my wife thought I was totally nuts, still does, but anyhow, I jumped up, went downstairs, and started the table saw. Took a piece of 2" X 10" pine by 24" long, and cut a 45 degree angle on one side, bevel from top in at bottom. I had a piece of 2" angle iron laying around that just happened to be 24 inches long, neat huh! Next I drilled some holes in the angle and fastened it to the 45° I cut on the board. Next I used some Teflon tape and taped the flat surface of the angle iron. I probably could of gotten by with the 45 angle on the wood, but the steel will never change, and eventually the pine would have changed. Next on the top of the board starting at the edge next to the angle iron, I drew straight lines full length at 1/8" increments back to about 3 inches. Next on my little black table saw I cut some strips of pine 1/4" X 1/2" X 24". 3 or 4 are sufficient. Then took one of them and cut it 12" long, for elevators. Now comes the really fun part, take a flap or elevator and line it up with the hinge side toward the angle on the first 1/8" line you drew on the board. Take one of those little pine strips and lay it against the trailing edge of the flap/elevator. Take 3 or 4 small brads and tack the strip down do the board. Hold the flap/elevator tight with one hand lined up perfectly with the straight line on the board and against the pine strip and take your sanding block, (about 6" long) and sand your perfect 45 degree bevel to the center line of that piece. Use the center reference line you used to put in the hinges. Next do the other flap, then turn them over and move the pine strip to hold the flap again and sand the 45 degree angle to that side of the center line. You'll eventually end up with all the flaps and elevators sanded very professionally looking, real Pro Stunt Stuff. A 45 degree angle may be a bit much but by the time you dope, and silkspan, and dope & talc, and dope, and dope, and Imron you'll still have plenty of room left for travel with no interference from wing trailing edge or stab trailing edge. If you are one who notches the hinge area for clearance, this also comes out very neat, and with almost no gap at the hinge line.

A couple of other things - I finish my elevators and flaps before installing the hinges - Pro Stunt. To make this simpler, I made some small pieces of aluminum that are about 2 inches long and 1/2" wide, by 1/16" thick. I insert these into the wing and stab hinge slots, then slide the flaps and elevators over the tabs. This stabilizes the moving parts for finish work, right up to the end then when I'm ready to install the hinges I pull out the pieces of aluminum, use an emory board to clean the hinge slots up and install the hinges. It all comes out very sanitary. If you've seen my Time Bandit you'll know. If not, trust me. If you're really in doubt try it all on some scraps and see what happens. It may not be the ultimate answer, but it does take out a lot of guess work. If you have questions or want a detailed drawing, write or call and I'll be glad to help.



Keep your Lines Tight

Gerald Schamp

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CUTS & KILLS



COMBAT NOTES

by: JOHN THOMPSON

QUESTIONS AND ANSWERS

Ideas for this edition of C&K are provided by Kevin Krumman of Portland, Ore., and Rory Tennison of Libby, Mont., who sent in some questions about a variety of combat topics.

Krumman asks whether an event called 'FoxDoc' still exists, and for some of the details. Glad to oblige!

FoxDoc does indeed still exist and has gained in popularity in the past two or three years. It is, in the minds of some, the perfect 'slow combat' event, coming considerably closer to the original purpose of AMA Slow Combat than the official event itself. Three reasons for FoxDoc's success: It's cheap, it's easy, and it's fun.

The airplane and engine combination for FoxDoc are as simple as you can get: A VooDoo airplane, built from a Goldberg kit or an accurate copy, powered by a stock Fox .35 stunt engine. Per Northwest Sport Race practice, the needle valve-scray bar assembly can be changed, but it's not necessary for good performance. Any fuel system is allowed -- a standard bladder tank works extremely well.

Match rules are equally simple: There's a limit of two airplanes per contestant for the contest, and the lines are .013x60. Everything else is as per AMA fast combat.

In practice, the event is interesting to both expert and novice alike -- and in fact has drawn the interest of both types. The engines start and run well, the planes fly excellently with that power source (in fact flyings better than a VooDoo with a Belchfire fast combat engine); and the matches are just the right speed for good, long, enjoyable, low-carnage matches.

A VooDoo airplane built from a kit can easily be built in an evening and a pair of them probably would last with minor repairs through several contests. The only changes one might consider from the plans are to rake the lines back an inch or so for better tension and to put a solid center rib inside the sheeted area to strengthen the VooDoo's weak center section. Don't touch the engine -- there's nothing legal you can do to it to improve it.

Use a 9x6 Zinser or Rev-Up prop, or go cheap and use a 9x6 nylon Tornado or Master AirScrew.

