

FLYING LINES

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March, '80 NEWS OF NORTHWEST CONTROL LINE MODEL AVIATION Number 11

SEASON KICKS OFF WITH TWO OREGON CONTESTS -- MORE FUN TO FOLLOW

The 1980 Northwest control-line competition season got under way in February with two contests. The season's start was a month late (due to the snow-out of January's Redmond, Wash., Northwest Sport Race Drizzle Circuit contest) but February more than made up for January's ugliness.

First there was the Astoria, Ore., Drizzle Circuit contest, under the most beautiful blue skies possible, followed by the Eugene, Ore., ½A Fun Day, again under outstanding warm and sunny conditions.

Those contests provided material for Flying Lines' first batch of 1980 Northwest competition standings and to update competition records in a couple of events. Both contests were informal affairs that above all gave us a lot of fun flying. According to the FL competition calendar, there's a lot more to come this spring.

Next up is the Seattle, Wash., Drizzle Circuit contest (No. 4) on March 9. Carkeek Park is the site and events are NWSR and slow combat. See contest calendar for other details of the Seattle Skyraiders' first AMA event. Then comes March 24, with the Drizzle Circuit contest No. 2., re-scheduled from January. Besides the new date there will be a new site and a new secondary event. The location is Portland, Ore., and the secondary event is AMA combat.

Here's the report on the February activity:

NORTHWEST SPORT RACE DRIZZLE CIRCUIT CONTEST NO. 3

Astoria, Ore, Feb. 10

An even dozen sport racers took to the air to resume Drizzle Circuit racing after a month's layoff. A quick glance at heat times and results shows immediately that the layoff didn't hurt, as the meet was marked by good times and consistency for many of the racers. Out of nine preliminary heats and a feature, only five planes failed to finish a race. New marks for heat and feature races were set for the 1980 circuit, though neither matches the 1979 standards.

The feature race indicated there will be some heavy competition again this year for those season-ending trophies, though as we learned last year anything can happen. Three of the four finalists at Astoria were repeaters from the December Portland feature, and the times were better.

When the nitro fumes finally drifted over the sand dunes, John Thompson of Cottage Grove, Ore., was the winner with a time of 8:19, best so far this circuit (last year's best was Thompson's 7:53). Thompson established the '80 circuit heat mark at 4:02 (last year's best was Bill Varner's 3:55). In both cases Thompson eclipsed Richard Simpson's December marks, 8:55 and 4:20.

Pulling in second was Thompson's Nitroholics Racing Team partner Mike Hazel, using a new plane and engine to replace the one destroyed in Portland. Same old combination, Fox .36 and Ringmaster. Richard Simpson, winner of the Portland feature, was third, and Rich Schaper was fourth. Second, third, and fourth-place times were bunched in the low nine-minute range.

Heat winners were Thompson (3), Schaper (3), Hazel (2) and Jim Cameron. In an event where consistency is paramount, Rich Schaper turned heat times of 4:33, 4:25 and 4:26, following his Portland performance of 8:06, 4:27 and 4:27. That's consistent!

Spicing the day's agenda was a morning full of ½A combat in two classes, with Keith Iwanski of Tacoma, Wash., walking away with first place trophies in both.

As usual, Astoria's Control-Line Aero-Modelers' Society (CLAMS) put on a well-run contest with nice trophies and a nice pre-contest bash. Thanks again to the CLAMS for inviting control-line to the coast.

½A FUN DAY

Eugene, Ore., Feb. 24

Like the name says, it was a day for fun, and it came in the form of mouse racing, combat, stunt and speed. Starting at 11 a.m. (not counting test flights) the contest ran right into darkness, with the combat judges doing the match for third and fourth place by sound rather than sight. Who knows what the pilots went by!

In something that is becoming increasingly common, mouse race was a

1/2 A FUN DAY continued

competitive and interesting event, with close, fast times and plenty of entries for the size of this primarily local contest. Because of the interest of the competitors, the races were run "by the book" with all preliminary heats being double back-to-back heats.

Class I mouse was won by Bill Varner of Astoria, Ore., with a combined heat time of 5:38 and a final of 5:50. Quick, very quick for a Black Widow. He used a Little White Mouse, as did fellow finalists Jim Cameron and Bruce Guenzler.

Class II mouse went to John Thompson, who proved that Tee Dee mouse engines can beat Black Widows in this region. His times were 8:18 (combined) and 11:39. The other finalists used Little White Mouse planes with Black Widows (the other Tee Dees didn't make it), while Thompson used a Klaus TD and his own design Nighthawk.

Bruce Guenzler of Cottage Grove, Ore., a 13-year-old junior, placed third in both classes in his first racing experience.

The team of Paul Wallace and Jeff Young (of Cottage Grove and Florence, Ore.) captured the speed event with a speed of 80.33 mph, using a proto ship of Wallace's design and a Tee Dee .049.

