

FLYING LINES

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PUBLISHER: MIKE HAZEL

December, '83 NEWS OF NORTHWEST CONTROL LINE MODEL AVIATION Number 50

PORTLAND HOSTS "PRE-SEASON" DC MEET -- DRIZZLE INCLUDED

Never has anybody had a better time under worse conditions than a group of intrepid Northwest control-line modelers did at the Drizzle Circuit Tune-Up Contest sponsored by the Northwest Aeroliners at Delta Park in Portland Nov. 13.

Aeroliners Wayne Spears, Pat Webb, Steve Lindstedt, Frank Macy, Rich Schaper and others put on a fine and fun contest in spite of high winds and continual rain. In spite of the conditions, everyone went around with those typically happy grins that control-liners tend to wear and we all went home -- finally warmed by the car heaters -- talking about what a good time we had.

The events were Class I Mouse Race, Northwest Sport Race and Northwest Sport Combat, and several individuals and teams brought out their new Drizzle Circuit racing equipment. The meet was an informal exhibition in preparation for the former Northwest Sport Race Drizzle Circuit which begins Dec. 11 at the same field.

The Drizzle Circuit is a five-contest winter series sponsored by Northwest clubs, with circuit-end trophies for the top finishers and fast heat fliers in the two Northwest racing events, Sport Race and Super Sport race. The contests also feature different secondary events at each contest. It's a great wintertime activity and wonderful practice for both beginner and experienced competitors, whether your long-term interest is racing or not. Come on out and join the fun.

There were no spectacular performances in the Tune-Up, as the conditions and the rustiness of the competitors and the newness of the equipment combined to make record-setting unlikely.

Winds drove most of the mouse racers back into the car trunks, with only two entries finally braving the elements. Greg Beers' FAST Team captured first place.

John Thompson chugged along to first place in Northwest Sport Race, and Dick McConnell captured his first Super Sport Race feature. Old pro Gene Pape survived the monsoon to best the field in Northwest Sport Combat.

Here are the complete results:

CLASS I MOUSE RACE (2 entries)

1. FAST Team, Vancouver, Wash. -- 10:34. FAST, G. Beers design, 17" span, 5 3/4 oz., bass/balsa/plywood, epoxy finish, Cox .049, G. Beers rework, Top Flite 5 1/4x4 nylon prop, GloBee 2-volt racing plug, Missile Mist 25% nitro fuel, hot glove, spring starter, .008"x42' single-strand lines. Pilot Ron Pfingsten, pit crew Greg Beers. Plans available via G. Beers, 12108 NE 80th St., Vancouver, WA, 98662.
2. Dick McConnell, Seattle, Wash. -- DNF.

NORTHWEST SPORT RACE (6 entries)

1. John Thompson, Cottage Grove, Ore. -- 9:51. Sterling Ringmaster, 42" span, balsa/plywood, Aero-Gloss/Monokote finish, Fox .35 stunt, Rev-Up 9x7.5 pylon racing wood prop, Thunderbolt standard long plug, Sheldon's 15% nitro fuel, Fox 2-oz. profile tank, Fox handle. Pilot Gene Pape, pit crew John Thompson.
2. Bill Varner, Astoria, Ore. -- 10:29.
3. Gene Pape, Eugene, Ore. -- 11:39.
4. Greg Beers, Vancouver, Wash. -- 12:42.

NORTHWEST SUPER SPORT RACE (4 entries)

1. Dick McConnell, Seattle, Wash. -- 11:42. Try, Try Again, Dick Peterson design, 37" span, balsa/plywood, Aerogloss/Monokote finish, K&B .35 Series 75, Tornado 8x8 nylon prop, Fox 1.5-volt plug, Motors & Memories 5% nitro/castor fuel, fastfill, shutoff, Carolina-Taffinder 3-oz. tank, Pylon racing handle. Pilot Dick Salter, pit crew Dick McConnell.
2. Gene Pape, Eugene, Ore. -- 11:50.
3. Glenn Salter, Seattle, Wash. -- 12:09.
4. FAST Team, Vancouver, Wash. -- 12:19.

NORTHWEST SPORT COMBAT (7 entries)

1. Gene Pape, Eugene, Ore. -- Top Flite Flite Streak, Fox .35 stunt. Other airplane data unavailable.
2. Dick Salter, Seattle, Wash.
3. John Thompson, Cottage Grove, Ore.
4. Bill Varner, Astoria, Ore.

TURKEY FLIERS HAD FUN -- AND PRIZES TOO

It was another of those rainy, ugly days and most of those who had signed up in advance to compete in the fifth annual Flying Lines Benefit Turkey Tournament stayed warm and dry.

The result was that three intrepid entrants, plus one official and one dedicated pit crew person, made up the entire contest on Nov. 20 at Eugene, Ore. Each contestant took home a marvelous prize, and still there was a gallon of fuel left unclaimed.

The contest, intended to benefit Flying Lines, ended up not making any money for the newsletter but it did give the fliers some fun and loot.

In concept, the turkey tournament is the use of a single airplane per entrant in a four-event quadrathlon, with the top overall flier winning a 20-pound Thanksgiving turkey.

Tom Kopriva defended his title as Top Turkey, winning the turkey and a Fox .35 stunt engine. Second went to Gene Pape, who took home a Sterling Ringmaster kit. Third place went to Bob Hauk, in his first contest ever, and Bob took home a gallon of K&B 100 fuel.

Here are the complete results:

OVERALL PLACING

1. Tom Kopriva, Eugene, Ore. -- 39 points. Sterling Yak-9, 38" span, 35 oz., Formula U finish, Fox .35 stunt engine, Zinger 10x6 wood prop, Thunderbolt RC long plug, K&B 100 5% nitro fuel, muffler pressure, 3-oz. outboard tank, .018"x60' braided lines, E-Z Just handle.
2. Gene Pape, Eugene, Ore. -- 35 points. Top Flite Flite Streak, Fox .35 stunt engine.
3. Bob Hauk, Eugene, Ore. -- 34 points. Original plane, Cox .049 reed valve engine with remote tank.

APPEARANCE

1. Tom Kopriva -- 10 points.
2. Bob Hauk -- 9 points.
3. Gene Pape -- 8 points.

SPEED

1. Gene Pape -- 72.96 mph (10 points).
2. Tom Kopriva -- 56.83 mph (9).
3. Bob Hauk -- Two attempts.

2-MINUTE TIME TARGET

1. Tom Kopriva -- 118 points (10 overall points).

EUGENE'S TOY AND HOBBY

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2. Bob Hauk -- 104 points best flight, 101 points backup (9).
3. Gene Pape -- 104 points best flight, 87 points backup (8).

STUNT

1. Tom Kopriva -- 274 points (10 overall points).
2. Gene Pape -- 141 (9).
3. Bob Hauk -- No flight (8).

NW COMPETITION STANDINGS

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

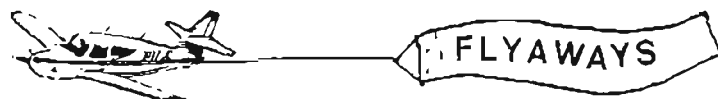
The Nov. 13 Drizzle Circuit Tune-Up in Portland caused a juggling of racing and sport combat standings, with tightening of the top-five races in several events.

Flying Lines keeps track of the rankings of Northwest fliers in Northwest contests, using a scoring system based on placings in the top four of each event and the number of entries in the contest. Information on the scoring system is available from FL.

Fliers who are making the transition from personal entries to team campaigns should take pains to make clear either on registration forms or to FL whether they are racing under their own names or under team names, to avoid having the standings points be incorrectly credited.

