FLYING LINES

NEWS OF NORTHWEST CONTROL-LINE MODEL AVIATION

MAY 1994, ISSUE # 114

In this pre-Regionals issue.....

Cockpit Chatter

Notes from the editor's desk

By **Mike Hazel**

Welcome to this issue, new subscribers! It would be appropriate to review how a FLYING LINES subscription works. The main point to remember is that you are buying a certain number of issues. In our case, it is nine. We shoot for putting out that number in a year, but this may vary a bit. Occasionaly someone will remark regarding when their renewal is due, remembering for instance, that they paid at a certain contest last year. This does not always work! Remember to watch the issue number on the mailing label and compare to the issue number above, and you will see whatcha got coming.

We are again expecting a great NW Regionals in Eugene. Out of area interest has been good, so we will no doubt continue to have a good entry. A special Saturday nite banquet is planned, but you probably already know about that, since flyers were sent out some time ago. You remember that there was some concern just a couple of months ago whether this contest would happen again. At this point things look OK for the future, but you never know for sure. If you haven't been to this do, maybe you better do it this year.

In this ish is a reprint of the line termination construction methods out of the AMA rule book. The reason for this is that there have been some changes, and I am not sure positive everyone is aware of them. If you have not received (purchased) a rule book, then it might be new for you. Better check this out, as it is not fun to be grounded at a contest for illegal wires.

That's all for now. See you all in Eugene!!!!!!!!!!!!!!!!!!!!!!!!!!

MAKING CANOPIES, PART I

We all would like to do a project that isn't available in a kit from time to time.

Usually one of the biggest inhibitors of these projects is the need to make your own canopy. I learned how to do this on my ancient A-26 some time in the last century, I think, and also made the wingtip nav. light covers for my T-34C. Lemme see, what was that all about? Let's talk about this process in natural order.

First must come the hardware. You need to make a forming box, mold holder, a frame to hold the plastic sheet, and the mold. My box was made from 3/8" thick house plywood roughly a foot on a side. It had an upper area and a lower one. The upper area was simply a recess to about 1/3 of the way down formed by putting a support rim around the inside of the walls. The rim will take the whole air pressure load when vacuum forming. It needn't be of steel but peanut butter won't do even if it is old. The mold holder was a flat sheet of pegboard material which would sit upon this recessed rim when in operation. The holes allowed the air under the plastic sheet to pass through as the hot plastic draped around the mold. The depth was chosen to accommodate any reasonable canopy depth I might want to make. The floor of the box was 3/8" ply. As the frame holding the sheet of plastic needs to make a reasonable air seal with the top of the box, I put some rubber tube weather stripping around the top of the box. It had a flange along the side of the tube for tacking it down. Actually, on the Mark I, kid's school clay worked fine for sealing material.

I made a simple means of connecting the vaccum cleaner to the lower portion of the box. The cleaner had attachments, one of which was a reducer for connecting to the smaller size attachments. I made an oversize hole, 1/2" gap all around the small end of the adapter, in the lower portion of the box in one of the sides. For an air seal where the vacuum is connected to the box, I cut a square piece of inner tube larger than the hole and screwed a piece of sheet metal to the box which held the the rubber in place. The sheet metal had a hole in the middle the same oversize diameter as the one in the wood. There were slits in a wheel spoke pattern in the middle of the rubber sheet. These did not reach even to the diameter of the adapter actually. I made sure the rubber would have to stretch a bit for the tube to go through. All I had to do to connect the vacuum to the box, then, was stick the small end of the adapter in the slitted rubber sheet. No air leaks.

The frame which held the plastic sheet had to have legs to support it while the plastic was being heated. The frame had to be just a bit larger than the box so the legs would not get in the way when I placed the frame with the hot plastic on top of the box. Naturally, the legs had to be shorter than the sides of the box. You need to make a means of firmly mounting the plastic to the frame, but this must be easily removed for putting in the next sheet if the first doesn't turnout like you want. To keep it simple, I just got a piece of flat molding strip from the lumber department of a nearby store and staple gunned it in place with the plastic sandwiched in. I cut the molding into lengths, making plenty of spares and discarding the strips when needed.

The mold was no biggy. I tacked a soft balsa block in place on the airplane, carving and sanding it to shape. It was removed carefully. You must add material to the lower edge of the mold, at least 3/8" thick sheet. You see, when the mold is placed on the pegboard sheet and the hot plastic drawn down around it, the plastic will make a small radius corner at the juncture between the mold and the pegboard floor. This will mess up the edge of your canopy. You must move the planned edge of the canopy away from the sheet so the bottom most edge of the canopy when formed will still be perfectly flat. You are jacking up the mold, so to speak. You can't very well just put some small block under the mold to get it up off the pegboard as the vacuum will curl the plastic under the mold and you will still have a curved lower canopy edge.

Next time I will cover the finishing of the mold and detailing it. Probably in the third installment we will get into what plastics to use and what not, and the heating/forming process.

With luck, this may be the last installment at my address of seven years. We are buying a house, so watch the address..... Orin Humphries, 19805 48th Ave. W., #A101, Lynnwood, WA 98036 (206) 776-5517

The Flying Flea Market

Classified advertisements — FREE for FL subscribers

WANTED: 1968 AEROMODELER ANNUAL. MIKE HAZEL, 1073 WINDEMERE DRIVE NW, SALEM, OREGON 97304 (503) 364-8593

WANTED: ATWOOD .049 SHRIEK, NEW OR NEAR NEW ONLY, ALSO WANT A PAUL K. GUILLOW "REACTOR" CL KIT. I ALSO HAVE FOR SALE OR TRADE A FEW VECO AND TOP FLITE KITS. BRUCE DUNCAN, PO BOX 58037 STN. L, VANCOUVER, BC V6P 6C5, (604) 855-7295.

WANTED: MODEL AVIATION MAGAZINE ISSUES: 9/86, 3/85, 4/85, 8/84, 2/83, 5/83, MODEL BUILDER MAGAZINE ISSUES: 2/79, 3/79, 5/79, 6/79, 7/79, 8/79. **FOR SALE:** CUSTOM CONTROL LINE HANDLES, $30.00. CALL MARK WAHLSTER, (503) 873-3775.