Success of the stunt event owes its thanks to Rich Porter of Stayton, Ore., that independent-thinking innovator who makes huge planes fly on long lines with itty-bitty engines. Rich brought a half dozen stunters for others to use (the builder-of-the-model rule was waived per PAMPA guidelines) and several fliers took him up on the offer. Porter himself captured first place in a flight, and one only, that he had to hurry as dark approached because he had spent the whole afternoon helping others.

Combat turned out to be mostly a series of air-time matches, as those persnickety .049 engines started when they darn well pleased. Gene Pape came out on top, winning the final match from Jeff Young. Porter, who threatens to start flying combat as a regular thing, placed third.

Another highlight was the sight of Terry Miller of Roseburg, Ore., a lonely Ukie in a town of RCers. Terry entered Mouse I and stunt, placing third in stunt.

COMPLETE RESULTS -- NWSR DRIZZLE CIRCUIT No. 3, Astoria, Ore.Northwest Sport Race (12 entries)

FEATURE RACE

1. John Thompson.....8:19 -- 12 points + 3 heats finished = 15 points
(Ringmaster, K&B .35)
2. Mike Hazel.....9:04 -- 11 + 3 = 14 points (Ringmaster, Fox .36)
3. Richard Simpson.....9:13 -- 10 + 3 = 13 points (Yak-9, K&B .35)
4. Rich Schaper.....9:26 -- 9 + 3 = 12 points (Ringmaster, Fox .36)

Heat winners, Round 1: John Thompson, Jim Cameron, Rich Schaper
 Round 2: Mike Hazel, Thompson, Schaper
 Round 3: Thompson, Hazel, Schaper

1/2 A combat, reed valve (4 entries)

1. Keith Iwanski
2. Jim Cameron
3. Jeff Young
4. Bill Varner

1/2 A combat, unlimited (4 entries)

1. Keith Iwanski
2. Bill Varner
3. John Thompson
4. Jeff Young

NORTHWEST SPORT RACE DRIZZLE CIRCUIT STATISTICS after two contests

| <u>Championship point standings</u> | <u>Best heat</u> | <u>Best feature</u> |
|-------------------------------------|------------------|---------------------|
| 1. John Thompson29 | 4:02 | 8:19 |
| 2. Richard Simpson28 | 4:17 | 8:55 |
| 3. Rich Schaper.25 | 4:25 | 9:26 |
| 4. Mike Hazel.15 | 4:25 | 9:04 |
| 5. Roger Simpson13 | 4:26 | 10:43 |
| 6. Dave Mullens.6 | 5:31 | |
| 7. Jeff Young.4 | 4:44 | |
| 8. Tom Knoppi.3 | 4:42 | |
| Dick Salter3 | 5:21 | |
| Bill Varner3 | 4:57 | |
| Paul Wallace.3 | 6:17 | |
| 13. Jim Cameron.2 | 4:19 | |
| 14. Keith Iwanski.1 | 9:17 | |
| 15. Dave Green0 | 54 laps | |

LAST CALL FOR EXHIBITION FLIERS

Flying Lines has a couple of volunteers lined up for the April 12 demonstration of control-line flying at the Benton County, Ore., RC show, but we need a few more. Volunteers willing to demonstrate precision aerobatics, AMA combat and Northwest Sport Race are specifically sought, but other ideas are welcomed. Contact John Thompson, c/o Flying Lines (503) 942-7324.

COMPLETE RESULTS -- 1/2 A FUN DAY, Eugene, Ore.

| <u>Mouse Race Class I</u> | <u>Heat 1</u> | <u>Heat 2</u> | <u>Combined</u> | <u>Feature</u> |
|---------------------------|---------------|---------------|-----------------|----------------|
| 1. Bill Varner | 2:48 | 2:50 | 5:38 | 5:50 |
| 2. Jim Cameron | 2:49 | 4:18 | 7:07 | 6:00 |
| 3. Bruce Guenzler | 4:01 | 3:26 | 7:27 | 88 laps |
| 4. John Thompson | 4:40 | 3:42 | 8:22 | |
| 5. Terry Miller | 5:53 | 5:00 | 10:53 | |
| 6. Wallace-Young | 3:50 | 45 laps | | |
| 7. Mike Hazel | 20 laps | -- | | |

Mouse I was run with AMA rules -- 42' lines, 50-lap prelims, 100-lap feature.