RECYCLING AIRPLANE PARTS

Tennison asks for some tips on recycling parts of damaged combat planes. How do you take the old ones apart and how do you go about reusing the parts?

Most of the techniques depend on a mixture of common sense and the particular airplane design you favor. I'll give some tips based on the Underdog, which anyone can apply or modify to match their own design.

The Underdog's construction style is almost identical to that of the Undertaker, which was published in Model Aviation. A look at the Undertaker plans -- or an old Gene Page Dogfighter if you have one on hand -- will show the way the parts relate to one another.

First of all, we need to consider whether the plane needs to be dismantled, or can it be repaired. The planes often can be repaired unless they've been center-punched in a collision.

Is it a donee? Don't just throw the whole mess into the flying field's trash can. Take it home and glean out all the usable parts! Motor mount, fuselage, tail section (often they come out in one piece), controls. Wind cones, screws and bladder tubes usually are worthless.

How do we decide if it's repairable?

It's largely a function of the amount of work needed to fix the plane, compared to the amount needed to build a new one. If it takes more than hour to fix, it's probably not worth the effort. Remember you can build a new one in only 4 or 5 hours. Secondly, if the motor mount can't be safely reattached, it's a donee.

Let's say it can be repaired;

The most common crash damage for a foam-winged plane with a full-length fuselage is the splitting of the wings away from the fuselage along the center -- which is minimized by the use of stressrins tape across the center and the spikes that run through the fuse into the foam front and back. Usually this leaves the plane in a condition that can be repaired by simply squeezing epoxy into the cracks and closing them up. Watch also for cracks in the fuselage, which can be repaired with cyanoacrylate or epoxy. Use of hard balsa to start with usually prevents that problem.

Check the spars carefully. Split or broken spars must be repaired with epoxy and carbon fiber. Broken spars turn your plane into the dreaded El Foldo.

Motor mounts also can be put back on in some cases, by using slow-cure epoxy and carbon fiber running front-back. However, IF THERE IS ANY DOUBT ABOUT THE INTEGRITY OF A MOTOR MOUNT, SCRAP THE PLANE!!!

Broken maple motor mounts themselves are useless except for firewood. Stabilizers, however, easily can be replaced. Assuming you always save any apparently usable parts from your old airplanes, you'll find that the tails are frequently a resource either for repairing ones which were bitten off by over-aggressive opponents, or for using on new airplanes. I find that stabilizers sometimes go through several airplanes.

If you use the pin-hinge method described in the Undertaker plans (a simple 3/32 music wire pin running through a 1/8" brass bushing or an RC aileron horn bearing), you simply cut away the FasCal holding the hinge pin to the stabilizer and pull it loose. Then attach the tail to the hinge pin of your next plane with cyanoacrylate and wrap with new FasCal. Voila, a 5-minute stabilizer!

Minor dings or splits in foam wings can be glued back together in most cases; windties can be repaired, etc. Cover the damage with FasCal for extra strength.

What if a wing's knocked off? Not to worry, says the doctor. It's usually not as serious as it looks. Sometimes, the break is clean and the wing can be butt-glued back on. Other times you need to cut a new core and glue it on to the cleaned fuselage.

The spars are the critical point. When grafting on a new wing, I usually cut the spar about six inches into the surviving wing, scrape out the spar where it crosses the fuselage, and graft in a new spar that runs from the tip of the new core to the end of the old spar. Make the cut on an angle for better bonding, and use carbon fiber to strengthen the joint. Moving the joint away from the center avoids a weak point at the center. When putting a knocked off wing back on, or repairing a simple cracked spar, scrape out a trough next to the old spar and put in a new sub-spar about a foot long, right against the old spar, and cover the whole thing with carbonfiber.

When grafting on a new wing, or putting new wings on an old fuselage, some preparation is required. I remove the old wing by running it through the Brevet saw (bandsaw if you're rich), and then I sand off most of the old glue with a power sander. When sawing the wings off, watch out you don't cut the bellcranks, too.

Then simply slice the new wings and spars on the way you normally would. A slot cut by the Brevet saw will allow the old leadouts and guides to slip into the new wingtie.

Your repaired airplane won't look quite as pretty as your brand new all-from-scratch ones, but if it's a reliable design it should fly fine. However, don't take it for granted. Always carefully test-fly a plane after even minor repairs. Problems you overlooked in the shop can be weeded out. Also, a crash that makes a plane need repair will almost always change its trim.