Here are the standings in events which have changed since their last publication in Flying Lines:

NORTHWEST SPORT RACE (9 contests, 64 entries)	NW SUPER SPORT RACE (8 contests, 51 entries)	MOUSE RACE CLASS I (6 contests, 33 entries)	OVERALL RACING (33 contests, 203 entries)
1. Greg Beers 40	1. Dave Green 30	1. Knoppi-McCollum. . 14	1. Dave Green 68
2. John Thompson. . . 40	2. Mike Hazel 27	2. FAST Team * 9	2. John Thompson. . . 66
3. SKARE Team * . . . 23	3. Rich Schaper . . . 21	Mike Hazel 9	3. Mike Hazel 54
4. Glenn Salter . . . 23	John Thompson. . . 21	4. Rich Salter. . . . 7	4. SKARE Team 41
5. Dave Green 17	5. Dick Peterson. . . 14	5. Dave Green 6	5. Greg Beers 40
		John Thompson. . . 6	
NORTHWEST SPORT COMBAT (2 contests, 13 entries)	OVERALL COMBAT (15 contests, 131 entries)		
1. John Thompson . . 10	1. Glenn Salter . . 36		
2. Gene Pape 7	2. John Thompson. . 33		
3. Glenn Salter. . . 6	3. Dick Salter. . . 28		
Dick Salter . . . 6	4. Gary Byerly. . . 26		
5. Bill Varner . . . 4	5. Bill Varner. . . 16		
Mike Hazel. . . . 4			



RANDOM TIPS AND RIBS FROM THE FL WORKSHOP FLOOR

====We've had one reader say that "Flyaways" is his favorite part of the newsletter because of all the random tidbits of information contained herein. What's your favorite, part of FL? Your feedback helps us keep the newsletter coming the way you like it. Don't forget, also, that then pages of FL are open to all control-line fliers with something to contribute to the general good of our hobby.

====An Oregon company by the name of Zenith Marketing International (ZMI), has entered the hobby product distribution business. The company, which has until now specialized in distribution of cleaning equipment for the petro-chemical industry, books and electronic devices, has a new catalog of modeling products. It is mostly made up RC-oriented engines, radios, adhesives and air brush equipment, but some may be of interest to control-line modelers. For information write Zenith Hobbies, 4470 S.W. Hall, Beaverton, OR, 97005.

====After an unsteady start, preparations for the sixth Northwest Sport Race Drizzle Circuit got going with vigor and now a full lineup of racers and airplanes is registered for both Northwest Sport Race and Northwest Super Sport Race. Entrants pre-registered include the FAST Team, Dark Ages Racing Team, Nitroholics Racing Team, Glenn Salter, Dick Peterson, Rich Schaper, Dick McConnell, Steve Lindstedt, Bob Pfingsten, Bob Andre, Pat Webb, Gene Pape, Alan Stewart and Will Naemura. Among the planes with trick DC names are sport racers called Bones Crusher, Flying Lines Express II, Puddle Jumper, Super Stock, and Red Rubber Ball. Super Sport planes include the Minotaur, T-Bolt, Killer and Try, Try Again. There's still lots of room for more racers. Drag that dusty racer out and join the fun! See "Where the Action Is" for details.

====Carolina-Taffinder, which recently announced it has purchased the Fox line of tanks, also indicates that it may begin supplying diesel fuel as part of its Custom Blend line sometime next year.

====The RAMS club of Virginia is thinking of holding a "postal" contest, with clubs from different parts of their region flying the same events on the same day and comparing scores. Racing, speed and carrier would be the types of events best suited. Sounds like a good idea. Any interest in the Northwest?

====The above reminds the FL editor that we still have certificates for the pilots and pit crews who took the top three places in the 1982 Northwest Regionals Super Sport race -- and thereby won the transcontinental racing bet with the Florida Modelers Association. Vic Garner, Dave Green and John Boles, if you don't get your certificates pretty soon, call me up and yell in my ear!

====Rolley Model Products has a big December sale on with a wide variety of control-line oriented model products. For a catalog, write Rolley Model Products, P.O. Box 468, Bennett, Colorado, 80102. Tell Dave you read it in Flying Lines.

====It's time once again for Northwest modelers to thank Don McClave, one of the hobby's all-time good guys. Don has graciously donated the \$25 fee now required for the five park use permits needed to put on the Drizzle Circuit at Delta Park in Portland, calling it his contribution to the DC. Thanks again, Don!

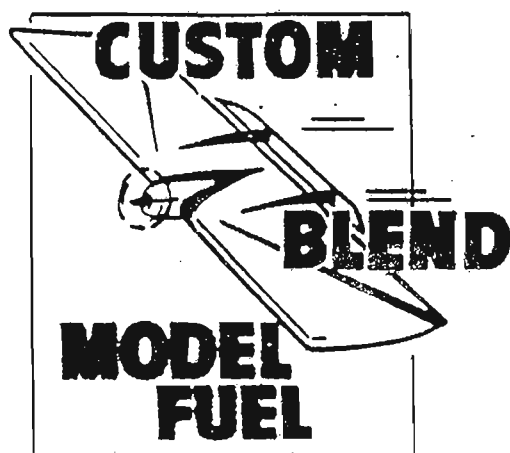
====In reference to the above item, isn't it nice to know that the City of Portland, which is planning to bulldoze the Jim Walker Memorial CL Flying Field at Delta Park under for some greedy business to replace it, is kind enough now to allow us to pay only \$5 for a formal activity on a field already set aside for the purpose!!! And, let us not forget, the city was nice enough to allow the Aeroliners to clear the brambles away to make the flying field nearly 25 years ago, and to do a large part of the maintenance on it since then.

====With the growing interest in old-time stunt, we're starting to get requests for rules. FL published OTS rules about three years ago but the rules may have been updated since then. If some kind stunt flier would provide us with a fresh set of rules, we would gladly publish them again.

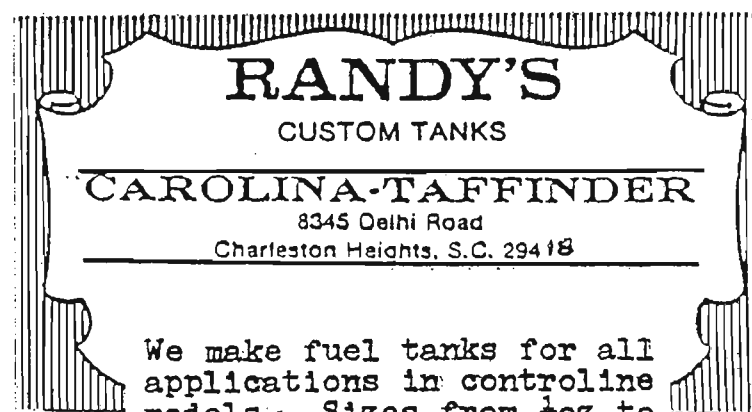
====More product news: We've discovered a company called JMD fuel labs which offers fuel in blends ranging from 0 to 35 percent nitro, with

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castor and synthetic oils. Also in their line are fuels specially designed for 4-cycle engines and half-A engines, plus a gasoline fuel augmentor and a smoke-oil for use in scale planes' smoke systems. Write JMD Fuel Labs, Inc., P.O. Box 235, North Olmsted, Ohio, 44070, and tell them FL sent you. They'll send a price list and a nice pamphlet about fuels in general.

====Product warning: We have received information from a FL subscriber that he has had unsatisfactory service from the Prop Shop of Broomfield, Colo., maker of various types of fiberglass props. David Copeman of Brown Deer, Wis., writes that he has been waiting since November of 1982 for some propellers he ordered in response to a magazine ad.

====In reference to the above item, FL readers should be aware that the product news items listed here do not constitute an endorsement of any products by FL, or any guarantee that these companies are on the up and up. We are merely passing on information we have received from one source or another, unless we specifically mention that we have used and been satisfied with the products. Similarly, we are unable to substantiate complaints such as those listed above, but we pass them on as a public service.

====A tip of the Flying Lines hat to Paul Walker, our stunt columnist, who recently surprised us with a \$25 donation. Paul is one of the many fine Northwest modelers who have donated money, services or other valuables to keep our Northwest newsletter alive over the years. We've mentioned some in these pages but there undoubtedly are many whose help has gone unnoticed by the masses. Without such generous support, the newsletter could not exist.

====~~Just in case there are any control-line "snobs" out there who refuse~~ to believe any other sector of the hobby has anything to offer us (none of us is really like that, are we?), there are several good reasons to read the news of other aeromodeling activities as well. For example, the December, 1983 edition of MODEL AVIATION contained a number of important notes of use to us in non-CL columns. In case you missed it, dig up that issue and check page 48 (RC Aerobatics) for information on hinging techniques; Page 62 (Free-Flight Duration) for information on a new miracle material called Boron fiber, on the resurrection of Cameron engines, and on many useful sources for tools and stopwatches. John Ballard's CL Racing column tells how to measure tank volumes on Page 164 -- extremely useful!