Mouse II run by AMA rules -- 42' lines, 75-lap prelims, 200-lap feature

Mouse Race Class II

| | | | | |
|-------------------|---------|------|-------|-------|
| 1. John Thompson | 3:54 | 4:24 | 8:18 | 11:39 |
| 2. Jim Cameron | 4:18 | 4:38 | 8:56 | 16:13 |
| 3. Bruce Guenzler | 5:31 | 5:34 | 10:05 | 16:50 |
| 4. Bill Varner | 8:26 | 7:57 | 16:23 | |
| 5. Wallace-Young | 65 laps | -- | | |

Speed

| | <u>Best speed</u> |
|------------------|-------------------|
| 1. Wallace-Young | 80.33 mph |
| 2. John Thompson | 73.14 |
| 3. Bill Varner | 65.72 |
| 4. Jim Cameron | 65.62 |

Precision Aerobatics

| | |
|------------------|-----|
| 1. Rich Porter | 394 |
| 2. Jim Cameron | 339 |
| 3. Terry Miller | 283 |
| 4. Jeff Young | 182 |
| 5. John Thompson | 35 |
| 6. Gene Pape | 30 |

Best Score

Combat

1. Gene Pape
 2. Jeff Young
 3. Rich Porter
 4. Jim Cameron
- Bill Varner
John Thompson

1980 PACIFIC NORTHWEST COMPETITION STANDINGS

As promised, Flying Lines herewith begins publishing standings for control-line competition in the Northwest. The standings below are those after the first two contests of the season. In events which have only been held at one contest, the standings correspond with the results of that contest.

Once again, for those who missed it when the standings feature was first announced, here's how the scoring works. Flying Lines will compute standings in all events (with some combined according to participation) based on the number of entries. These standings will apply only to AMA contests in the

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STANDINGS continued

Pacific Northwest, and only Northwest fliers will be counted.

Contestants placing in the top four of any event will receive scores, with first place equal to the number of contestants in the event, second worth one less, and so on through fourth.

Our standings will indicate the number of contests and total number of entries recorded so far in the season. In cases where events combined here are broken into classes at individual contests, we will list each class as a separate contest.

Anyone who feels they did not get credit at some time during the season for their performance may be the victim of a contest director who didn't provide results. We urge all contestants to take it upon themselves to bug the contest directors to get the information to Flying Lines. In most cases, the FL traveling reporting squad will be there in person.

Here is the first batch of standings, based on contests in February in Astoria and Eugene, Ore.:

NORTHWEST SPORT RACE (1 contest, 12 entries)*

1. John Thompson 12
2. Mike Hazel 11
3. Richard Simpson 10
4. Rich Schaper 9

*These NWSR standings are not to be confused with Drizzle Circuit standings, which appear elsewhere in the newsletter.

1/2A COMBAT (3 contests, 14 entries)

1. Keith Iwanski 8
- Jeff Young 8
3. Gene Pape 6
- Jim Cameron 6
5. Bill Varner 4
- Rich Porter 4
7. John Thompson 2

SPEED (1 contest, 4 entries)

1. Wallace-Young 4
2. John Thompson 3
3. Bill Varner 2
4. Jim Cameron 1

PRECISION AEROBATICS (1 contest, 6 entries)

1. Rich Porter 6
2. Jim Cameron 5
3. Terry Miller 4
4. Jeff Young 3

1/2A MOUSE I (1 contest, 7 entries)

1. Bill Varner 7
2. Jim Cameron 6
3. Bruce Guenzler 5
4. John Thompson 4

1/2A MOUSE II (1 contest, 5 entries)

1. John Thompson 5
2. Jim Cameron 4
3. Bruce Guenzler 3
4. Bill Varner 2

Competition standings are being recorded for the following events: Mouse race Class I, mouse race Class II, Northwest Sport Race, Goodyear, slow rat race, rat race, FAI team race, 1/2A combat combined, slow combat, FAI combat, AMA combat, speed combined, precision aerobatics combined, profile carrier, Class I & II carrier combined.

PUBLISHER'S NOTE TO FLYING LINES SUBSCRIBERS

The financial status of this publication has so far been handled with a "flying by the seat of our pants" approach. We started off with a \$5 yearly fee, and when things seemed to get behind, we raised that to \$6. So long as the money was coming in, everything seemed OK. Just recently, I did a complete analysis of our costs. Now it looks as if we have taken a lesson from the government in deficit spending. This means that new subscription fees coming in are still paying for the older ones.

My research revealed that the individual cost of each subscription came to a whopping \$9.42! So little wonder our bank account has fallen behind. Many costs have been out-of-pocket for the editor and publisher alike. As we know you would not want the quality of FL reduced, the price must go up. I have found a printer with better rates to save some money. This will reduce our costs to just under \$8 per individual subscription. Our new rate will be \$7, effective May 1. Paid advertising and fund-raising promotions will make up the difference.

Yours for a continued better newsletter,
Mike Hazel

FLYING LINES SPANS THE GLOBE!

The award for the farthest-distant subscriber to Flying Lines has been taken undisputedly by Vernon D. Crawford of Sunnybank Hills, Australia. Vern is a well-known modeler in his country and it's a pleasure to have him on our list of subscribers.

Flying Lines now goes to Oregon, Washington, Idaho, California, Pennsylvania, Florida, Montana, Alberta, Washington, D.C., Illinois, New Jersey, Texas, Ontario, Virginia, and Australia.