I find that using these techniques allows me to start each season with several 'like new' planes with a fraction of the effort it would take to build all-new planes. That way I can concentrate on doing a good job on the few new planes I have to build. I normally use the new planes for the top-dog contests like the Elsdor Grabber and the Nats, and the repaired one for the local contests. This allows me to make more contests than I could if each one took new planes.

ENGINE STARTING PROCEDURES

Another question from Tannison involves tips for beginners on working with bladder pressure fuel systems -- how to hold, prime, flip, etc., for easiest and best results in starting engines under pressure.

As far as the 'under pressure' goes, there's no substitute for practice, and the best practice comes in competition. The more you compete, the better you get. That's how the combat fliers at the Bladder Grabber managed to be so calm and collected working on that one-minute-between-rounds format. They are ready when the calls comes and they know what to do without thinking.

But let's go back to the beginning. A bladder pressure system actually is the most reliable and simplest fuel system there is, but it takes a little getting used to. At first, that fuel straining to get out of the bladder can be a bit of a handful to deal with.

For your early practice sessions, pick a warm, dry day. Trying to learn bladder pressure in wet, cold, slippery conditions can make the project much worse.

Equipment: You need some syringes, preferably the 2-oz. plastic ones. Avoid the huge 4-oz. syringes you see some use. They are harder to work with and you don't need the aggravation at this stage. I get my syringes from the drug department of a big discount store...price is up to about \$1 each. Some surgical supply or hobby houses will rip you off to about \$3.95 (if you know a friendly nurse, you may be able to get her/him to raid the hospital's trash for free ones.) You also need a hemostat, available from surgical supply places or possible drug stores. If you're using soft enough tubing a big spring-loaded paper clip will work. Many fliers use a lipie clip on their bladder lead tube as a pinchoff device. It substitutes for the hemostat but is a little harder to handle with greasy fingers.

Making bladders: Most commonly used in the Northwest is the large surgical tubing of the type that makes High-Start slider launchers. Tie off one end in a tight knot. Install a small brass tube into the lead tube (usually used is a black neoprene or some other kind of tube that will stay on a fitting) and install the reinforced end into the bladder, securing it with a tiny electrical tie.

If you are not using a pressure regulator, it's a good idea to make a permanent tube from the spray bar's nipple (tied on with an electrical tie) terminated behind the engine with a filter (tied on with an electrical tie). Your bladder lead plugs into the filter, making it unnecessary to feed the bladder lead all the way to the nipple.

'Train' your bladders to blow up from the front (do this by pinching the bladder in the middle and blowing it up with air a few times).

Once the bladder and appropriate tubing is installed, you're ready to start your engine. How to do it?

When you fill the syringe, make sure to purge the air from it. Fill the bladder and pinch the lead with the hemostat. Plug the lead into the filter. Do not release the hemostat yet.

If this is the first run and you don't know where the needle is set, close it. With the venturi pointed to the ground (so that fuel won't run into the crankcase) release the hemostat. Open the NU until fuel drips out quickly but not in a steady stream. Pinch again with the hemostat. You should be somewhere in the neighborhood of a setting that will run well enough so that you can tune the engine.

A key to bladder fuel systems is NOT to flood the crankcase. You want the right amount of prime in the cylinder, which will keep the engine running while it's waiting for the fuel to sush in from the bladder. A flooded crankcase means a balky engine.

When starting with bladder systems, you should have a helper hold the plane.

With the motor completely dry...what? It's not dry? OK, do this first: Leave the fuel line pinched with the hemostat. Flip the engine until it starts and runs out the fuel that's in it. Now...

With the motor completely dry, turn the plane upside down so that the exhaust points up. Close the cylinder and dribble a little bit of fuel into the corner of the port. Turn the engine over to let the fuel in. Now, turn the plane over.

With your helper holding the plane, connect the battery. Pinch the fuel line tightly so no fuel can get through. Keep it pinched. Holding it tight, turn the prop over. You should feel a solid 'bump.'

If you got a real strong bump, turn the prop around backwards until you feel compression. Hit the prop hard AWAY from compression. It should start. If you got a weaker bump, it may not start; if so, try flipping briskly THROUGH compression. It should start. If it's sloppy with fuel, it may be flooded and you may find it necessary to flip it backward through compression a few times to clear the flood. If it's hopelessly flooded, pinch with the hemostat and start it to clear the prime again.

But, assuming you got the right amount of prime in and the crankcase was dry, the engine will start. Immediately upon it starting, release the pinch. If it huddles and blows smoke, it's rich; if it is weak or surges and doesn't smoke, it's lean. Tune as necessary.



An unregulated engine on bladder pressure should be launched RICH. With pressure regulator, tune it on the ground the way you want it in the air.