FOR SALE: MANY BACK ISSUES OF FLYING LINES ARE AVAILABLE, CONTAINING A WEALTH OF TECHNICAL MATERIAL, ALONG WITH SOME NOSTALGIA OF PREVIOUS CONTEST SEASONS. SEND FOR LIST. FLYING LINES, 1073 WINDEMERE DRIVE NW, SALEM, OREGON 97304.

WANTED: A GOOD USED .09 OR .10 SIZE ENGINE FOR A JUNIOR'S PROJECT. (SUCH AS COX .09 MEDALLION, O.S. 10 FPS, FOX 15X, ETC. ETC.) MIKE HAZEL, 1073 WINDEMERE DRIVE NW, SALEM, OREGON 97304

FLYING LINES SUBSCRIBERS: THIS SPACE IS FOR YOU! SEND IN YOUR AD FOR SELL, SWAP, OR NEEDS.

SUBSCRIPTION EXPIRATION DEPARTMENT

NEXT TO LAST ISSUE FOR THESE SUBSCRIBERS: Jeff Cleaver, Frank Boden, Dan Rutherford, Nigel Mallinson, Michael Hawk, Ken Burdick, William Fisher.

LAST ISSUE FOR THESE SUBSCRIBERS: Paul Vallins, Norm McFadden, William Nusz, Larry Bell, Richard Scherer, Mark Wahlster, Chuck Schuette, Bob Emmett.

COLUMBIA BASIN BALSA BASHERS CONTEST
APRIL 9, 1994, RICHLAND, WASHINGTON

MOUSE RACE CL I (3 ENTRIES)

1)	TODD RYAN (SR)	3:45.12 HEAT
2)	JULIE RICE (JR)	5:13.53
3)	EVAN EDMONDS (JR)	DNS

NW SPORT RACE (3 ENTRIES)

1)	TODD RYAN (SR)	4:56.4 HEAT
2)	JULIE RICE (JR)	5:18.03
3)	EVAN EDMONDS (JR)	1/2 LAP

NORTHWEST CL CONTEST CALENDAR

THE FOLLOWING LISTING IS A SUMMARY OF ALL KNOWN A.M.A. AND M.A.A.C. SANTIONED EVENTS AS OF 5-4-94. FOR FURTHER INFORMATION, PLEASE CONTACT THE INDIVIDUAL LISTED. CONTEST DIRECTORS AND CLUB LEADERS ARE ENCOURAGED TO CONTACT FLYING LINES AS SOON AS POSSIBLE WITH THEIR PLANS, INCLUDING ANY REVISIONS.

MAY 27-29, EUGENE, OREGON

NORTHWEST REGIONALS

EVENTS: PRECISION AEROBATICS (4 PAMPA CLASSES), OLD TIME STUNT, CLASSIC STUNT, AMA FAST COMBAT, SLOW COMBAT, 1/2 A COMBAT, 80 MPH COMBAT, .15 CARRIER, PROFILE CARRIER, CLASS I CARRIER, CLASS II CARRIER, MOUSE RACE CLASS I, MOUSE RACE CLASS II, RAT RACE, SLOW RAT RACE, SCALE RACE, NW GOODYEAR, NW SPORT RACE, NW SUPER SPORT RACE, AMA PRECISION SCALE, AMA SPORT SCALE, PROFILE SCALE, 1/2 A SPEED, A SPEED, B SPEED, D SPEED, JET SPEED, FAI SPEED, FORMULA 40 SPEED, .21 SPORT SPEED, .21 PROTO SPEED, 1/2 A PROFILE PROTO SPEED DIVE BOMBING & STRAFING (AMA RULE BOOK BALLOON BUST).
SITE: EUGENE AIRPORT
CONTACT: MIKE HAZEL, 1073 WINDEMERE DR NW, SALEM, OR 97304 (503) 364-8593
SPONSOR: EUGENE PROPSPINNERS.

JUNE 11 & 12, KENT, WASHINGTON

JIM PARSONS MEMORIAL STUNTATHON

EVENTS: OLD TIME STUNT, CLASSIC STUNT, PRECISION AEROBATICS IN FOUR PAMPA CLASSES. SITE: BOEING SPACE CENTER. CONTACT: RICH MCCONNELL, 14828 MILITARY ROAD S. #208, SEATTLE, WA 98168 (206) 242-7372 SPONSOR: SEATTLE SKYRAIDERS

JUNE 18, RICHLAND, WASHINGTON

EVENTS: OLD TIME STUNT, FORMULA GX COMBAT. SITE: BURBANK SCHOOL. CONTACT: PAUL RICE (509) 627-3142, OR RICK MAGNUSON (509) 946-5724 SPONSOR: COLUMBIA BASIN BALSA BASHERS.

JUNE 25 & 26, RICHMOND, B.C.

NORTHWEST SPEED CHAMPIONSHIPS

EVENTS: 1/2 A SPEED, 1/2 A PROFILE PROTO SPEED, A SPEED, B SPEED, D SPEED, JET SPEED, FAI SPEED, FORMULA 40, .21 SPORT SPEED, .21 PROTO SPEED. SITE: RICE MILL ROAD. CONTACT: CHRIS SACKETT, PO BOX 82294, BURNABY, B.C., CANADA V5C 5P7 (604) 299-4500
SPONSOR: B.C. ACES

JULY 8 - 14, BRANDON, MANITOBA

1994 M.A.A.C. NATIONALS

JULY 16 - 24, LUBBOCK, TEXAS

1994 A.M.A. NATIONALS

JULY 30 & 31, RICHMOND, B.C.

P.A.C. INVITATIONAL

EVENTS: OLD TIME STUNT, PRECISION AEROBATICS, .15 SPORT RACE, NW SPORT RACE. SITE: RICE MILL ROAD MODEL PARK
CONTACT: CHRIS COX (604) 596-7635
SPONSOR: PACIFIC AEROMODELERS CLUB

AUGUST 20, RICHLAND, WASH.

EVENTS: 1/2 A COMBAT, FORMULA GX COMBAT. SITE: BURBANK SCHOOL. CONTACT: PAUL RICE (509) 627-3142, OR RICK MAGNUSON (509) 946-5724. SPONSOR: COLUMBIA BASIN BALSA BASHERS.

SEPTEMBER 3 & 4, RICHMOND, B.C.