The first batch of renewals (yes, it's been almost a year) is due with the May issue. You will know by the reminder on your mailing label. Everyone who renews before May 1 will receive another 12 issues of FL at the \$6 rate. After May, 1, the rate is \$7 for 12 issues.

FL has been inspired and kept alive by all the great modelers who have subscribed and sold others on us. Keep up the good work, Northwest modelers!

NEW 1/2A MOUSE, SPEED RECORDS ESTABLISHED

The first contests of 1980 established new records in both mouse race classes and 1/2A speed in the Northwest.

However, many blanks remain because of records wiped out with the rules changes that took effect Jan. 1, 1980. Those will be filled in as contests take place this year.

Northwest competition records are compiled by Flying Lines, in a service started with the 1979 Northwest Regional Control-Line Championships last May. Records can be set by any Northwest contestant in any AMA-sanctioned contest. Claims of records set in contests outside the Northwest must be accompanied by reasonable documentation.

Bill Varner of Astoria, Ore., established new records for Class I mouse heat and feature races. No record had been established under 1980 rules, but Varner's times would have knocked down the last times under the old rules, both of which were held by Jim Cameron of Seaside, Ore. Varner turned a heat of 2:48 and a feature of 5:50, compared to Cameron's previous 3:05 heat and 6:36.9 feature. Varner's feat came at the Feb. 24 1/2A Fun Day, Eugene, Ore.

John Thompson broke both heat and feature races in mouse Class II at the same contest. His heat of 3:54 broke that of the Gilbert-Shelby team of Eugene, Ore. Thompson's 11:39 final bettered the 14:32 previously set by Cameron.

Paul Wallace and Jeff Young's team combined to strike down a 1/2A speed record that has stood since the 1979 Regionals. Wallace, of Cottage Grove, Ore. and Young, of Florence, Ore., turned in a speed of 80.33, breaking the previous record of 76.57 mph of Jeff Bell of Eugene, Ore.

Here are the complete records, as of March 1, 1980:

| | | |
|--|------------------------------|---|
| 1/2A MOUSE CLASS I | 50-lap: 2:48 (Bill Varner) | 100-lap: 5:50 (Bill Varner) |
| 1/2A MOUSE CLASS II | 75-lap: 3:54 (John Thompson) | 200-lap: 11:39 (John Thompson) |
| GOODYEAR | 70-lap: -- | 140-lap: -- |
| SLOW RAT | 70-lap: -- | 140-lap: -- |
| RAT RACE | 70-lap: 2:35.55 (Mike Hazel) | 140-lap: 5:21 (Mike Hazel) |
| FAI TEAM RACE | 100-lap: -- | 200-lap: -- |
| NW SPORT RACE | 70-lap: 3:53 (John Thompson) | 140-lap: 7:40 (John Thompson) |
| 1/2A SPEED: 80.33 (Wallace-Young) | | JET SPEED: 165.83 (Mike Hazel) |
| A SPEED: 125.82 (Mike Hazel) | | FAI SPEED: 88.05 (Scott Newkirk) |
| B SPEED: -- | | 1/2A PROTO: 71.97 (Jeff Bell) |
| D SPEED: -- | | FORMULA 40: -- |
| FORMULA 21 | -- | PROFILE NAVY CARRIER: 208.78 (Marty Phillips) |
| CLASS I CARRIER: 268.98 (Terry Miller) | | CLASS II CARRIER: 319.65 (Orin Humphries) |

LAST CALL FOR SHUTOFF OPINIONS

It's about time we tallied up the results of our opinion poll on the use of shutoffs in Northwest Sport Race. Thus, we hereby arbitrarily set March 22 as the deadline for getting your votes in. Results will be announced in the April issue of Flying Lines. There are a lot of you active NWSR fliers out there who have not responded. The vote is running heavily in one direction, but we won't say which way. Send a simple yes or no, to FL at the address on the cover. Your comments are welcomed as well. (See "Air Mail" for some of the latest.)

UPDATE ON FOX .35 PROPOSAL

Duke Fox, long a supporter of control-line model aviation, has come through again. Duke writes FL that he would gladly supply a quantity of Fox .35 stunt engines to the newsletter for distribution at a very reasonable price, if Northwest Sport Race participants vote to make the Fox .35 the only legal engine.

Duke's offer was in response to our inquiry about making such a move,

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FOX .35 continued

which was the subject of a poll printed in the February FL. We have advised Mr. Fox that we are polling fliers for their opinions.

In case you missed it, the proposal was to restrict NWSR to a one-engine event starting with the opening of the 1981 Drizzle Circuit in December, 1980. The justification is to slow down the event, even out the disparity in speeds, and once again make NWSR an event in which newcomers and old pros could compete on relatively equal footing. The proposal was sparked by the unavailability of currently dominant engines which no longer are manufactured.