A word on re-starts. You probably should NOT prime the engine if it is hot or even still warm. You'll only flood it and cause it to refuse to start. Just fuel, connect battery flip and go.

These simple tips, practiced enough, should give you a good head start on getting quick reliable starts with most bladder-pressure engine systems.

Happy flying. Send your combat questions to...

--John Thompson, 1505 Ash Ave., Cottage Grove, OR 97424

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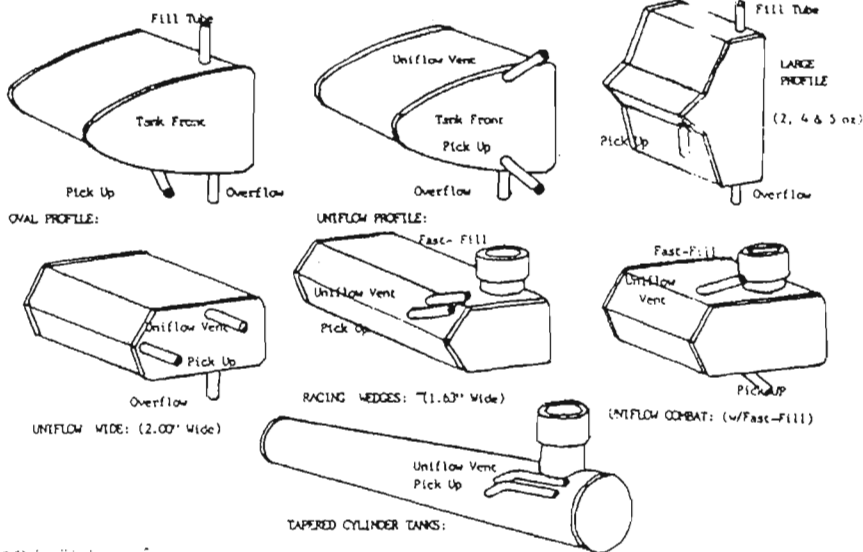
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FOR SALE: 3 each Fox 35 Stunt, all new in box. @ \$29.00.
1 each Fox 36 plain bearing- new, no box @ \$22, and one more of the same, missing NVA @ 16.00
1 each Fox 36 plain bearing-used, very good condition @ \$10.00
Prices include shipping.
Mike Hazel, 1073 Windemere Drive NW,
Salem, Oregon 97304

WANTED: Pen Pals. I am in an area with no CL fliers. Would like to correspond with Stunt fliers. Walter Hicks, 2252 Brigadoon, Bishop, CA 93514

WANTED: Old Controline kits (preferably combat) and build, new and old UC planes, any size
Chip Giordano, Day 201-286-1200
Eves 201-240-4451

DAWG SALE-- Help me clean out the nooks and crannies of my workshop. The following items are flyable airplanes and running engines, all used, ranging in quality from beater to better. I will make delivery or bring them for viewing to Drizzle Circuit contests.

4- Sam-Too combat planes, much used, usable for FAI practice, drilled for Fox 15BB engines. \$5 each or \$15 for lot. Not competition quality

1- much used Goodyear racer, Midget Mustang, drilled for Cox. Needs minor repair \$20

1- Ringmaster, used in old NWSR and early NWSS, drilled for K&B 35 or Fox 36. \$15

1- Akromaster, complete with Fox 15, excellent flier does full pattern \$25

1- Sig Mustang Stunter, beautiful but flies like a brick, excellent adult trainer. With Fox 35, \$50

3- Wings cannibalized from old profiles, \$10 for the lot

1- Batch of 1/2A planes, suitable for kids to play with, make offer.

1- Giesecke Nobler, has tank problems, ugly as sin, flies OK, Fox 35 stunt engine, \$50

1- Ringmaster, used in NWSR and NWSS Good shape, good flier, \$20 or with new style McCoy 35 \$35

2- SuperTigre G21 engines, reworked for fast combat, with pressure regulators. \$20 each

2- stock SuperTigre G21 .35 engines used in slow combat, \$30 for pair

1- McCoy 35 (new style) \$15

1- Fox 36 plain bearing \$25

John Thompson, 1505 Ash Avenue,
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(503) 942-7324

HOOK NOOK

CARRIER NOTES

by: ORIN HUMPHRIES

You should go to the Nats to meet old friends, make new ones, and enjoy these days, the "Good old days of tomorrow". You should go there to learn. With learning comes an obligation, in my system of ethics, to share knowledge. After all, none of us is THE person who invented Carrier; we have learned from those who came before us and from our contemporaries. Learn = Teach. You should go to the nats, last of all, to fly. If you accomplish the first two, you covered the most important ones. Besides, you know your equipment is only going to frustrate you again, right? So mingle, learn, share, have fun!