CAN-AM SPEED CHAMPIONSHIPS

EVENTS: 1/2A SPEED, A SPEED, B SPEED, D SPEED, JET SPEED, FORMULA 40 SPEED, FAI SPEED, 21 SPEED, 1/2 A PROFILE PROTO SPEED, 21 PROTO SPEED. ALL EVENTS RUN RECORD RATIO AGAINST NORTHWEST RECORDS. SITE: RICE MILL ROAD MODEL PARK. CONTACT: BRUCE DUNCAN , PO BOX 58037, STN L., VANCOUVER, BC V6P 6C5, (604) 855-7295, FAX (604) 855-7285 SPONSOR: VANCOUVER GAS MODEL CLUB.

SEPTEMBER 24 & 25, KENT, WASH.

1994 RAIDER ROUNDUP

EVENTS: PRECISION AEROBATICS, OLD TIME STUNT, CLASSIC STUNT, SPORT RACING, CARRIER, COMBAT, SCALE, SPEED (RECORD RATIO), BALLOON BUST. (SPECIFIC EVENTS TO BE ANNOUNCED). SITE: BOEING SPACE CENTER. SPONSOR: SEATTLE SKYRAIDERS.

OCTOBER 1, PORTLAND, OREGON

EVENTS: PRECISION AEROBATICS, CARRIER (CLASSES TO BE ANNOUNCED) SITE: DELTA PARK. CONTACT: JIM CAMERON, 4023 NE BRYCE, PORTLAND, OREGON 97212 (503) 287-9620 SPONSOR: NORTHWEST FIREBALLS

OCTOBER 8 & 9 (?), RICHLAND, WASH

EVENTS: PROFILE CARRIER, .15 CARRIER, CLASS I & II CARRIER, OLD TIME STUNT, PLUS YET TO BE DETERMINED RACING EVENTS. SITE: HORN RAPIDS ATHLETIC COMPLEX. CONTACT: PAUL RICE (509) 627-3142, OR RICK MAGNUSON (509) 946-5724. SPONSOR: COLUMBIA BASIN BALSA BASHERS.

OCTOBER ?????, EUGENE, OREGON

REALLY RACING & FALL FOLLIES

EVENTS: PRECISION AEROBATICS, OTHER STUNT EVENTS TO BE DETERMINED, PLUS MOST ALL AMA AND NW RACING EVENTS. SITE: EUGENE AIRPORT. CONTACT: ????? SPONSOR: EUGENE PROPSPINNERS.

NORTHWEST RECORD REVIEW

DETAILS OF RECORD SETTING PERFORMANCES

EVENT: NORTHWEST GOODYEAR

Joe Rice holds both the 70 lap and 140 lap standards for this Regional event. NW Goodyear differs from the AMA version in that the very high cost, high performance engines are not allowed. (the rules specify allowable engines). Otherwise, things are the same.

Joe uses a Cox Conquest .15, which is stock except for a modified venturi. The plane is the Sig design Buster kit. It spans 24 inches, with 140 square inch wing. A 3/8" thick wing was used. Mods on the kit include use of a half span elevator, and a beefed up 1/8 inch wire landing gear.

A uniflow suction fuel tank is used, with no fastfill, and no fuel shutoff. The prop used was a Master Airscrew, which measures 6-3/8" x 6.

Typical airspeed of the plane is around 85 mph. Joe handles the piloting, while Paul Rice takes care of the pitman duties, and usually manages one or two flip starts.

The 70 lap record is 4:12, and the 140 lap is 8:41. Both of these marks were established on 5-30-93, at the NW Regionals in Eugene.

HOW TO APPLY FILLETS!

by Gerald Schamp

Applying fillets to your new stunt ship, or any plane, for that matter, can be one of the most frustrating parts of the whole construction. There are many ways to do fillets, and just as many materials to do them with. Generally speaking, almost any material will work, look nice and stay that way until butyrate dope is applied over it, then it's hold your breath and hope the fillet doesn't bubble.

I've had excellent results with two products. One is the old standby, SIG Epoxolite, and the other, slow CA and a light shot of kicker. Both have drawbacks, but the end result is a pretty safe assurance that no bubbles will appear.

EPOXOLITE

Let's take the Epoxolite first. The area has to be ready and clean of dust. I always wipe the area with alcohol, thinner, acetone, prep-sol, or anything that cleans any grease or oil my hands may have left in the area where I want to put the fillet material. Then decide how big a fillet you want; remember that this material is heavy, so don't make this into a custom car thing. I like small fillets myself, of about 1/4" radius. I use a wooden prop that has been carved and sanded to the radius I want. I lay it in the fillet area, take a soft pencil and make small marks all along the length of the fillet area, top, bottom, and both sides. Then take 1" wide masking tape and lay this down along the marks on the wing. Then take 1/4" wide masking tape and mask along the marks on the fuselage. This will be a curve to match the airfoil, so the tape has to bend some. After the curve is laid out, then lay a second tape down with 1" and cover as best you can. Be sure to go right around the leading edge with the same distance of radius.

At the trailing edge, some people have flap fairings and some don't. If you do, then the fillet will go on to these, too, and if there aren't any fairings then just end at the trailing edge, with a similar radius to match the leading edge. It gets a little tricky with the flap horn in the way, but be persistent and you'll get good results. Okay, now the fun part; mix up the Epoxolite. Be sure you do this thoroughly, at room temperature as it mixes much easier when warm. You can put the little tubs in hot water for 15 minutes to be sure they are warm. Once it's mixed, you should have a nice light creamy brown chocolate colored goo. It's really grainy, so don't let that bother you. Do only one side at a time, unless you have a friend holding your plane who can help by turning the plane, or you have one of the finishing fixtures that bolt to the motor mounts. In this case, you can do more. I have done all the fillets at one setting with no problem. Epoxolite sets up real slow, so you have ample working time.

Once the stuff is all mixed, use your prop to spoon some off the material into the fillet. Be careful you don't slop some on the wing and let it dry. It comes right off when wet, but not so easy later. Now work the material all in the fillet area. Don't use your finger; the less you can touch this stuff from here on out with your bare finger, the better off you are. In fact, a cheap pair of latex gloves works good here.