Fox indicates to us that his company has no plans to discontinue manufacture of the popular stunt .35, and he has a good inventory on hand. The price break available to us will depend on the number of orders, but he says a dealer-cost price is the maximum. We would propose to take advance orders through the newsletter if the rule change is adopted.

One thing is essential: We must get your opinions! This is too important a change in our local event to be made without maximum input. Please respond to the FL poll. If you didn't see it, here are the questions again:

1. Would you favor or oppose restricting NWSR to Fox .35-only as of the beginning of 1981?

2. If #1 is approved, would you favor or oppose the creation of a new NW slow rat event, allowing use of all plain-bearing single bypass engines (current NWSR power rules)? This proposal is designed to give a home for all the current NWSR engines and planes that would be obsoleted by #1. As presently conceived, this event would loosen up plane restrictions and allow shutoffs, etc.

Send your opinions in as soon as possible. We would like to announce the decision by the 1980 Regionals.

ASBESTOS CONCERN HITS MODEL AVIATION

The following notice was provided to Flying Lines by Eugene's Toy & Hobby. It is the complete text of an open letter to modelers from Top Flite Models, Inc. Our thanks to ET&H for this information.

"Dear owner of a Top Flite 110-volt heat gun:

"All Top Flite Heat Guns (110-volt only) manufactured prior to January, 1978, contained an asbestos liner in the metal hood. This may pose a health hazard. If your heat gun was purchased prior to this date, send your name and address to Top Flite or call customer service at (312) 842-3388 and we will send a free replacement mica liner with simple instructions for replacement of same.

"To determine whether your Top Flite heat gun has an asbestos liner, look inside the metal hood after removing the nozzle (used to deflect the air.) If the inside liner appears shiny and smooth (as against dull white and rough), then you have a mica liner which does not need to be replaced. On the other hand, if you determine that it is or may be asbestos (dull white and rough), you should write or call Top Flite for the free replacement mica liner. Should there be any doubt, or if you are unable to replace the liner, you can send Top Flite the entire heat gun. Top Flite will make the substitution and pay all postage cost.

"VERY IMPORTANT: Under no circumstances should you operate the heat gun without a liner. Your free replacement liner will be accompanied by simple instructions for replacement. Wait for these instructions before attempting to remove the liner in your heat gun. We appreciate your cooperation in this matter."

--Top Flite Models, 1901 N. Narragansett Ave., Chicago, Ill., 60639.

FOX .35 RAFFLE CONTINUES

Don't forget to cash in on your opportunity to win a shiny new Fox .35 engine in the first Flying Lines raffle. The success of this raffle will determine whether we can go for additional giveaways in the future. We'd like to make it a regular thing.

All proceeds from the raffle will go to support Flying Lines publishing costs. Tickets cost \$1 per ticket, or three tickets for \$2. The winning ticket will be drawn by four-year-old Heather Thompson, a clearly impartial source considering the rule that Flying Lines editors and their relatives are not eligible to win.

Fill out the form below and send it, along with your \$\$\$, to Flying Lines.

Name _____ Telephone _____ Number tickets _____
Address _____ Amount enclosed _____



SPEED SCOOP

by mike hazel

The construction article for your soon-to-be record holder says, "Begin by grinding and tapping speed pan as necessary for your engine." That's cool, except if you have never done it before. To a beginner, the pan work may appear to be the biggest hurdle of speed plane construction. I had to figure it out myself so right there is the classic cliché -- If I can do it, anybody, etc...

However, there are plenty of screw-ups you can do on your first jobs, such as sloppy threads, extra holes, broken taps, distorted crankcases from poor installations, etc. Since pans do not come cheap, it would be to your benefit to do a good job. The coming-up information is directed to the individual working on a pan for the first time. Assuming you have your pan selected, we'll get right into it.

The first step is to take care of a little exterior work. The outside of the pan must be smooth. As some pans are cast somewhat rough, you will need to take a file to them. After you have all the dark-colored metal filed away, break out the wet-or-dry sandpaper. Start with 220 grit, then smooth up with 320 and 400. On a rat race pan, this file work will be unnecessary, as they are cast smooth. And if you are using a Tatone pan, then you have it easy because they are already finished and polished.

The next area of work is where the engine sits. Take a fine file and run it across the wide engine mounting flats to true up the surfaces. Note that you should be running the file over both surfaces simultaneously. Keep carefully working this area using even steady strokes until the mounting area is shiny across the whole surface. This will give your engine a flat mount to be secured to. Omitting this step may result in a crankcase distortion when the engine is tightly bolted down.

Sometimes the top of the pan wall along the length will have a sharp edge or roughness. Use a fine file and sandpaper as needed.

Now, take your engine with the spinner installed and set it where it should be mounted and see how it does or does not fit. If you are using a rat pan, you will need to cut $\frac{1}{2}$ " to $\frac{3}{4}$ " off the front. This is to get the width of the pan large enough to form a proper contour with the spinner, and also to move the front mounting lug holes back where there will be some meat to drill into.