Lets go through some of the things I learned, first.

PROFILE

The airplane of choice was the Fairey SPEARFISH. I saw nothing remarkable about it that would set it apart over other common choices. It has a longer tail to ballance the heavier engines. In the scale classes it has a long nose to have room for accessories and fuel, but there was only one of those.

The line slider was very common, but it differed from ours in that theirs are huge plywood affairs, if they are external to the wing. The 3/4" of plywood surrounding the slot gives durability on the deck. Wingtip weights range from 2-1/2 oz. to 4-1/2 oz., possibly to 8 oz.(?) With no roll angle to speak of, this makes the airplane rake about 45 degrees when the slider is released and the nose is high.

Fuel capacities were around 7-1/2 oz. This is needed for the 270 sec. slow flight times. Tanks were either chicken hopper or very long with a small cross section for low drag. The long ones had balsa low drag ends. The carburetor of choice was an OS 4B or 4E. Neither of these can produce a usable idle, so an exhaust restrictor was required. These were either a loose-fitting slider on the stack or a disc in the round exhaust duct.

There was an assortment of engines, though the 5.8 was common.

Leroy Cordes and another one of the big kids landed differently than we do. By arrangement with the judges he would signal his intent to land right when he crossed the stern at the completion of his seventh slow lap. You see, he was in the prop hanging mode (I think his prop was hung for horse stealing, but don't quote me) anyway, the plane was already stabilized in that mode, so all he had to do was sweat it out one more lap and then he simply picked out a rope, eased off on the power, and lowered the plane to the deck. Professor Melton showed us all with his 275.2 sec. slow speed time, and then Dr. Cordes backed it up with a 268.

I tried that at the VGMC Labor Day Weekend at Bob Parker's suggestion and it worked like a charm, though it will take that p-word (practice) to get comfortable with it.

I gotta tell you about what Leroy and well, someone else did. (Who was that other pilot, was it Dave Engel, Bill Melton, or Pete Mazur?) So they thought combat looked so much fun they put two profiles up at the same time. Leroy took off first, went almost one lap and stopped! He hung it from the prop and waited for the other guy to launch. Once he got up Leroy moved on and the other guy lapped him and they then both stopped in mid air about twelve feet apart, prop hanging. They repeated this, and at one time or another each one of them backed up. Eventually one of them dropped vertically onto the ground and that was the end of the session. I was out of film!

Class I & II

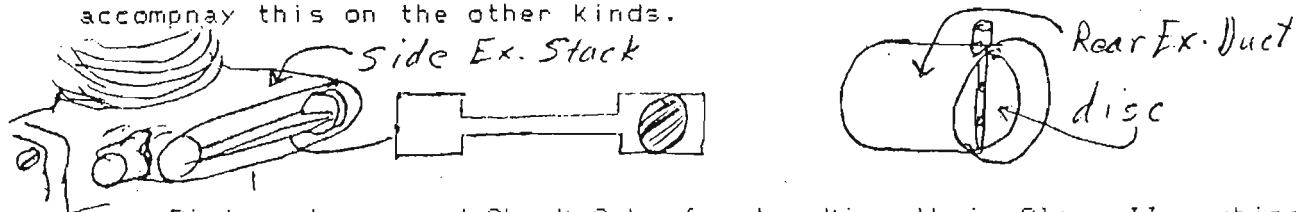
There were many MQ-1's of all sizes and engine types. The same could be said for GUARDIANS. Bill Melton's had a 43" span and a mirror finish. There were humungous plywood sliders on some of these planes.

In all classes, if rudder was used it tended to be 70 degree deployment angles. Two-thirds of them used rudder. I hate rudder for the yaw oscillations that gusts and goosing the throttle produce.

The engines tended to have intake and exhaust on the rear, with one-third having side exhaust. Many intakes were non-throttled venturis that were over-bored. They had a fuel nozzle with no working parts, and the needle valve was located upstream in a much more convenient place. There was a fuel metering device that was usually the guts of a Perry carburetor or some other brand. Some were scratch made. No air passed through these fuel metering devices.

Pressure systems were of two common types. One was like the very well made unit which I am told Leroy Cordes sells for \$20. It lets pressure go to the tank at high settings, and it blocks this off at lower ones. It then dumps the tank's residual pressure to the atmosphere after which it lets air in while fuel is suction-fed during low speed.

Exhaust devices are the only air movement regulators on these engines. There is a great article by Dick "I'll get it right yet" Perry in the October issue of MA. This covers the slider type. Two sketches accompnay this on the other kinds.