Now get a small bowl of water. Dip the prop tip in the water and then start molding the Epoxolite into shape. Water seems to act as a thinner and lubricant that allows fine shaping of the material. Keep working the fillet until it's smooth, uniform, and looks consistent all the way around. You'll have to keep dipping the prop in the water as you do this. Pretty soon the surface will get wet enough and no more water will be needed. By the way, have a roll of paper towels handy for wiping off the excess. Once you have the fillet the way you want it, go to the next one and repeat the steps. When you have them all the way you want, carefully remove the masking tape. There will be a little edge left when the tape is removed, but we'll fix that in a minute. Once the tape is removed, take a damp paper towel and wipe up any drips and drops you may have gotten where they shouldn't be. Okay, now comes the real finesse part; take the prop, dip it in water and carefully blend the taped edges into the surface, so there is a smooth transition from the Epoxolite into the wing surface and into the fuselage side. Don't get things too wet, we don't want this thing turning into a sponge and soaking up lots of water.

Once the fillets have been dressed off, put the plane aside for awhile and clean up your mess. After about a hour, take a close look at the fillets; they will be starting to set up. You can still make corrections with the prop and a little more water. The end result should leave you with a handsome fillet that needs little or no sanding.

Once this materials sets up, 24 hours minimum, you'll notice the surface will still be kind of sticky. Take your thumbnail or an X-Acto knife and poke at the fillet everywhere. It should be rock hard; if it's not, let it set a while longer. To make the surface paintable, use alcohol and a paper towel. I recommend the 97% or 98% alcohol, as it will do a better job than the 75%. Wipe the fillets real good and let them dry. The surface should come clean; it will have a slight shine to it, but the stickiness should be gone. If not, continue cleaning with alcohol; it will come clean.

After this step is complete, the fillet is ready for paint. Should there be a need for sanding, be sure to put the masking tape back along the edges of the Epoxolite, otherwise you'll sand gouges in the balsa and have them to fill also. Usually a light sanding with 120 grit paper will be sufficient. Clean the fillets again before painting.

Remember -- keep your bare fingers off the fillets.

There are two kinds of paint that I know work over Epoxolite. One is the OLD formula Aero Gloss Clear; I've heard the Randolph is very similar, but I've never tried it so I can't say for sure. The second choice is Sig Nitrate Dope mixed fairly thin, say 60% thinner and 40% dope. Three coats about an hour apart should be sufficient. Let this set for at least 24 hours, then lightly sand with 320 grit sandpaper. Just sand lightly, don't take any material off. Now it's ready for whatever paint you want to put on next. Don't paper over fillets, ever! No matter what the fillets are made of, it's instant disaster if you do. Don't GOB paint on fillets; this is almost as bad as paper. Use light coats, plenty of thinner with flexall, and you'll get good results.

If paint does bubble up, don't panic, there's an easy fix. Take an X-Acto knife, #11 blade. Depending on the size of the bubble, either slit the bubble or poke it full a jillion little holes. Take thin CA and put some in the bubble. Take a Q-tip or paper towel and rub the bubble down flat. I've even used the blunt end of the X-Acto handle to do this. You can be pretty aggressive here and you should be. You don't want bubbles or blisters showing up later. This method will work right into color, if need be. Take a little effort to stay after it, but don't give up. Good results are possible, so are bad ones, but eventually you'll get it. Bob Hunt from Flying Models has written similar article about applying Epoxolite fillets. My method is simply a takeoff on his. Either way works.

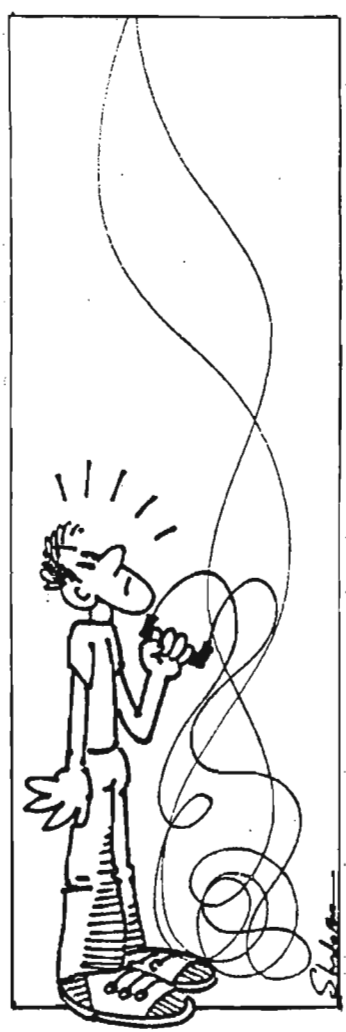
SLOW CA

Okay, let's look at the simple way to do fillets. I really prefer this way because it's fast, simple, bullet proof and looks good. I like the smaller fillets myself. Some of the scale planes had large fillets, but stunters like we build, even a 60 size plane, doesn't need 1/2" fillets. This method uses the SLOW CA. I have always used Bob Smith CA, both the thin and thick, for building airplanes. It's predictable, strong, burns the hell out of your eyes and nose, sticks your fingers to balsa in micro seconds, I mean what more could you want? Anyhow, I like it. One, the thin has a pink label on it, and the thick has a blue label on it. I don't like the real thick stuff -- no patience for this slow running stuff.

Okay, I get the fillet area ready by sanding with a piece of 1/8" plywood about 2" by 3" wide with the 2" side sanded round. I use 80 grit sandpaper, a piece that is about 6" by 2". When sanding the area, hold the sanding block at about a 45 degree angle to the joint. Clear all the humps and bumps off with the sanding tool and sandpaper. Once the joint, or fillet area, is smooth, turn the airplane up on one wing tip; this will give you a level surface to work on. Now take the slow CA and run a bead around the wing fuselage joint. Make it as uniform as possible. Let it set for a little bit, then lightly dust on some kicker from about two feet above the glue. When the glue kicks off, you'll have a nice smooth fillet. More than likely, it won't be uniform after it dries. Take the sanding tool and sand the fillet again, this time picking on the low spots. Now apply another coat of slow CA, paying close attention to the low spots. Try for uniformity all around. It usually takes me three shots to get the fillet I want. Once it's even all around, I take the sanding block and start sanding the glue fillet until I have a nice radius sanded into it. Start on the bottom and build your technique. If you screw up, hit it with the CA again and repeat the step. I really like this method of making the fillet; once you learn the technique it takes a very short time to do and really cuts down on the time spent on this tedious task.