FLIGHT SCHOOL

BEGINNERS' TIPS BY KEN BURDICK

(Editor's note: With this issue Flying Lines introduces Ken Burdick of Kirkland, Wash., a new columnist. Burdick takes over the FL beginners' column, and will have many interesting and informative things to say to beginners (and some bits of useful advice for old pros) in the coming issues. As in the past, we urge experienced modelers to pass these articles on to the beginners who might not have yet discovered the newsletter.)

I would like to introduce myself to any beginner reading this article. My name is Ken Burdick. My intent in writing this column is to assist any beginners that I can and, if I'm lucky, to generate some new AMA members. My background in modeling includes combat, racing, speed and carrier, and some free flight. Enough about me -- now back to you!

Some of the articles I will be presenting are:

- 1) Materials (magazines, kits, engines, fuel, accessories).
- 2) Hobby shops vs. mail-order houses.
- 3) Model clubs -- how to start your own.
- 4) Racing teams -- the necessary ingredients.
- 5) "Ready-to-fly" airplane reviews.
- 6) Most-improved beginner.
- 7) Safety.

Because it is the most important item on the list, I'll dedicate the first portion of this article to safety (I can hear the groans now!).

"My stuff is OK." Let's have a look. At a recent fast combat meet I saw no less than three engines come loose, known broken airplanes sent up into competition needlessly, one injury due to a motor mount coming off, and one airplane launched with no lines attached! Kinda scary, isn't it? (Editor's note: We believe Ken refers to an airplane that had lines on it but the leadout crimps failed on launch...but his point still is valid.)

The first step for safe flying is to review the fundamentals:

1) Are the lines in good shape? Check for kinks, broken strands, and "run them out" after every flight. When one line breaks it is likely that the sudden jerk on the other line will break it, resulting in a "flyaway."

2) Engine bolts. Most "C" size engines are held on by low-grade 4-40 machine screws. The engines available in most hobby shops (Fox, OS, ST, K&B and many others) can snap the heads off a low-grade screw given a small amount of vibration. Use high-grade steel and/or drill out the mounting holes to accept a 5-40 or 6-32 screw, whichever you prefer. Whatever you use, keep the screws tight and use lock washers with flat washers or kepnuts.

3) DO NOT use nylon propellers on high-performance engines (ST X-15, Cox Conquest, K&B .15, current .36 combat engines). You may get away with it for a while, but believe me, they will throw a blade. There are several manufacturers of quality wood props -- use them.

4) If an engine comes loose in flight, do everything in your power to keep it away from people. Fly figure-eights in a safe area. If you think it's going to come off, crash land in a hurry. If you land OK, check out the plane thoroughly before starting or flying it again. Combat fliers should really lean on the motor mount, just to be sure.

5) When starting an engine you may hear a telltale "click" while flipping the prop. This means: Stop what you're doing and tighten the prop, or you may wind up wearing it.

6) An over-primed engine, an adjustable 2-volt battery turned up, and yours truly wearing shorts, was a cheap form of entertainment as a motor spit out a ball of lit fuel onto my leg one day. Nicad batteries are about 1.2 volts and seem to solve this problem.

If you incorporate these fundamentals into your routine, you will be doing a great service to your fellow modelers and spectators by practicing good safety techniques.

BITS AND PIECES

One of the best articles I've read in a long time is "Anne's Plane," MODEL AVIATION, October, 1983. This is a half-A trainer and much, much more. It gets my "stamp of approval" and flies great with TD .049. If you think you're going to crash a few times, change the fuselage to 1/4" pine and go crash it!

POP RIVETS FOR FUN AND PROFIT: A pop rivet with the nail tapped out can make an excellent leadout guide, insert for a bladder tank, or tubing for tying a set of lines.

AND THERE'S MORE: Pow cans turned upside down make a nice mixing surface for epoxy. Break off the can tab for a mixing stick.

From the "neat stuff" department comes "Micro-Fill," a fillet material from Northeast Hobby Products. It is easy to work with and seems to stick to everything.

I noticed recently that America's Hobby Center is selling Cox Medallion .15 RC engines for \$14.95. Can't beat it for sport. (MODEL AVIATION, December, 1983).

Next article: "How to start a Fox .36 Combat Special in one flip!" Also: "Hobby shops vs. mail order," and "Why Mike Hazel can't fly inverted!" That's all for now. Remember to replace your divots!

--Ken Burdick, 12314 NE 65th St., Kirkland, WA, 98033.

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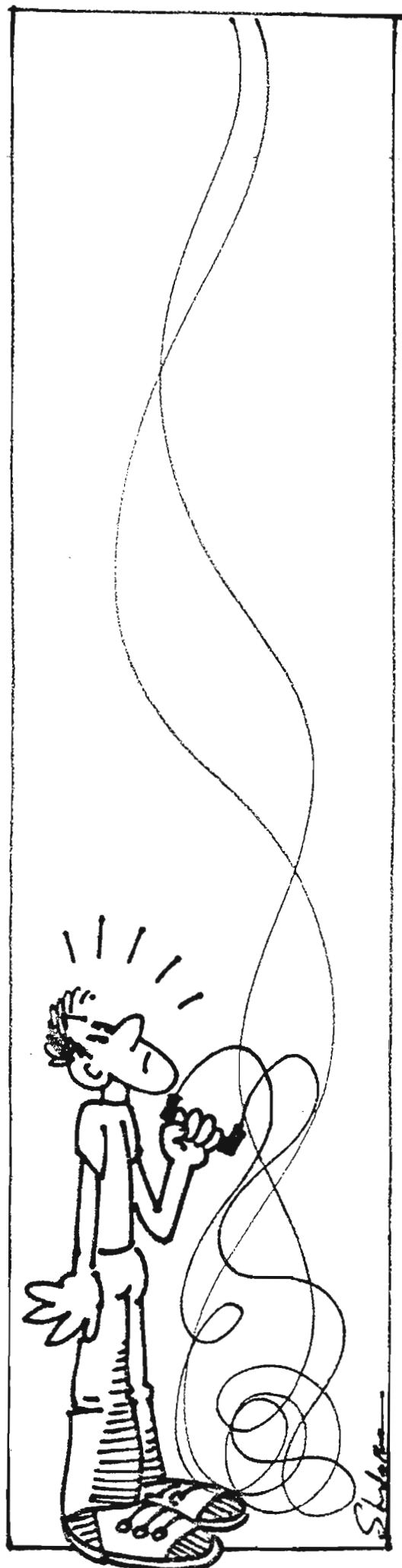
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WHERE THE ACTION IS

UPCOMING ORGANIZED EVENTS

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 sanctioned by AMA or MAAC (Canada) 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. Age class codes: (J)=junior. (S)=senior. (O)=open. All events JSO unless otherwise noted.

December 11 ... PORTLAND, Ore. -- NORTHWEST SPORT RACE DRIZZLE CIRCUIT CONTEST NO. 1. Northwest Sport Race, NW Super Sport Race, Class I Mouse Race. Series racing points accumulate toward year-end trophies. Mouse race starts 9 a.m. sharp, NWSR at 11 a.m. sharp, NWSS follows NWSR. Site: Delta Park. Entry fees \$4 for first event, \$2 for each additional event. Contest Director: Rich Schaper, P.O. Box 608, Kelso, WA 98626.

January 8 ... PORTLAND, Ore. -- NORTHWEST SPORT RACE DRIZZLE CIRCUIT CONTEST NO. 2. NWSR, NWSS, Rat Race. Rat Race starts at 9 a.m. sharp, NWSR at 11 a.m. sharp, NWSS follows NWSR. NWSR and NWSS points accumulate for series trophies. Site: Delta Park. Contest Director: Dick Salter, 7217 S. 133rd, Seattle, WA 98178, (206) 226-1129. Entry fees \$3 for first event, \$2 for each additional event.

February 12 ... PORTLAND, Ore. -- NORTHWEST SPORT RACE DRIZZLE CIRCUIT CONTEST NO. 3. NWSR, NWSS, Half-A Combat. NWSR and NWSS points accumulate for series trophies. Site: Delta Park. Contest Director: Dave Green, 200 W. Franklin Ave., Astoria, Ore. 97103, (503) 325-7005. Half-A Combat starts at 9 a.m. sharp, NWSR at 11 a.m. sharp, NWSS follows NWSR. Entry fees \$4 for first event, \$2 for each additional event.