The very front of the pan should now be faced off flat. You can do this by using some sort of belt or disc sander, or by carefully draw filing across the area. For a rat, you will want to round off this area, as there is no spinner used.

Grinding out the inner walls so that the engine will fit can be a real chore. Most all pans will need some grinding. Tatone pans are sometimes an exception.

The chips will be flying when you attack with your Dremel, so take care that the engine won't be eating them. I always wrap the cylinder head with a small plastic bag and rubber band it on just below the exhaust. Also plug up the intake and wrap the gap between the front bearing and prop drive with masking tape. Again, place the engine in the pan and eyeball the area which will need to be removed. One method I find helpful to determine where to grind is to rub pencil lead on the protruding areas on the bottom of the engine and

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SPEED SCOOP continued

then carefully push it down into the pan. The pencil lead will leave a mark where it touched. You may also want to take the spinner off to get a front view of clearances. Remember to keep that front bearing sealed off.

Now, grind. Do not get too wild, though. You should not remove any more material than is necessary. The engine should have a small amount of side play while the mounting lugs remain on the mounting area. Once you have the fit, thoroughly wash out the pan and clean off the engine. Pull the spinner off if you haven't already, and make a head-on view check of the clearances.

Before you drill and tap any holes, decide on what size is best. For most engines .15 to .40, size 4-40 socket head (Allen) screws are good. If the engine has large holes drilled out in the lugs, I would use size 5 or 6 screws. Filling up the hole with a bolt keeps the engine from shifting and changing the thrust line. If mounting a .60-size engine, I'm sure you'll want to use No. 6 bolts.

Now obtain the proper size tap(s) and corresponding drill bit. Always store that bit away with the tap, so as not to use it on other projects and dull it up. The taps available from your local hardware store will do the job OK, but there are better ones to be had. A machine shop supplier will have an assortment of quality units, and Fox Manufacturing Co. can provide you with precision-grade taps. Expect to pay much more for these. Again, the cheaper taps are OK; just don't expect them to last forever. You will also need a tap handle. A lightweight one is easiest to handle.

Now to locate the holes. With the spinner on the engine, put equal amounts of masking tape strips on both sides of the crankcase just below the mounting lugs. Put enough strips on so that they touch the pan walls. This will automatically space the engine evenly between the pan walls as you put it in. Now push the engine back so that the spinner is resting against the flat of the pan. Double-check the thrust line. It should be exactly straight forward. The frong of the pan will be faced off again later. Take a sharp pencil and mark the pan through the rear mounting lug holes. Remove engine, take a sharp center punch or similar tool, and strike an impression there. Put the engine back on the pan and check out that the marks are centered in the lug holes.

Time to drill. Drilling is best done on a drill press with the pan held in a fixture. If these tools are not at your disposal, use a variable-speed drill and hold the pan steady doing the best job you can. (Until recently, I've done all my pan work without a press.) I like to start the hole with a 1/16" bit and check again that everything is centered properly. Now drill the hole, using the proper size bit. I prefer not to drill all the way through the pan, because that slightly weakens it and is not as aerodynamically clean. If you do not want the hole extending all the way through, obviously you will have to go slow and careful. When using a drill press you can judge where to adjust the bottom stop by looking at the front of the pan. When using a hand drill, take a piece of 1/16" wire and using your thumbnail as a gauge on the wire, stick the wire down the hole, viewing the front of the pan. This method is surprisingly accurate to judge "how far down."

After drilling the rear holes, they are then tapped. Before you insert the tap and start turning, remember that you are working with a very brittle tool and any undue side-to-side motions or forcing will break them. Go only a few turns at a time, and then carefully back the tap out of the hole and knock out the chips. I always use a can of WD-40 to spray them out of the hole, which also keeps the surfaces lubricated, which is recommended. Fox suggests using model fuel for lube, or you can use a light machine oil. The spray can of WD-40 also is handy for blasting the filings out of the tap threads. When the tap touches bottom, back it out. You may then want to finish up with a bottoming tap, which will give useful threads the entire depth of the hole. (A bottoming tap has no taper like a standard tap.) Now clean out the holes and check the threads by running a bolt down.

Next, bolt the engine down through the rear holes, and now everything is lined up perfectly to mark the front holes. Repeat the same sequence for marking, drilling and tapping.

After all the holes are finished, take a 5/32" bit and holding it in your hand, take a twist right at the top of the tapped holes. This small chamfer will make it easy for the bolts to locate into the top threads.

This two-step method of locating the holes we just went through is to help keep them centered and not to misalign, thereby jamming in the lug holes. However, in the event that any bolt is giving friction going through the lug holes, you may need to enlarge that hole. The less the better. Use a round jeweler's file, or a drill 1/64" larger than the hole size to open it up.