As for painting, the same rules apply for DON'TS. Keep the dope thin and you probably won't have trouble. Don't make the fillet out of dope, or it will bubble and blister, guaranteed. Keep sanding between coats of dope and clean thoroughly before painting. Use 320 grit sandpaper to sand between coats. This, to me, is one of the best and simplest ways to make a fillet. I've had them bubble up, but poking them full of holes and gluing them down with CA cures the problem 99% of the time.

I can't recommend any of the other materials on the market because they have qualities about them that are not friendly to this application. I'm not saying the products aren't good, they just don't work for me in this particular instance. I'm sure there are many ways of doing fillets, but these I've talked about are the only two that have been successful for me. If you have any questions about the process, feel free to call me at 1-503-461-2197, or write me at 3860 Lancaster Drive, Eugene, OR 97404. Hope this information is useful to you. Keep Your Lines Tight and Fly STUNT.



ENGINES, ETC.
by Paul Gibeault

PAUL'S ARTICLE ON MOUSE RACING, HOW TO, CONTINUES.....

CHASSIS AND RACE EQUIPMENT

a) Airplane: currently, there is no better design to start with than the record holding "Streaker Mk IV". 'Nuff said.
b) Prop: Must have 4 inches of pitch to get rolling! Any 1/2A prop made by Cox, Top Flight and Tornado is OK. However, cut-down props (less than 5" diameter) go faster than stock. Only test flying will tell what prop(s) ultimately work best for a given combination.
c) Fuel: A minimum of 40% nitro really is required to get with the program. 60% nitro or more yields faster times only if everything is correct, and you have fabulous reliability on 40% fuel, and you are practiced, and know what you are doing! (be willing to buy lots of expensive glow plugs, too!) A most important note about Mouse fuel: a <u>minimum</u> of 5% and preferably 10% of the fuel must be castor oil. Should you decide to race your Cox .049 on castor oil deficient fuel, your engine will commence a course of self destruction and you will find out first hand why people have sworn off flying Mouse Race for good! You have been warned. I have developed a truly good fuel mix for class I Mouse for those of you able to blend your own fuel, as I do.

5% Klotz bean oil (or castor oil)
15% Klotz KL 200 (or K&B X2C)
40% Methanol
40% Nitromethane

= 100% Great Cox .049 Mouse Race Fuel

PRE-START & RACE WARM-UP

1) Before the first run, always prime the crankshaft will oil or raw fuel for additional lubrication at this critical time.

2) Fill tank, prime exhaust, and wind up spring starter 1-1/4 turns to start. Reason: Anything less will allow your engine to start backwards. 1-1/4 turns ensures a correct start 1st time and every time.

3) I doubt a Cox .049 takes a really good setting until its warmed up somewhat. Therefore, don't be overly surprised if the ground and in air settings differ. The best time to fine tune the needle valve is immediately after a flight. Important note: If your race NV setting changes by more than 1/2 turn, you have a fault! Clean or flush out the dirt or fix the leaky tank, or loose glow plug, but stop perpetually messing with the needle valve.

4) To stop a running engine on the ground, squeeze your thumb and index finger over the tank vents. This verifys your tank seal integrity. If the engine doesn't stop and continues running, you have a sizeable leak somewhere that must be fixed!

5) I have mentioned earlier that Cox crankshafts have a fatigue problem. You can accelerate all kinds of shaft and case problems by stopping a running engine by its prop nut. <u>Do not do this!</u> Stop the engine per step 4 and will considerably increase the life of these parts, and save yourself some grief.

6) Always monitor the color of the engine exhaust oil. Usually a good running engine will alert you in advance of an impending failure by "making metal". This means tiny aluminum particles are being rubbed off and are visible in the exhaust oil, if you look closely. This is usually accompanied by frequent plug failures. At this point, it's best to find the trouble spot and fix it. The same holds true if your crankcase ever makes a squeaking noise on start up or shutdown. (usually the crankcase assembly needs replacing because the crankpin has worn (tapered) causing the rod to slide or walk off and rub away at the tank.

7) And finally, keep your engine scrupulously clean and always protected from the elements by a plastic bag or a rag. Filter your fuel well and any time you change containers. Ensure your fuel bulb is not flaking rubber, and replace often. When everything else checks out OK and your engine still hics and coughs, it's very possible that dirt in the fuel is causing the trouble. It doesn't take much dirt to raise havoc with the Cox .049 and so remember, "cleanliness is next to Mouseliness".

TO BE CONTINUED.....

1/2 A CARRIER RULES

(RULES PROVIDED BY JOHN HALL & TERRY MITCHELL)

CARRIER LEGAL PROFILE TYPE MILITARY AIRCRAFT WITH MARKINGS (MODEL MUST RESEMBLE A REAL AIRCRAFT TO RECEIVE 10 BONUSE POINTS- DOCUMENTATION REQUIRED ON OBSCURE AIRCRAFT)

.075 MAXIMUM ENGINE DISPLACEMENT, MUFFLER ALLOWED, NOT REQUIRED.

MAXIMUM WINGSPAN: 24 INCHES, MAXIMUM WEIGHT EMPTY: 16 OUNCES.

OPERATING FEATURES: ELEVATOR, HOOK, & THROTTLE ONLY.

2 WHEEL LANDING GEAR WITH 4 INCH MINIMUM BETWEEN TIRES, OR TRIKE GEAR OK.

FLYING LINES: .008 X 35', PULL TEST IS 10 G.

HIGH SPEED LAPS: 12, LOW SPEED LAPS: 12; SCORED AS PER RULE BOOK.

CARRIER DECK CONSISTS OF (2) 4 X 8 SHEETS OF PLYWOOD, 4 ARRESTING WIRES ON ONE SHEET AND TAKE-OFF ON THE OTHER.

SKYRAY 35 CARRIER RULES

SAME AS PROFILE CARRIER WITH THE FOLLOWING CHANGES:

PLANE: SIG SKYRAY 35 ONLY. NO LINE SLIDERS (LEADOUTS MAY BE ADJUSTABLE, BUT NOT INFLIGHT MOVEABLE), NO MOVEABLEFLAPS OR AILERONS.

ENGINE: ANYTHING UP TO A .40. FUEL: 10% NITRO SUPPLIED.