Picture Leroy and Chuck Schaefer tweeking their Class II machines alone. They stand, holding the plane in the left hand by the left wing root. The plane is held up at a 45 deg. angle and they tweek it with the right hand at full throttle. Them boys have more spheres than I do (G-column).

Some planes had a noticeably less tendency to pitch level from a nose-up attitude during low speed in the wind. Was this due to a symmetric airfoil? One of these had an asymmetric one. I don't know what to tell you. The low speed times of the big machines were not much different from ours. They got us on the top end by over 30 mph.

You should see Dave Engel being flown by his GUARDIAN. My hat's off to his ability to handle one MEAN machine at Mach 1.

One neat thing was the .15 Class Carrier event. The rules were as follows. Engine on suction, limited to a .15. No speed over 72mph counts. No scale points. Only throttle, hook, and elevator can move.

THE RESULTS

These are thoroughly covered in MA and Hi-Low Landings, so I will save space here.

THE MEETING

I asked the group at the Carrier Society meeting a few questions that are current in htis sport of ours. A few of the topics are presented. Q. Why not have three attempts for THREE official flights? A. It might swamp the judges. The Carrier officials at the Nats had just complained of having nothing to do on two of the three afternoons. Lets make the rule read, "so long as the number of contestants and scheduled time allow three official flights, otherwise two officials." Q. Why not have muffled tuned pipes? A. We don't want to have to build new airplanes. Q. How many would drop out if they had to build a new airplane? A. Two out of ten guys raised their hands. I hope you don't crack up in the wind, fellows. I would have to build new machines, too. One gent said his bird was one ounce under the weight limit, now. Tell you what: lets make the weight rule read "64 oz. max not including removable, effective exhaust equipment. 'Effective' is as defined by AMA. Performance enhancement allowed".

Clubs from Kansas, Nebraska, and Colorado decided to allow muffling equipment with the decision about the legality to be left up to the individual event directors.

So, I learned a lot. Did I practice what I preach? Yes, I gave them my "Jump Buster" which I will publish soon, my selectable control surfaces, vernier throttle, exhaust duct, and I let them catch me in a mortal embodiment (Yes, Virginia, there really is an Orin Humphries). Orin (It's FUN to beat a certain R. Schultz in go-carts) Humphries, 19721 48th Ave. W.#E-1, Lynnwood, WA, 98036 (ask Schultz for details.)

More HOOK NOOK, read on.....

I have an item of equipment to share with you this time. It is the JUMP BUSTER

As you may know, when your line slider deploys, the neutral position for your elevator system shifts suddenly and the airplane "jumps" either up or down depending on what kind of bellcrank you have. I found a nice solution to this, which I have dubbed the "Humphries Jump Buster". I showed this to the pilots at Lincoln, and I will share it with the newsletter now.

The reason the neutral shifts is that the bellcrank stays lined up with the handle when the slider moves and that movement allows the plane to yaw right. See figures 1 and 2.

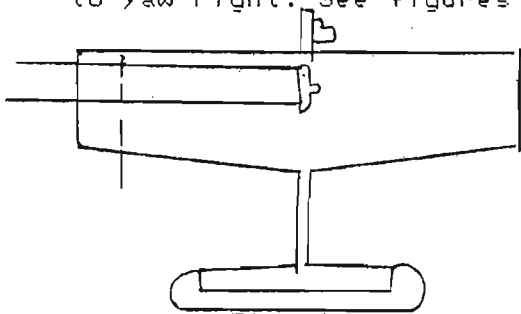


Fig. 1

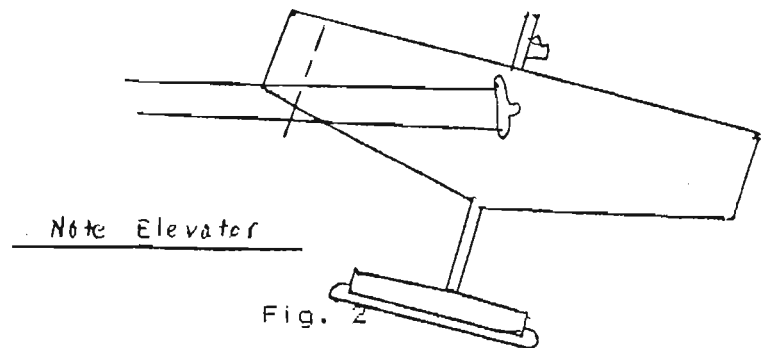


Fig. 2

As you see, with the slider aft, the rear end of the bellcrank will always be "moved" toward the outboard wingtip. What we need is some simple device that would in effect pull on the aft leadout when the slider is deployed, just enough so the bellcrank will be kept in alignment with the fuselage. No matter what kind of crank you have it will always realign as in Fig. 2 because the model always yaws right. (Actually, very few Carrier models have ever yawed left and survived, or so I've been told.) Therefore, we shall need to affect the aft leadout in all cases. Further, this device must not interfere with the normal movement of the leadouts. The solution takes a lot longer to describe than it does to build. It is quite simple.