Now, with the engine mounted back on the pan, check how the spinner contours into the pan. It probably will be necessary to do a little exterior work again. File and sand as needed up by the nose. Now it is time to face off the pan again. Remove only what is necessary, to keep that gap as small as possible. You should have five thousandths clearance when the shaft is pushed back. Be sure to take off that sharp edge with sandpaper.

The only other important thing left to do is to make provision for fuselage

SPEED SCOOP continued

hold-down screws. To decide where to locate the front hold-downs, remember to take into account where the control system might interfere, hard material for the bolt heads to compress down on, and landing gear if applicable. The rear hold-down(s) usually don't have much of anything in the way. Put that chamfer in these holes also.

To finish the job, I usually go over the pan with 600-grit sandpaper used wet. This gives a very smooth satin appearance. If you want to go show biz, use a felt wheel and fine polishing compound. You are done! Landing skids, pan lightening and other information I will save for a future issue.

SPEED PAN SUPPLIERS

Tatone Products Corp., 1209 Geneva Ave., San Francisco, CA 94112 -- Tatone pans. Should be available at any hobby shop on special order.

Kustom Kraftsmanship, P.O. Box 2699, Laguna Hills, CA 92653 -- Harter rat pans, Cox $\frac{1}{2}$ A pans.

Nick Arpino, 301 Wood Acres Road, East Patchogue, N.Y. 11772 -- Darp pans.

Chop's products, Inc., Box 316, Yardley, PA 19067 -- Cox $\frac{1}{2}$ A pans.

Herb's Speed & Racing, 1621 M. St., Merced, CA 95340 -- Nightengale, Darp, Tatone and Harter pans.

Check with these suppliers about availability and price.

SHORT SHAFT RUNS

***I now have plans drawn up for my upright Formula .40 plane. If interested in obtaining these, send me \$3.50, which includes price of construction text.

***There will be a speed and racing meet in Merced, Calif., March 16.

***The Northwest Regional Control Line Championships will take place on Memorial Day weekend, in Eugene, Ore. As usual, a full slate of speed events will be flown. So get cracking on your go-fast projects. How about you subscribing speed fliers writing to me about what you are currently flying, so I can tell the world.

***Pick up on the March issue of Model Airplane News. In it you will find an article on propeller rework, plus a new column on engines by George Aldrich. Also, for a quick double-take, turn to page 56.

--Mike Hazel, 1319 Aspen St., Eugene, OR 97401 (503) 726-1185.

CUTS & KILLS

combat news by buzz wilson

Now that you have got your slow combat plane together, engine and tank mounted, check it for warps. If you don't see any, take it out and fly it. See how it flies level. Next, put it into an inside loop. If the plane does not do anything funny, take it upside down. Again, if the plane does not do anything funny, such as roll in at you, the wing probably is straight. Then put it into an outside loop.

Once the plane has landed, balance out the controls so that the diameter of the inside loops and the outside loops are equal. If the plane was too sluggish or sensitive you may have to balance out the plane longitudinally -- the plane is too nose-heavy or tail-heavy.

Now that you have done all of this, hang a streamer on the plane and see how it flies.

With your airplane all trimmed out, see if you can find someone to practice against. By practice I mean two people in the same circle with slow combat planes and streamers talking to each other and swapping off taking cuts at each others' streamers. While you are doing all of this practicing, you should be working on two new building projects: The first one is another Flite Streak so that you have got something for the next contest that comes along and the second project is a combat pit box.

You say to yourself, "a combat pit box" and I say read the rules on combat and if you don't find the answer then stay tuned for the answer to appear in "Cuts & Kills."

For those of you just starting out or for those of you who don't belong to MACA (Miniature Aircraft Combat Association), I have included a list of articles on combat compiled by Rich Von Lopez. (Editor's Note: Reprinted from The MACA Newsletter.)

AEROMODELLER (England)

Tiernan, Mick. "Combat--Time for a New Approach? Jan., 1978, P. 22.

Wilkins, Richard. "Combat." Jan., 1978, P. 30

Smart, Frank. "Combat." April, 1978, P. 218.

Hutchinson, Ian. "Combat." June, 1978, P. 328.

"F2D Combat." July, 1978, P. 374.

Snitter, Chris. "FAI Combat." Aug., 1978, P. 430.

CUTS & KILLS continued

Scott, Dave. "1/2A Combat Challenger." August, 1978, P. 441.
 "F2D Combat World Championships." October, 1978, P. 566.
 "Combat World Championships Details." Dec., 1978, P. 668.

MODEL AIRPLANE NEWS

Higley, Harry. "Round & Round/FAI Team Selections." Jan., 1978, P. 23.
 Humphries, Jack. "World Championships." Dec., 1978, P. 18.