March 11 ... PORTLAND, Ore. -- NORTHWEST SPORT RACE DRIZZLE CIRCUIT CONTEST NO. 4. NWSR, NWSS, NW Sport Combat. NWSR and NWSS points accumulate for series trophies. NWSR starts at 9 a.m. sharp, NWSR at 11 a.m. sharp, NWSS follows NWSR. Site: Delta Park. Contest Director: John Thompson, 1411 Bryant Ave., Cottage Grove, OR, 97424, (503) 942-7324. Entry fees \$5 for first event, \$2 for each additional event.

April 8 ... PORTLAND, Ore. -- NORTHWEST SPORT RACE DRIZZLE CIRCUIT CONTEST NO. 5. NWSR, NWSS, Slow Rat Race. NWSR and NWSS series trophies to be awarded. Slow Rat starts at 9 a.m. sharp, NWSR at 11 a.m. sharp, NWSS follows NWSR. Site: Delta Park. Contest Director: Mike Hazel, 1040 Windemere Dr. NW, Salem, OR 97304, 503-364-8593. Entry fees \$3 per event.

May 26-27 ... EUGENE, Ore. -- NORTHWEST REGIONAL CONTROL LINE CHAMPIONSHIPS. RACING: Goodyear, Rat, Mouse I, Mouse II, Slow Rat, NW Sport, NW Super Sport. COMBAT: AMA, FAI, Slow, Half-A. PRECISION AEROBATICS: Beginner, Intermediate, Advanced, Expert, Old-Time. SCALE: Precision, Profile. NAVY CARRIER: Class I, Class II, Profile. SPEED: Half-A, A, B, D, Jet, FAI, Formula 40. Displays, flea market, food, hobby shop on the field. At contest site: Restaurant, rest rooms, vending machines, gift shop, airline connections, rental cars, camping space for tents and RVs. Trophies and merchandise through third place in all events. Site: Mahlon Sweet Airport. Sponsors: Eugene Prop Spinners in cooperation with other Northwest clubs and individuals. Contest Director: John Thompson, 1411 Bryant Ave., Cottage Grove, OR, 97424, (503) 942-7324.

Sept. 2 ... VANCOUVER, B.C. -- NORTHWEST CL SCALE RALLY. Half-A Profile Scale (J)(O), Profile Scale, Sport Scale. Sport scale rules to apply to all events, except four flights, with best two counted with static score for place. Two attempts for official flight. Site to be announced. Contest Director: Bob Newman, 19880 28th Ave., RR2, Langley, B.C., Canada, V3A 4P5, (604) 530-3916 after 6 p.m.



AIR MAIL

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



DEARL FL:

Given the current forgettable rash of "surveys" being huckstered off by some of the model magazines, it seems only fair to "fly" in the face of current trends _ at the unforgivable risk of being at least partially objective and tell "the other side of the story."

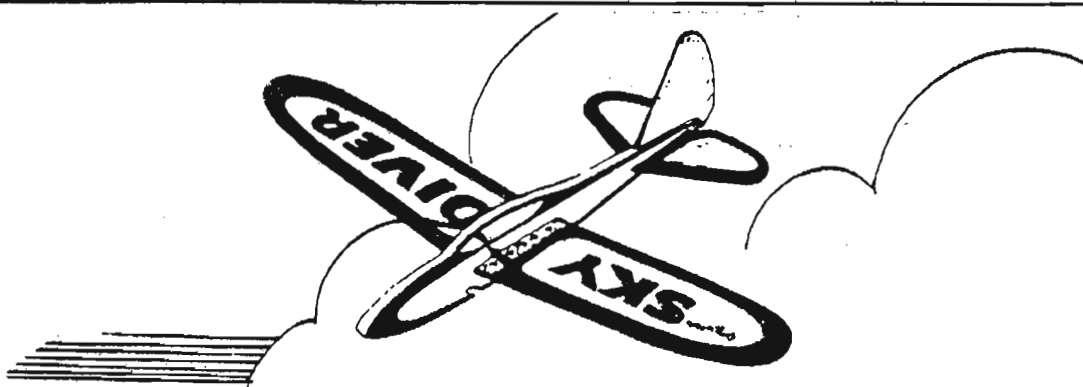
Accordingly, I am enclosing a copy of my "Modeling Questionnaire" which your readers will hopefully spread throughout the land. Perhaps FL would care to run its very own survey? And print the results?

And finally, further improvement is possible by adding "Mark II." Of course, any and all failures are instantly and most perfectly repaired by the expedient of adding the words "hi-tech" to the title! Simple, huh? Behold, I give you:

THE HI-TECH MODELING QUESTIONNAIRE (MARK II)

Oh, the Glory of it all!

1. Which statement describes you: a) "I'm an RCer." b) "I'm a modeler who currently flies only RC." c) "There isn't any other form of modeling."
2. In 50 words or less, what is a model airplane, discounting the scale aspect?
3. As a modeler, would you feel any discomfort explaining to a layman that an indoor microfilm model weighing thousandths of an ounce and a 200-pound drone "are both the same, because they are both model airplanes"?
___Yes. ___No.
4. Do you feel the Academy of MODEL Aeronautics should concern itself only with MODEL Aeronautics? ___Yes. ___No.
5. Do you think it is proper for the Academy of MODEL Aeronautics to insure ultralight aircraft that substitute servos for pilot control? ___Yes. ___No.



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Oregon City, OR 97045

6. Do you think you could learn anything useful about an RC model by reading construction techniques, flying techniques or anything else from non-RC articles in model magazines? Yes. No.
7. Have you ever built a balsa free-flight model and flown it more than one minute? Yes. No.
8. Have you ever built a balsa control-line model and flown six laps inverted? Yes. No.
9. Do you think money is the basic requirement of modeling today? Yes. No.
10. Do you think money SHOULD BE the basic requirement of modeling? Yes. No.
11. Who SHOULD lead the direction modeling takes? Manufacturers? Magazines? EAA?
12. Who DOES lead the direction modeling takes? Manufacturers? Magazines? EAA?
13. Is it important for modeling to have more young beginners than it now has? Yes. No.
14. Can you name three possible sources of young beginners?
15. Is it reasonable to expect a kid with a \$15 per week paper route to start out with a \$300 "trainer"? Yes. No.
16. Do you feel you "owe" anything to the hobby that has give you so much pleasure? If so, what do you owe? How would you pay this back?
17. The November, 1981, issue of American Business reported that plastic models far outsell all other forms of modeling. Next in sales is free-flight, followed by control-line, and then finally by radio control. Why do some folks say: "RC pays the bills"?
18. Do you think the recent rash of modeling "surveys" will be used to "prove" whatever those in charge want to prove? Yes. No.
19. Do you think surveys are heavily manipulated by the questions they don't ask?
20. Do you think this questionnaire was any more or less biased than others you have read? Yes. No.
- Doug Dahlke, 1037 Eastman St., Oshkosh, WI, 54901.

DEAR FL:

As much as I have frequently enjoyed, in the modeling press, the cogent and insightful views of Doug Dahlke, I cannot agree totally with the views he expressed in the August FL.

I do agree it is difficult to feel sympathy for the so-called economic woes of a group who are in all likelihood amongst the economic elite. As to whether the Omahawks RC club does need economic aid, I do not know but the need certainly sounds suspect.

As to whether quarter-scale models are truly models or not, my answer is yes. Do they share more in common with RPVs, drones, and even EAA aircraft than the typical model? I doubt it but I do feel that quarter-scale models could and should serve as a more effective bridge than they now do for more cooperative efforts between the AMA and EAA. The EAA has an educational effort called Spotlight that works with many high schools to teach various elements of aviation. Personally, I feel that the money spent by EAA could be more effectively utilized if some elements of that educational effort utilized models versus man-carrying aircraft. But that will not happen until the AMA and the EAA develop a closer working relationship. Quarter-scale might be the vehicle that could effect such a cooperation if we as a fraternal community collectively desire such.

Do I share Mr. Dahlke's implied and explicit concerns that large and very expensive models serve to limit the entry of youngsters into modeling? You bet I do and I do believe that is precisely what is happening. At the same time, I believe quarter-scale models could also serve as an effective bridge for cooperative educational efforts between the EAA and AMA by making the EAA membership more aware of the virtues of using models for educational programs. However, that is not presently happening. How about a Nationals held in the EAA grounds in Oshkosh immediately preceding or following the annual EAA get-together. Would that help to get the ball rolling?