You need a collar around the aft leadout and a line to pull on the collar. (What collar should it be, you ask? Well, it can be blue, orange, or green, but avoid pink, mauve, and futia.) (Sorry, the devil made me do it.) I cut the center out of a nylon 1/2A bellcrank for the collar, and I cut a tip with a hole in it off to use for a tie point. Drill a second hole in it for a mounting screw. See figures 3 and four.

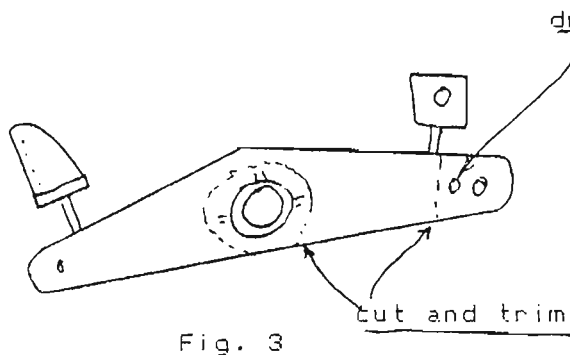


Fig. 3

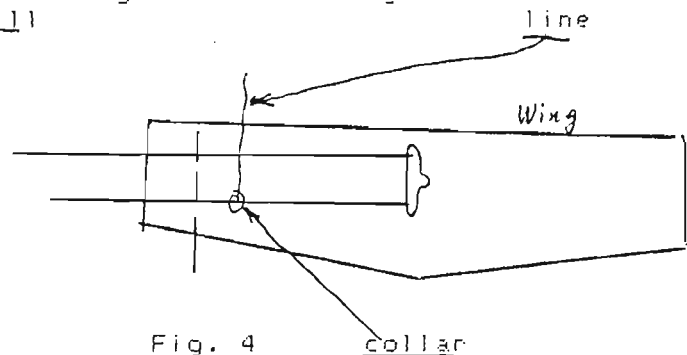
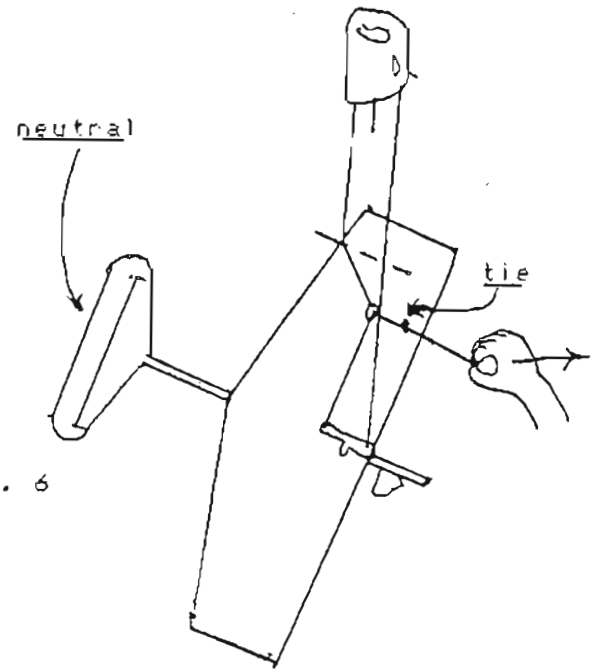
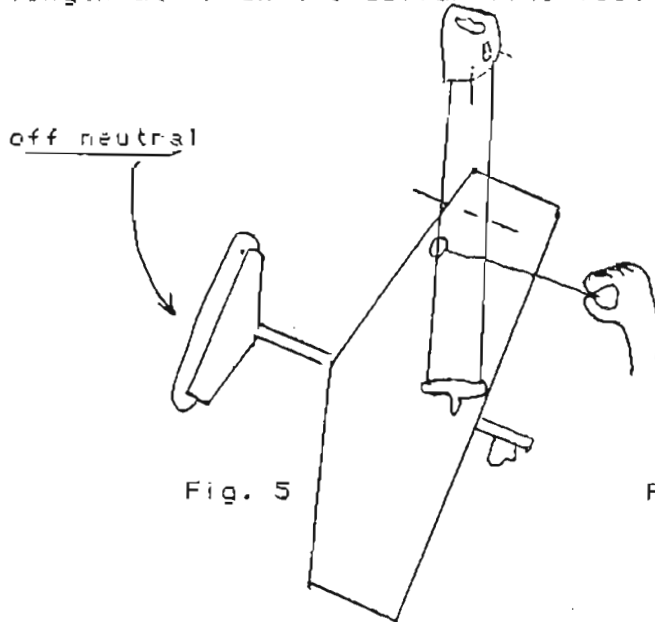