MAXIMUM HIGH SPEED POINTS: 75

WITH THE 94/95 AMA RULEBOOK COMES A FEW CHANGES. THERE IS ONE BIG IMPORTANT LINE CONSTRUCTION CHANGE THAT WILL AFFECT MANY SPEED AND RACING COMPETITORS. IT HAS TO DO WITH THE LINE END TERMINATION WHEN USED WITH "BUTTON" BELLCRANKS. THE TERMINATION, AS PER THE DIAGRAM, MUST BE A DOUBLE LOOP. BEFORE YOU HEAD OFF TO ANY CONTESTS, BETTER MAKE SURE YOU HAVE LEGAL LINES!

ANOTHER CHANGE IS FOR THE WRAPPED WIRE TERMINATION. THESE TYPES MUST NOW BE EITHER SOLDERED, OR EPOXIED. AGAIN, MAKE SURE YOUR LINES ARE LEGAL.

5.3. Line construction shall be as per the methods described in Figures 1 through 4. The Contest Director may allow alternate line terminations if he can satisfy himself that they are at least as strong as those shown. The construction method shown in Figure 2A is not allowed for Jet speed models nor for speed models with engine displacements over 0.4029 cubic inches.

● **5.3.1. The methods illustrated in Figures 1 through 3 are recommended for all applications of single strand (commonly called solid) control lines. Line terminations using the crimped tubing style of construction, as are supplied on commercially available ready-to-use control lines, are acceptable on multi-strand (commonly called stranded) lines only. Crimped tubing line terminations constructed by the modeler (i.e. not commercially available) may also be used on multi-strand control lines,provided they are made using soft tubing material such as is supplied with commercial line sets and provided they are made according to instructions provided with commercial line sets or Figure 4. It is mandatory that three line thicknesses pass through the tube before crimping. It is recommended that the crimped tubing line terminations be carefully inspected, on a regular basis, to check for possible broken strands caused by flexing of the wire against the ends of the crimped tube.**

5.3.2. In those events where they are permitted, multi-strand lines may also use terminations constructed as shown in Figure 3.

● **5.3.3. Line terminations as constructed in Figure 1 or 1A may be used for two-line single-strand applications provided buttons of suitable size and strength are used as the line connectors. See Figure 1 for minimum monoline button diameters. This shall also apply to line eyelets as shown in Figure 2. Dimension "A" will be 1/2 inch for Classes 1/2A and A, 5/8 inch for Classes B and C, and 3/4 inch for Classes D and Jet.**

● **5.3.4. For aircraft which utilizes button connectors attached directly to the bellcrank, single-strand lines must employ a double-loop termination as shown in Figure 1A. Such terminations are also a permissible alternative to Figure 1 in all classes.**

5.3.5. Only permanent-type end terminations and connections as shown and described in this section in paragraph 5 through 5.3.4. are permitted. Any system of using knots is specifically not considered "as strong as" those systems shown as required in 5.3. Splices at any point along the lines are not considered a "termination" and are not permitted.

The guidelines for construction of the control lines are also recommended for construction of the aircraft lead-out wires.

Figure 1. Single Line and Alternate Two Line Construction. (Aircraft End.)

Wire Dia.	Min. Button Dia.
Up to .015	8 D
Over .015	.125"

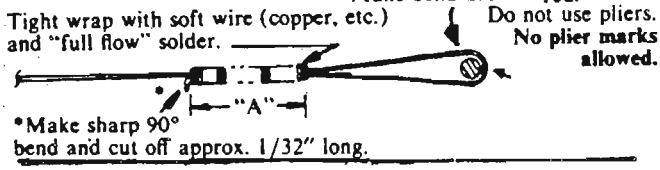


Figure 1A. Two Line Construction For Use With Button-Type Bellcranks. "Double Loop" Termination.

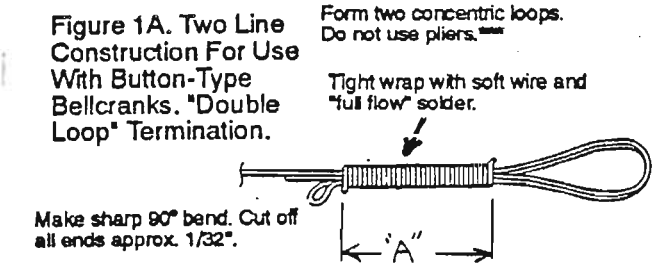
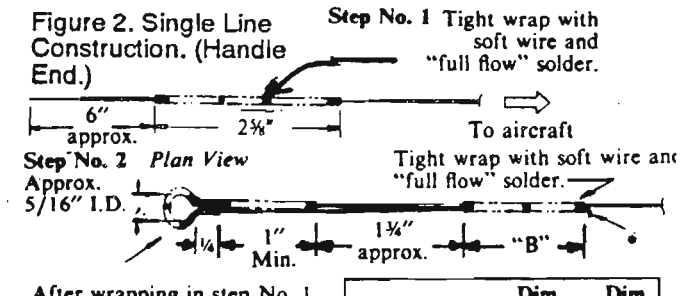


Figure 2. Single Line Construction. (Handle End.)

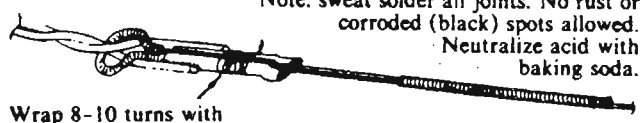


After wrapping in step No. 1, from loop to approx. 5/16" I.D., starting ¼" from end. Bend loop down approx. 45° from horizontal

Class	Dim. "A"	Dim. "B"
½A	½"	1"
A	1"	1½"
B	1¼"	2"
C	1¼"	2"
D & Jet	1½"	3"

Step No. 3 (installation at handle end)

Note: sweat solder all joints. No rust or corroded (black) spots allowed. Neutralize acid with baking soda.



Wrap 8-10 turns with soft wire hold doubled section of line in slot. Tie loose ends.

Figure 2A. (Alternate.)

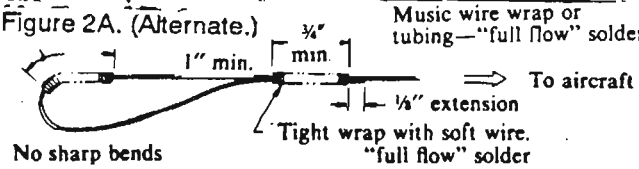


Figure 3. Two Line Construction.