I do not believe that those modelers who love big models are intent on destroying the hobby we all love by driving out the young beginners. On the other hand, I do believe that the practical effects of very expensive, very complicated and very large models has been to exacerbate the entry level problem of young beginners.

As to Mr. Dahlke's contention that a potential market for young beginner does exist and just waiting to be developed, I couldn't agree more completely.

However, I would not equate that potential with ease of development as several companies have tried and failed or have met with very limited success.

Where are you, Jim Walker? Joint RIAA efforts to address the same question have had moderate effects.

The U.S. Navy when sponsoring the Nats required as a condition of sponsorship that a beginners' program be available. How effective was that approach? I do not know but it would appear not very since the practice

is no more.

I tried through an FL article in the November, 1981, issue entitled "Bringing Model Airplanes to the Public - A Coordinated Program Proposal" to help - even sent a copy to our fearless AMA president amongst several others. John Grigg conscientiously forward it to the AMA executive council where it evidently died an ignominious death since I have heard neither hide nor hair of it since. Perhaps it wasn't as good a proposal as I had thought - but then I never claimed to have a corner on the wisdom market.

Well, there you have it, Doug, for what it's worth - I both agree and disagree with you and perhaps that explains it all. If you and I, whom I believe to be kindred spirits, cannot readily reach a consensus, what chance is there that less kindred spirits can agree?

--Larry Miles, 2112 Scott Ave., Independence, MO, 64052.

DEAR FL:

At the most recent Northwest Aeroliners meeting we discussed the Drizzle Circuit schedule for the 83-84 season.

It was the consensus of the club that the races all be run at Delta Park in Portland. (That doesn't surprise you?)

Logically, the park offers several advantages. It is centrally located, it has rest room facilities, also showers, and it is easy to find (right off the freeway). Also, the pilot and pit lines in the circle are not legal (thanks to Rich Schaper).

And besides, everybody knows Fox .35 engines require rain water for proper lubrication!

We are also planning to install a pylon in the circle for the benefit of the increasing number of speed freaks around hear.

The Northwest Aeroliners meetings are open to anyone who wants to attend. They are held on the first Thursday of each month. For more information please contact me by mail or phone.

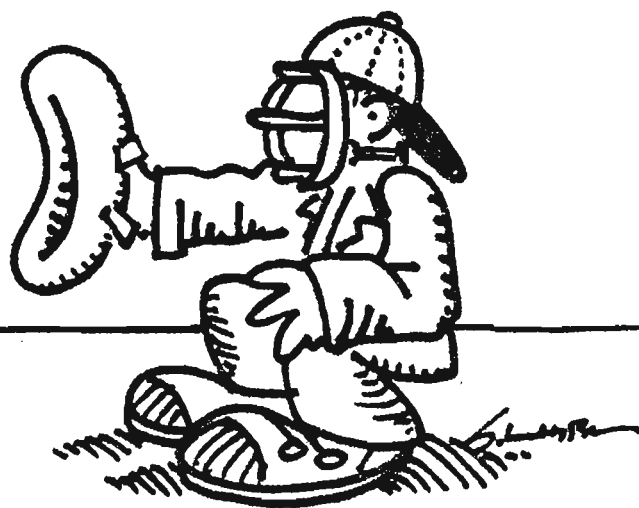
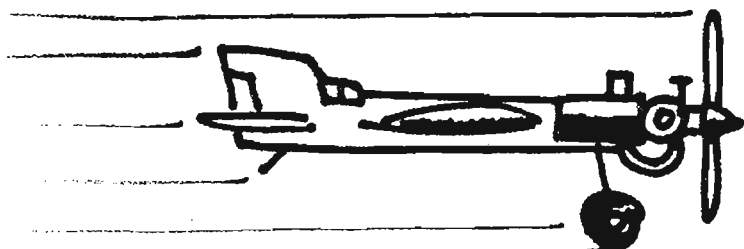
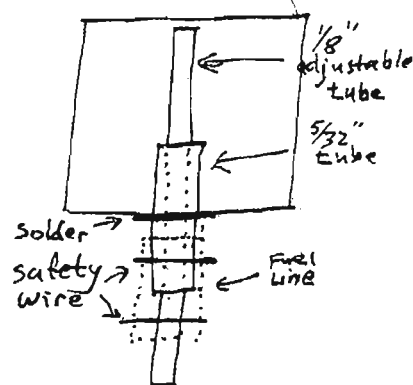
--Steve Lindstedt, sec/treas, Northwest Aeroliners, 1645 N. Church, Portland, OR 97217, (503) 285-1463.

DEAR FL:

I'd like to pass on an idea that I've been using in my stunter's fuel tank to control length of engine run. This is an adjustable overflow, easily adjusted from flight to flight until desired length of run is achieved.

Solder securely into bottom front of tank a piece of 5/32" tubing, 3/4" long. Half of this tube's length outside the tank. Install 1/8" tube through this tube to reach top of tank. Cut 1/8" tube off, 5/8" below the 5/32" tube. This will allow a 3/4" long piece of fuel line to be installed and safety wired, overlapping the two pieces of tubing. I haven't found a need to solder the 1/8" tube securely. It will not change without considerable help.

--John Clemans, 307 N. 19th, Kelso, WA 98626.



TYPICAL NORTHWEST SUPER-SPORT PIT-MAN

DEAR FL:

Well, the final vote of the Control Line Contest Board is in and the results published in the last issue of MODEL AVIATION.

Carrier rules as such remained fairly stable for the next rules cycle. The major changes being that the builder-of-the-model rule was deleted in all classes. This will allow a person to purchase and compete with equipment that someone else wants to get rid of.

The wingspan of profile was changed to allow up to 50 inches. The theory of this was that it would make more kits available such as the Midwest kits with 48" wingspans. However, if these kits have been

discontinued like other control-line equipment has been then the availability is subject to stock on hand.

The other change is a judging criteria in that three warnings for exceeding the 60-degree limit in low-speed flight will result in disqualification of low-speed flight. Now it is being considered whether these changes will make it necessary to re-establish national records. Usually when rules changes make judging criteria stricter this results in voiding old records.

Now, the '84 Nats will be held in Reno, Nev. This will not be too far away for most Northwest fliers, so we should be well-represented there. It should make no difference whether you are a national champion, top-ten flier or what; just be there for the enjoyment of being there. It is the experience of a lifetime. I haven't been to anything like it in almost 30 years and am looking forward to being there, even if Dave Gree does beat me in profile.

If any other Northwest carrier fliers plan on going, make sure that your equipment will pass inspection. One rule states that openings in the cowlings around your engines in Class I and II shall not be greater than 1/8". I have seen several that would not pass this, so check them carefully.