Fig. 4

The line to the collar, a piece of control line, will be anchored near the leading edge. The anchor point may be anywhere from $\frac{2}{3}$ to $\frac{3}{4}$ of the way out from the bellcrank to the slider. The length of the line is easy to determine, as you will see. As a rule of thumb, this line and collar will hold the aft leadout in pretty much its high speed location with respect to fore and aft.

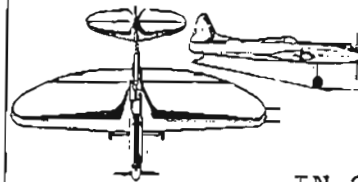
To determine the length of the line, attach a control handle to the leadouts. Suspend the model from the handle with the slider in the forward position. Align the handle so that the elevator is in neutral. Normally you will note that the handle, in this situation, is pointing straight down toward the model, unless you have an offset neutral as your normal fare. Without changing the orientation of the handle, deploy the slider (or return the handle to its former orientation). The model yaws and the elevator shifts about $\frac{3}{8}$ ". With your free hand pull the collar line forward until the elevator is again in neutral. This is the length at which the collar line must be tied off. Check figures 5 and 6.



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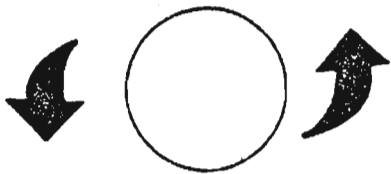
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ROUND & ROUND

By: John Thompson

BE CAREFUL WHEN YOU SAY...SAFETY

Nobody wants to get hurt flying model airplanes. But then again, nobody wants to lose a contest. There are times when we are tempted to "Throw caution to the winds" in search of that extra second, that extra mile per hour.

That's when we reach around the prop to tune the needle valve instead of standing behind like we know we should...when we ignore that nasty vibration to get the plane up for one last shot at an opponent...etc.

At certain times, the person calling for safer procedures is looked at as a spoilsport, or a troublemaker. But does anyone want an innocent spectator injured or worse by our hobby?

Certainly not, but legislating safety does not always come easy. The recent decision to require the safety thong in combat is an example. It was approved unanimously by combat fliers who had seen the frightening accident at the Lincoln Mats, and immediately criticized by a few who hadn't. In the end, I think the reaction was largely positive.

There are other things that could be done to improve the safety of our hobby, both through rules and through promotion of safe practices.

One of the best ways of promoting safe practices is by example. Every time one of us reaches around the prop to tune a needle valve, we're teaching bystanders and beginners an unsafe practice. Every time one of us macho "pros" carefully steps around behind the engine to tune it, we're teaching safety by our example.

Has anyone ever thought of mufflers as a safety issue? It depends on how much we look forward to wearing hearing aids during our retirement years. Food for thought...

I'd like to open the Round & Round column to an exchange of ideas about safety. Let's hear your suggestions about how we can improve the safety of control-line model aviation. I'll compile them for publication in a future R&R column.

Here are a few of the common sense safety rules I see often violated, often by experts as well as beginners:

--Stand behind the engine when running it on the ground, including while you tune the needle valve. Broken crankshafts fly forward, prop blades fly sideways.

--Don't let bystanders stand alongside your prop arc. You are responsible for injuries caused by your equipment. People won't know to get out of harm's way if you don't tell them.

--Chase spectators away from combat and racing circles. We want them to watch -- but from a safe distance.

--Don't wear loose clothing, neckties, hood cords, etc., around spinning props.

--Visually and with your hands inspect your lines before every flight. Frays and kinks can sneak up on you.

--No plane should ever be flown without a careful inspection of hardware connections, structural components and tightening of bolts, etc. It only takes a minute or two and could save a plane and an injury. I like to do it in the workshop before I leave home, then check bolts, etc., again at the field.

--Never prime an engine with the battery connected, unless you like putting out fires.

I'll leave the list short so other fliers can add their own safety tips.

--John Thompson, 1505 Ash Ave., Cottage Grove, Ok 97424



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