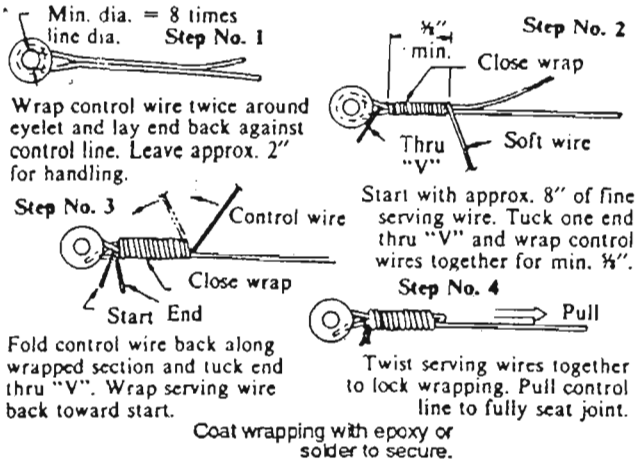
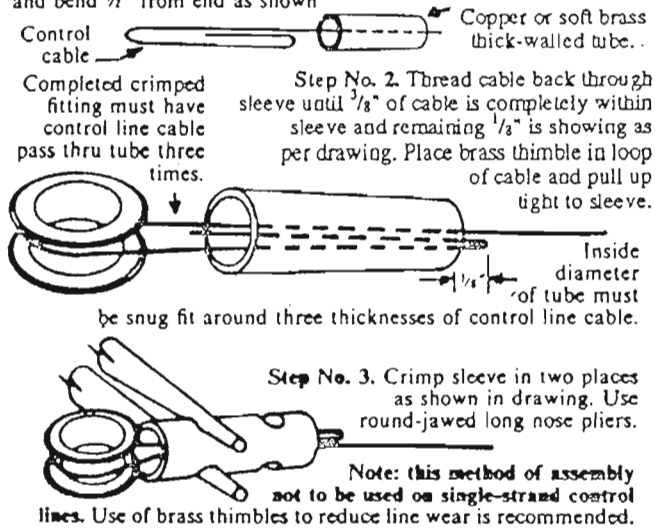
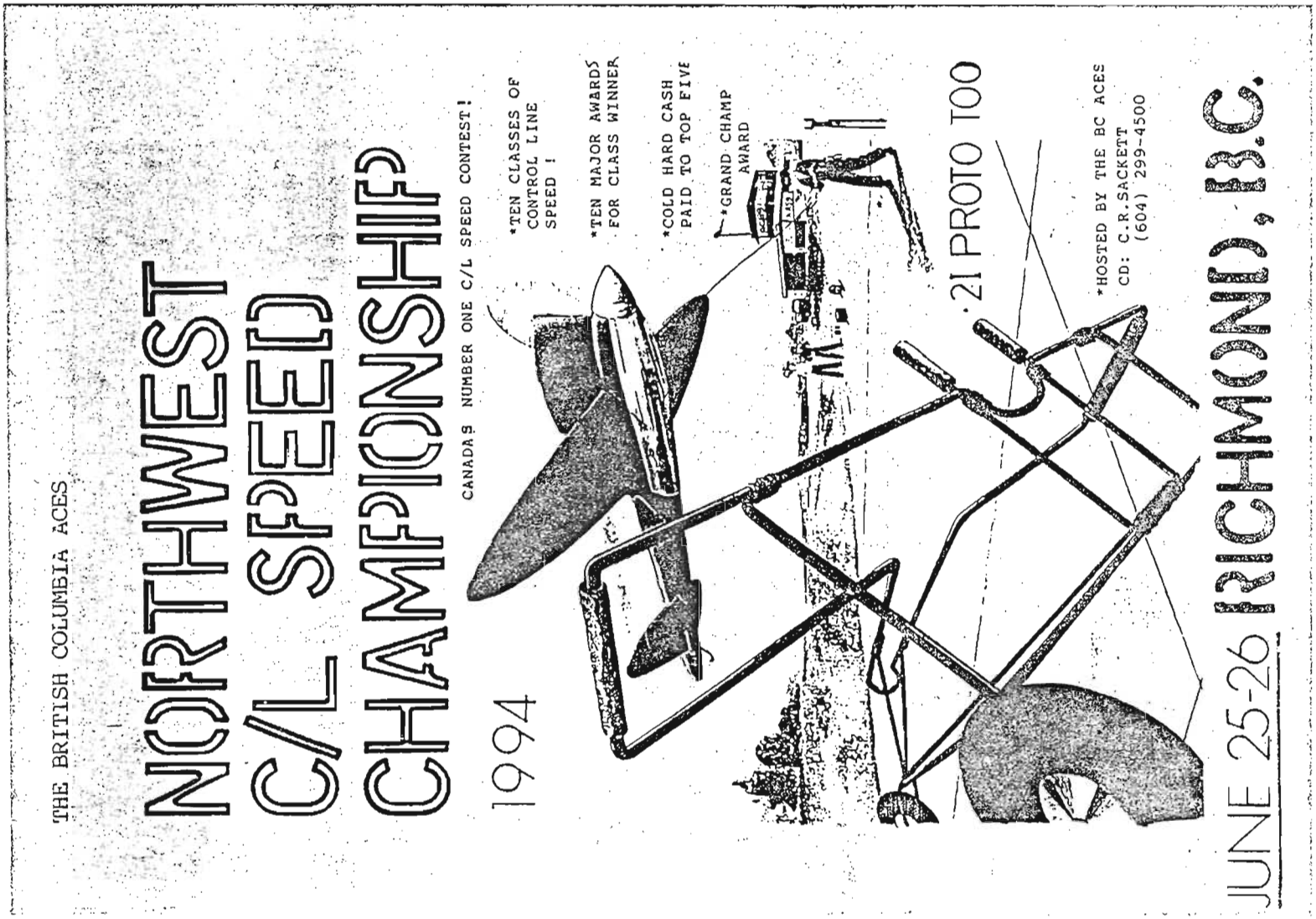