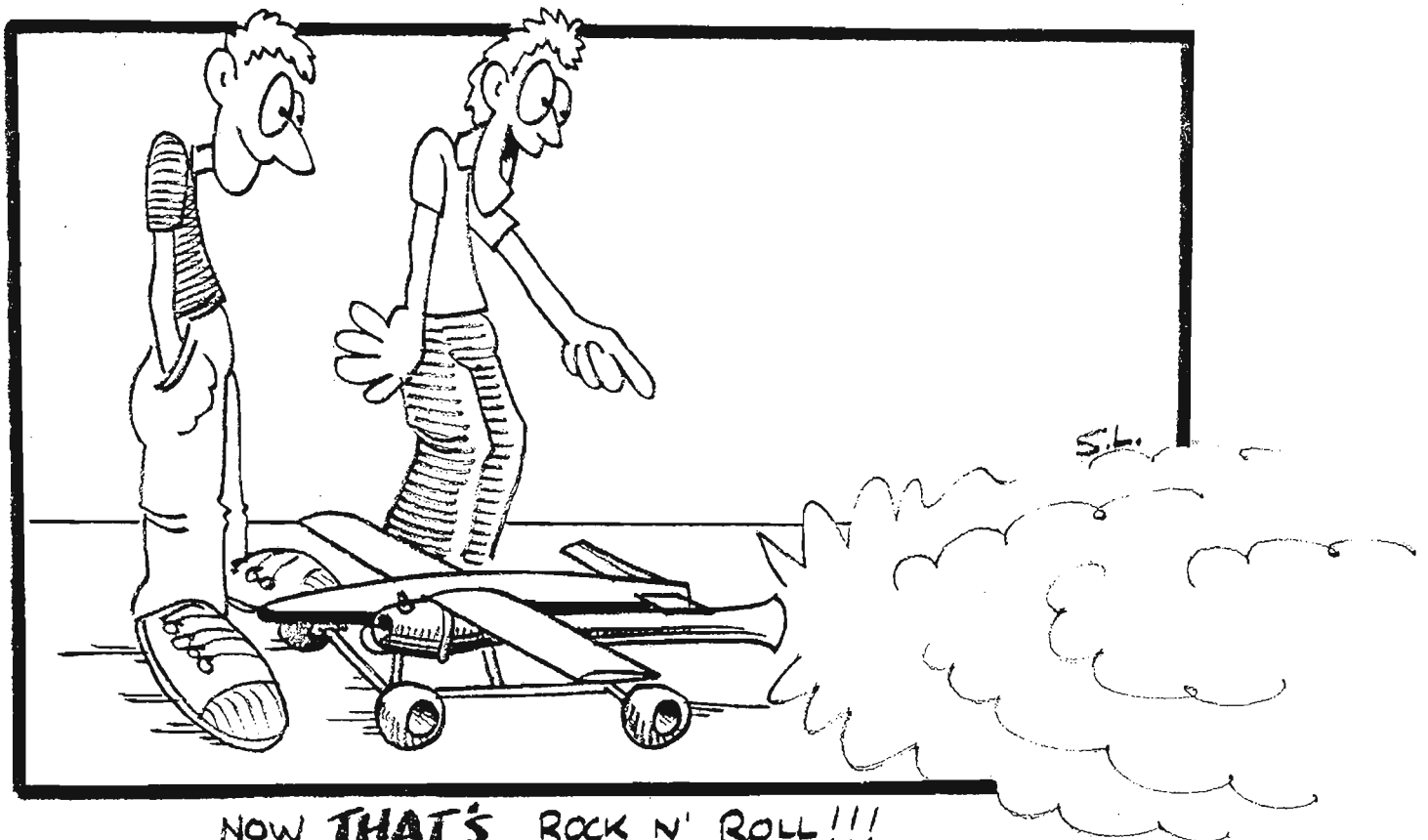
Also, to qualify for scale bonus points, the model should be in "traditional" colors and have the national markings of the using nation. If you have any unusual colors or markings such as the Suez Corsairs be sure and document this. Also, even though I believe that the scale judging criteria doesn't require AMA numbers, these will without a doubt be required.

So, be sure that your carrier planes meet all the requirements, will withstand the pull tests, etc., as the judging is quite strict. A protest on these most always will uphold the judges' decision and will not ease the requirements for anyone.

So, in '84 let's go to the Nats in Reno and show them what Northwest carrier fliers can do, and if you don't want to take that gamble, there are other forms of gambling available.

Thanks, FL for letting me sound off again.

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



NOW THAT'S ROCK N' ROLL!!!

DEAR FL:

Though not for everyone, another idea to support modeling in schools other than buying a gift subscription to MODEL AVIATION is to give past issues to those schools -- an idea particularly appropriate for those with limited storage space and those who find they refer to past issues little or not at all.

Additionally, a club librarian who maintains a copy of each of the modeling magazines' past issues available to all club members might free many past issues for donation to libraries and schools.

The above is in reference to comments in the November Flyaways column.

--Larry Miles, 309 S. 2nd, Apt. B., Independence, MO, 64050.

DEAR FL:

Just a note to let you know my new mailing address.

Finally got a chance to do some flying after all the moving, etc., and the Northwest has really spoiled me. First of all there are not that many places to fly! There is Sepulveda Basin (1-hour drive from home), Mile Square (1-hour drive from home), Whittier Narrows (45 minutes from home, but unusable for stunt planes), and the local college we have been using for years (10 minutes drive from home). The problems with the college are the grass, the turbulent air when the wind blows and the softball and soccer players.

So, when it is time for serious practice, it is off to Mile Square or Sepulveda Basin. I now appreciate living in Kent much more! Look forward to returning next October.

It would be nice to hear from some of the readers as to what they might want to see in the stunt section of Flying Lines. Any hints, please let me know.

--Paul Walker, P.O. Box 535, Alta Loma, CA, 91701.

AIR MAIL continued next page...

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SUPPORT FLYING LINES ADVERTISERS
THEY SUPPORT CONTROL LINE FLYING

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SUNDAY FLYING LINES

BY LARRY MILES

The August, 1981, issue of FL presented a method of obtaining a set of tapered wing ribs for the do-it-yourself plane design. This article is a continuation of that topic.

In using those ribs to construct a wing, I suggest the D-tube type of construction using a square or triangular leading edge (later rounded to the airfoil shape desired).

The D-tube method of construction particularly when used with cap strips results in by far the strongest most torsionally rigid type wing for the amount and hence weight of material used.

Cap strips are a natural in conjunction with the D-tube method of wing construction, turning each rib into a lightweight but very strong I-beam unit. If you don't have one a good balsa stripper saves much money and trouble in obtaining cap strip material.

On wings up to 42", spars are not needed (fast combat models excepted), but it is necessary to close the after end of the D-tube using shear webbing consisting of 1/16" vertical grain balsa from rib to adjacent rib and from the top to bottom of the leading edge sheeting.

Using this method of construction I have yet to have a wing failure in use other than a hard crash and my planes normally have higher speed potential and tighter turning capability than comparable commercial kits due primarily to their lighter weight.

The D-tube type construction also lends itself well to filling the D-tube cavity with foam (available from Sig) to add strength for little weight penalty for you race types that want a stronger wing for hot pit stop handling.

My preference for the bellcrank location is just slightly forward of 25% of the average chord with the leadouts centered on 25% of the average chord line. This places the weight of the flying lines as far as the fore and aft position is concerned over the center of lift. This also is a good position as far as turns are concerned. If you contemplate a nose-heavy plane (as many profile models tend to be), you might want to try a further aft position for the leadout location as the weight of the flying lines will offset the weight of the engine. A further aft position for the leadouts might prove advantageous for a combat model to aid in maintaining line tension in tight maneuvers, however, any placement of weight far from the fore and aft position of the center of gravity will hinder turning capability due to rotational inertia.

As far as the vertical stab is concerned, most control-line models will fly quite well without them so use your own preference. Mine is for fairly low, long fins (laid-back look) so that if I have to come in upside down minimal damage is sustained.

Here's to untangled Flying Lines.

--Larry Miles, 309 S. 2nd, Apt. B, Independence, MO, 64050.

DEAR FL:

Please sign me up for another year of Flying Lines. Because I'm the only one in my area that flies control-line, I find the information invaluable. Congratulations on your word processor. I hope you find it gives you more time to build and fly. Thanks for the terrific magazine and keep up the good work.

--Randy Ogle, 3314 Crestview, Wenatchee, WA, 98801.

A MODELING MESSAGE FROM ENGLAND

Flying Lines recently struck up a correspondence with Charles Windows, a combat and sport flier from Peterborough, England, who tracked us down by writing to MODEL AIRPLANE NEWS, which had excerpted some of an old combat column.

In his first letter, Charles sent a copy of a Neil Gill combat airplane plan and offered to send FL a P.A.W. diesel of the type they use in some of their local combat flying. Unable to resist such an offer, FL wrote back that we'd be delighted to try out one of those engines and keep the correspondence going. Then we sort of forgot about it.

Imagine our delight the other day when we went to the mailbox and found a package from Charles containing another plane and not one but two PAW diesels. We haven't to experiment with them yet. Our first priority is to get some diesel fuel, and second is to build one of those planes.

Along with the engines came a lengthy tape from Charles, who talked about modeling in the UK and also provided some geographical information and some personal pen-pal sort of chat. Below is a transcript of the information that would be of most interest to control-line modelers. If we had space, we'd like to share the whole interesting letter.

Charles, by the way, is a 48-year-old postal worker who retired because of a back injury. As you will see from the letter, he is a very active modeler.

DEAR FL:

With this tape I'm enclosing not one motor but two, and a plan for our half-A, which has never been published in AEROMODELLER. It flies on 42-foot lines and it is the Shadow 7. It is the last of Neil Gill's range of the Shadow series of plans.

The motors enclosed are P.A.W. 2.5 (.15) or 3.5 (.21), I'm not sure which, and a 1.5 (.09). I've run them both up and they are both about the right settings. I think you can get diesel fuel in the U.S. OK. I've also enclosed a leaflet on starting diesels, since they're not so common as glows in America.

The P.A.W. .149 we fly on a 7x4, 7x6 prop, and the larger motor we fly on an 8x6 cut down to 7 3/4x6. Also, when you cover the model, I would use a fuel-proofer on it, since diesel affects Solarfilm more than what glow fuels do.

P.A.W. are a well-known make of motor in Britain and they are one of the most readily available off the shelf. They are made by a chap called Gig Eifflaender and he's been producing motors since the 1950s. Gig Eifflaender started producing propellers, wooden ones, and also doing rebore on anybody's motors. Then he made a 2.5 and a 1.5, and one or two other special runs since but for the most part he has made the 1.6, 2.5 and .19 diesels.

Just recently he has increased his range considerably and has brought out two versions of a scheurle-ported 1.5. Also, a .8cc diesel and a .29. His son wanted a larger diesel for stunt use instead of the 2.5s readily available. He also has produced one or two glowplug motors of the same size but with all his motors from the .8cc up to the .29, they all look practically identical other than size.

And, he also has produced radio control versions with a throttle. I have a P.A.W. .19 with a throttle and it responds very well. It is in a control-liner, just a fun airplane. It's one that is just a stunt trainer type of effort called J.P. from the AEROMODELLER Plans Service.

The reason I have got this is so that I can learn to use the third line, as I built a large autogyro with a third line and I throttled it back upwind. And to see a monster barrel-rolling up the lines with the rotor going is not very funny. Fortunately, the damage to the model wasn't all that great and it only snapped one of the rotor blades. It's been repaired but never been flown since.

You've probably heard of Oliver motors. These are quite expensive by diesel standards and are somewhere around the 45 pound range now plus the six-month waiting list. D.C. (Ed: Davies Charlton, we believe is the reference) are still on the market and I'm afraid to say that their quality is very much lax. When it was Albine (Ed: We're not sure we understood

the tape correctly on this one) it used to be a pretty good firm. They produce a range of engines from 1.5 up to 2.5cc, and they are for the most part sport but their quality has for the most part gone down.

ED, another British firm are now producing a 2.5, a 3.5 and a .29. But they are rear-induction and the 2.5 is not much good for combat. Also it is quite a heavy motor. For ED they are a damn good slugging motor. They have been on and off in production and different firms have taken them over over the years. Unfortunately they have not really kept up with the times regarding quality of motor.

There are one or two firms that produce larger glow motors and a few other diesels come on the market and they come and go like nobody's business. Unfortunately one of the best sport motors, who produced a .8 and 1.5cc folded and that was it. M.E. had a 1.5 and a 1cc motor, both of which were quite good.

I hope this has given you a little insight into what motors are being produced in the UK at the moment.

I am very much a general flier and I fly diesel A and Half-A combat, but not FAI. I fly vintage sport and control-line models. I have built some scale for my own pleasure, a Shackleton 4-motor and a 56-inch wingspan reconnaissance bomber. Unfortunately I wrote it off on its first flight. It had the four PAWs up front and made Sally B, a full-sized 8-17 sound very quiet, compared with it.

We have the Sally B, she is based up at Duxford (Ed: Pardon us if we miss on the spellings.), and we see her quite regularly at air displays around the United Kingdom. I have also made a DeHavilland 88 Comet. That was a racer. That has a Cox .049 and .051 Tee Dees up front. Quite noisy little brute. I originally built it for M.E. .8s but found that I'd used that horrible fuel tubing, the white stuff, which expands when you get any diesel anywhere near it, and the tanks are built right in, so it was a question of getting two new motors or stripping the whole thing down and redoing it. This was a time that I was in America myself and was able to get the two motors for \$14 apiece.

I am now working on two Lancasters, one for flying and one for decoration. My wife is nuts about the Lancaster, Spitfire and Hurricane. The Lancaster will have four Cox .09 non-TeeDees up front, since the chap that designed it he tended to design rather light and I don't think he ever got away from the rubber concept. A chap by the name of Harold Towner. He was a brilliant designer, but if you saw Harold Towner's name on a plan there was quite a bit of work.

My wife also has bought me a vintage kit, 50-inch wingspan pylon model, on condition I get her Spit finished. I've only been on it six years, not bad for a non-flying model.

I also do a little mini-Goodyear and mouse racing but only on a club level. I have never touched speed or team race but I would like to try carrier. I also like vintage free flight, a little sport radio control and CO2 powered models.

I belong to two clubs. They are Peterborough Model Flying Club and the UK SAME, also our governing body, which if you want to fly on Ministry of Defense land you must belong to. Our own club meet the first and third Friday at a fire station at a place called Standground. This is a small suburb of Peterborough not very far from where I live. One week we fly electric round-the-pole, Easy B and hand-launch glider in the garage where the fire engines are -- quite a big garage. The next time we use a lecture theater and have a talk or slide show.

Our own club holds six open competitions a year, four diesel A and two Half-A.

Have you got a copy of the AEROMODELLER Plan Service catalog? If not I will send you one. In the return for the motors, could you send me old copies of your magazine. I know my friends that I showed your letter to would be interested since they are mostly control-line people and are interested in control-line flying. (Ed: We've sent Charles some back issues and started him a subscription to the world's best CL newsletter.)

In the UK we have the AEROMODELLER which caters to general modelers and about three magazines solely for the radio control fan. And when radio flying creeps into the AEROMODELLER I'm afraid it peevs us people that's very little interested in Radio Control.

On our newsreel just recently it showed one of your B-52s coming into Duxford Air Museum. She had been swapped for three Vulcan Delta bombers which had just been retired from the Air Force. Duxford Airfield is the large exhibits section of the science museum in London and has various aircraft: the Concord 002, Comet, plus numerous others, wartime, civilian, military, the lot. Also near here we have the Shuttleworth collection, which is mostly First World War and in between wars small aircraft, and they hold regular flying days throughout the summer.

Also they hold model meetings on this, Old Walden Scale Days and vintage model ones. If you've seen on your now very late night television that film, "The Magnificent Men in Their Flying Machines," some of the replicas

they built for it are there. Also an English Electric Wren is there. Many of the quarter-scale boys would take the prop off it and use it on their motors; it doesn't look much bigger than that. So it is a very small one.

Our own club, Peterborough Model Flying Club, is a relatively small club, and yet we are a relatively active club both on indoor and combat, and we are better known than the bigheads of the radio control club in town, although they have a lot bigger membership. I think we have now more members from outside Peterborough than what we have in.

One of the reasons why I don't think we fly the fast, big stuff in this country, is the noise factor. As you know we are a small country, and the sound of those motors would travel quite a bit and flying fields are very hard to come by in most parts of our country. Our own flying field is more or less in the city itself. It is on the river embankment and is only suitable for control-line flying, but at the same time FAI is barely tolerated. Diesel A is accepted because of the lower level of noise. But we have the odd complaint about the FAI.

Yesterday was the annual general meeting of the SAME, and they held it at the Royal Air Force Museum in Hendon, which is a suburb of London, to the north of London. SAME in UK has about 800 members and there were about 150 there. Considering that the membership is scattered throughout the United Kingdom from Scotland downward, that isn't too bad.

It was quite a good meeting and decided one or two dates for one or two meetings so this means I now have to get on with the contest calendar for our own club and do some phoning around to find out what's going on elsewhere so we don't have any meetings that clash.

All the very best to you and plenty of good flying. Cheerio.

--Charles Windows, 12 Brighthurst, Orton Goldway, Peterborough, UK.

RACING ROUNDUP

by mike hazel

The subject this go-round is putting together a Class I mouse race entry. This has been a popular event in the area for some time, and with some good reasons. It is one racing event that you can start with a relatively low investment. It is also excellent for the beginning competitors for that reason. Most of the competition seems a bit lower key. Like any other racing event, the dedicated competitor with cubic money will come out on top. At least it takes less cubic money than the big-bore events.

First, let's take a quick examination of what is necessary for an entry. The rules are very simple, requiring a fixed landing gear, external control system and reed valve engine with integral tank. That's it!

This leaves a lot of room for plane design, as is obvious if you have surveyed the designs in use. There are several satisfactory designs that are in use. Here are some tips on designing your own, or perhaps modifying an existing one.