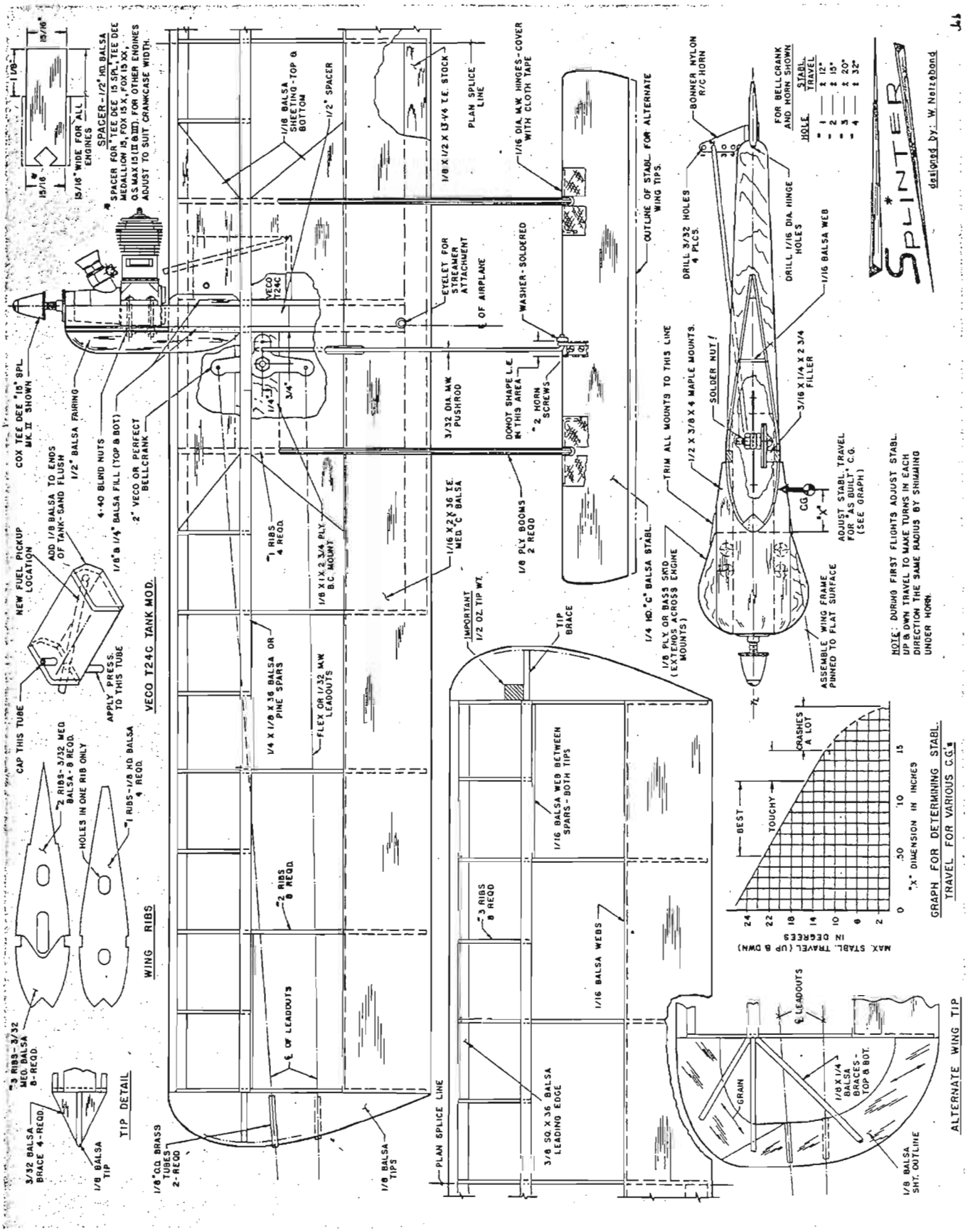
Figure 4. Alternate Construction Multi-Strand Lines Only.





IN THE OLDIE BUT GOODIE DEPARTMENT, FROM APRIL 1967 AMERICAN MODELER.

THE SPLINTER
.15 COMBAT



CLUB NOTES

The VGMC are now expanding their ranks with associate memberships. It was noted in the latest "Hothead" newsletter that this helps avail many more of the local modelers of the social and collecting (swap meet) activities, as well as receiving the club newsletter.

The EPS are busy as usual this time of year readying for the NW Regionals. Plans appear to be all in order, and they are looking forward to another great one....."Propspinner Chatter" newsletter editor Mel Marcum is doing a great job on the club publication. The last few issues show evidence that he is having a great time working on his computer!.....The Propspinners had a very nice display at the Great Oregon Model Expo. Featured were display models, contest flyers and info handouts, and a club history scrapbook.

The SS are going show-biz! Skyraider member Lloyd Marohl is involved with the AMA NW flight demonstration team, which is basically RC oriented. It seems that many requests have been turned down by the team because of problems with the proposed site for the demo- just too small. But, control line fits! The Skyraiders are now an official part of the AMA Northwest Flight Demonstration Team.

Combat flying continues to be a popular activity with the PAC. On March 20th they had a club competition, using a variation of the GX Combat scoring method. Following is excerpted from "Airwaves"..... *12 of use gathered on this fine sunny day to once again determine who was the best of the best. As it turned out, that dirty rotten scoundrel, Bruce Matthews put together a string of matches which ultimately earned him the distinction of "top dog". Rumor has it that he even had his gum boots hidden in the back of his car, should the going get tough. Not to mention the high prestige, Bruce also walked away with a cool $30 in his pocket for his trouble. Greg Davis received $20 for his effort, while the ever evasive, yet tenacious doer of dirty deeds in the combat circle, Troy Lyne, placed 3rd for $10. Father Mel was overheard pointing out to Troy later that he owed him $5 for the entry fee*.....The PAC also recently put on a special club event for the Junior members, a Mouse Racing competition. Turnout was great, with 10 kids fielding entries. All of them got to fly at least 2 races with 2 up, and a final was flown with 3 up.

Does your club treasury need some bolstering? The WOLF had a "garage" sale in April, which featured both modeling and household goods from several families. The club took a commission on all sales, of which there was plenty, due to some good local advertising. It was a lot of hard work, but the club netted well over $300 for their efforts.....WOLF are continuing their search for a flying site. The club is currently involved in a coalition of local clubs (2 other RC) on possible use of a former landfill site.

FLYING LINES is produced by a staff of volunteers interested in keeping lines of communication open between Northwest region control line aeromodelers. *FLYING LINES* is independent of any organization, and is solely supported by its base of subscribers.

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