First of all, remember that the same basics apply to small racing planes as large. These are: Adequate wing area is necessary to maintain lift during passes. Adequate tail area is needed for stability. The balance point and moment arms must be of "racing stability" proportions. Strong and sound engine mounting is a must, as is a strong but smoothly operating control system. And last but not least, a strong landing gear, appropriately located for good ground handling characteristics.

This kind of sounds like any other racing plane, doesn't it? The only real exception is weight. I am a firm believer that some extra weight in a small-bore racer is of great benefit. You will find that it helps wind penetration, and greatly assists in the landing sequence of being able to whip the plane into the pits. The heavier plane will, however, come off the starting line a bit slower, but top end speed is not measurably affected. Shoot for the six to seven-ounce weight range.

Now for some design ideas.

Starting with the wing, size it to about 50 square inches, give or take. A good easy-to-shape wing can be made from 3/16" hard balsa sheet. You may wish to strengthen the leading edge with a spruce strip, or a wrap of fiberglass cloth. A flat bottom wing seems to work fine in this speed range. If you want to get real heavy duty, basswood can be used. I have personally gone away from the high-aspect ratio wings (a la Cat's Paw) and back to "squatty" looking planforms. I feel it is easier to come up with a stable plane.

The horizontal tail surface should be 35 to 40% of the wing area for

RACING, continued

best stability. The tail can be made out of 1/16" plywood or bass. Sewn figure-eight hinging using carpet thread is very durable. Do not use balsa tailfeathers.

The next important area is the fuselage. There are several methods here. The most typical is a 3/16" or 1/4" balsa profile type. Spruce strip running the length will add lots of strength. The strongest bet for a profile fuselage is to use sheet plywood or basswood. A box fuselage can be constructed using balsa sheet. This is probably the lightest method of building a strong fuselage, if you are concerned about weight. Another method is to use a solid block of balsa.

Whatever fuselage you construct, make sure the engine mount area is solid. I have seen a lot of engines go flying off, which is kind of silly. The material to use here is 1/4" plywood. To keep it on, wrap a layer of nylon tape, or heavy fiberglass cloth, around the front. Or a couple of 1/8" dowels can be used as pins to peg it together. In either case, use slow-cure epoxy for assembly, no substitutes!

Give the landing gear installation consideration before completing the engine mount. One popular method is to assemble the mount with three 3/32" plywood pieces into a sandwich, with the middle section having an upside-down "L" to accommodate 3/32" music wire. An alternative landing gear is aluminum strut.

Assuming you are using a single-strut gear, locate it slightly inboard of the fuselage centerline, to assure the outboard wingtip stays down during takeoff. These are the basics of the plane.

As with any racing event, it's what's up front that counts. There have been several tune-up articles on reed valve engines, and I don't intend on doing one here, other than some basics.

First of all, you should get a parts list from J&J Sales and Kustom Kraftsmanship. Rather than build your own engine, you may wish to purchase a KK killer engine. If you are starting with a stock Black Widow engine, the easiest hop-up is to simply substitute a TeeDee cylinder assembly. Make sure that you do not mix up the pistons. The TD pistons are different.

You may wish to open up the intake. The stock measurement is about .085 bore. This can be opened up to .093 (3/32"), but consistency may suffer, along with mileage. Remember, you are using a stock size tank that will determine your number of pit stops. A more practical maximum size for intake is .088. Past all of this, carefully break in your engine, frequently checking and adjusting the piston rod ball socket joint with a reset tool available from either of the purveyors mentioned. The next racing column will cover some engine tuning and more details.

Don't forget about race day on Nov. 13 at Delta Park in Portland. Events include Northwest Sport Race, Northwest Super Sport Race, and both classes of mouse race. See you there.

--Mike Hazel, 1040 Windemere Dr. NW, Salem, Ore. 97304.

FLYING LINES

Flying Lines is produced monthly by a dedicated staff of volunteers interested in keeping lines of communication open between Northwest modelers. FL is totally independent of any organization, depending entirely upon support from subscribers, advertisers and donors.

FL is your link to the rest of the Northwest's control-line modelers. Help keep it alive by spreading the word. Wear your FL T-shirt and tell your buddies what it stands for. FL shirts available at \$8 — name your size and color.

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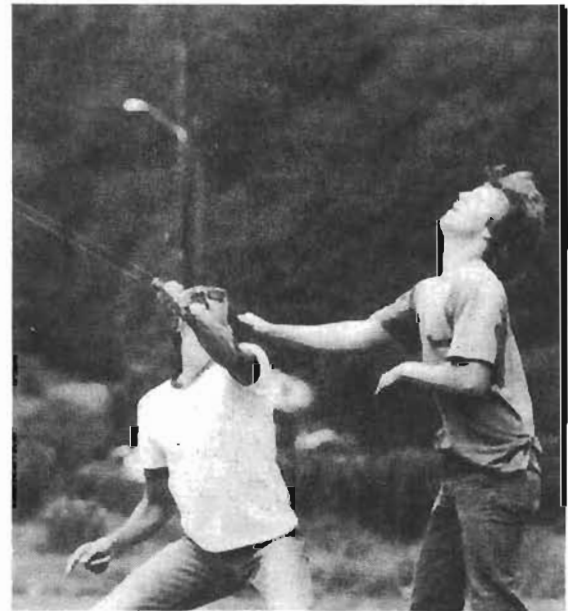
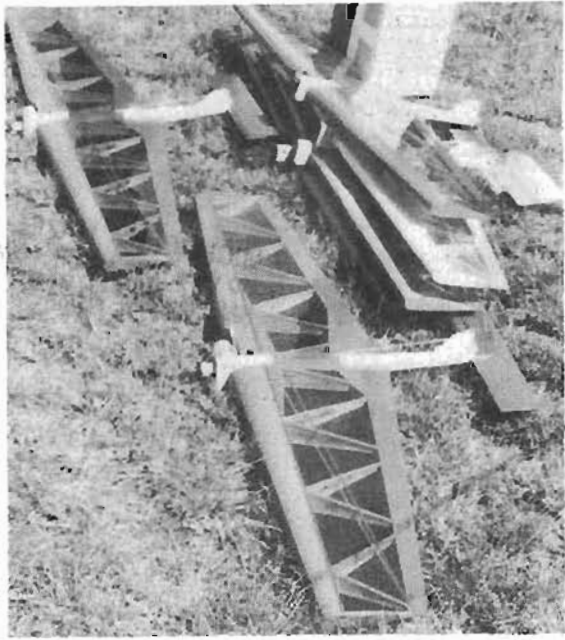
MODELERS -- Draw your own plans with a K&E Jacobs parallel straight-edge, 48" long, complete with mounting hardware and instructions. Like new condition, \$40 plus UPS or best offer. Bob Kampmann, 6312 Kenneth Ave., Orangevale, CA 95662, (916) 988-8046.

BARGAIN -- One free flea market ad for each new or renewed subscription. Collect for yours or get one for signing a buddy up. Send ad with subscription to Flying Lines, 1411 Bryant Ave., Cottage Grove, OR 97424.

HOBBY SHOP DIRECTORY

FAMILY CRAFTS, HOBBIES AND NEEDLEWORKS -- Control-line equipment and supplies. Crafts and hobbies for the entire family. 10209 NE Sandy Blvd., Portland, OR 97220. (503) 256-4276.

FIRGROVE MODEL SUPPLY -- Radio control, control-line and gliders. 10611 136th St. East, Puyallup, WA, 98373. (206) 845-7675. Owned by R.B. "Bob" Pfeiffer.



COMBAT MADNESS

FL photos of the Bladder Grabber '83, Northwest big-time combat meet.
 Top left: Contestant's-eye view of the pits...scores and scores of airplanes!
 Top right: Decorated foam taper-wing planes by Rich von Lopez.
 Center left: Masterpieces of combat construction art built by Will Naemura, flown by Bob Carver.
 Center center: World FAI combat champ Tom Fluker prepares a Phil Granderson airplane for one of several practice matches flown on the side.
 Center right: That's John Salvin on the roof of a beer warehouse, retrieving Fluker's plane (flyaway) with help of Kent, Wash., Fire Dept.
 Bottom left: Howard Rush, left, and Rich von Lopez duel.
 Bottom right: Steve Kott, left, and Greg Hill maneuver.