MODEL AVIATION

Johnson, Charlie. "CL Combat." Jan., 1978, P. 45.
 Johnson, Charlie. "CL Combat." March, 1978, P. 36.
 Johnson, Charlie. "CL Combat." May, 1978, P. 35.
 Johnson, Charlie. "CL Combat." July, 1978, P. 37.
 Johnson, Charlie. "CL Combat." Sept., 1978, P. 33.
 Gerhart, Kit. "CL Combat at the Nationals." Nov., 1978, P. 46.
 Jackson, Laird. "Combat World Championships," Dec., 1978, P. 34.
 Johnson, Charlie. "CL Combat." Dec., 1978, P. 41.

MODEL BUILDER

Rutherford, Dan. "CL." Jan., 1978, P. 46.
 Rutherford, Dan. "CL." March, 1978, P. 64.
 Rutherford, Dan. "CL." May, 1978, P. 90.
 Lopez, Richard. "Samurai FAI Combat." May, 1978, P. 92.
 Rutherford, Dan. "CL." June, 1978, P. 92.
 Fauble, Steve. "Sickle FAI Combat." July, 1978, P. 91.
 Rutherford, Dan. "CL." Aug., 1978, P. 86.

FLYING MODELS

Whalley, Ed. "With Model Builders." Jan., 1978, P. 50.
 Whalley, Ed. "With Model Builders." Feb., 1978, P. 50.
 Whalley, Ed. "With Model Builders." May, 1978, P. 50.
 Whalley, Ed. "With Model Builders." June, 1978, P. 50.
 Whalley, Ed. "With Model Builders." Sept., 1978, P. 51.
 --Buzz Wilson, 5714-152nd SW, Edmonds, WA 98020.

THE FLYING FLEA MARKET

(Classified Ads)

CUCH! -- Has your finger been whacked one too many times by that balky engine? Beat on the prop next time with the Neater Beater, a hand-made leather starting-thong. This two-fingered thong is tough yet pliable, and includes a palm flap for good grip and quick on-off. Laced for adjustability. Specify right or left hand. Send \$5 to John Thompson, 1411 Bryant Ave., Cottage Grove, Oregon, 97424.

SOMETHING FOR (ALMOST) NOTHING -- In order to stimulate interest in this swap-shop feature of FL, we offer all new subscribers or persons renewing the right to one free classified ad, a \$1 value. Send to FL c/o the address on the cover.

HOBBY SHOP DIRECTORYSEATTLE AREA

INTERLAKE HOBBIES -- Control-line and RC supplies, specializing in parts. 1406 N. 80th St., Seattle, WA 98103. (206) 525-6757. Owned by the Reifel family. "If we don't have it, we will get it."

HOBBY HOUSE -- Control-line, free-flight and RC supplies. 10011 Holman Road NW, Seattle, WA Owned by Allyn Johnson (206) 782-1609.

HOBBIES, ETC. -- Specializing in U-control, free-flight and RC. Complete stock of engine parts. 16661 Redmond Way, Dept. FL, Redmond, WA 98052. (206) 883-2811.

FORTLAND AREA

HOBBYLAND -- 20 years serving all model aviation enthusiasts. 4503 N. Interstate Ave., Portland, OR 97217. (503) 287-4090. Owned by Ken Thorstad.

(Hobby Shop Directory listings are presented as a service to area model aviators who want to know where to go for their CL supplies. If your favorite shop isn't listed here, show them your copy of Flying Lines and suggest they sign up. Ad rates listed elsewhere in the newsletter. Support FL advertisers -- they support us.)

AD RATES

Advertisements in Flying Lines cost \$5 per issue for a half page, \$3 per issue for a quarter page, \$10 a year for Hobby Shop Directory listing, and \$1 per five lines of classified ads.

AIR MAIL

DEAR FL:

Saw the newsletter mentioned in Gene Hempel's column (Model Aviation). Always interested in news; it seems very scarce...

As you may know, I fly FAI speed mainly, but also fly the ½A classes and am keenly interested in all speed and racing events.

I want to take a run at the ½A profile proto record this year since it was opened to all age groups. I believe one of the Calgary group holds the Canadian open record at about 84 mph.

I held the Canadian ½A record for regular protos until it was retired at 89 mph. I still hold the ½A speed at 105 mph, set about three years ago. Haven't had much chance to work on the ½As since then really. Most of the time went on the FAIs. Best I've had in FAI was 151 mph at Cleveland last summer with a Kingfisher-type model and one-blade prop. I did 148 in England in '78 with my sorta semi-scale model, but it is usually noticeably slower than the asymmetrical ships.

I use FI Rossi ABC engines with 1850° ex duration. Stock otherwise. I find head clearance has to vary a bit depending on the tightness of the piston/cylinder fit. I have one Rumpel-type pipe but so far haven't been able to read any gain over stock Rossi. Work to be done there. I like the Bartel's type carbon-fibre one-blader of which I make my own using polyester resin with good results. The pitch is about 6" mid-blade and 5½" at tip, although each engine seems to have a particular taste in props. Typical size is 3 1/8" radius.

I'm supposed to be going to the world championships in Poland this year, though recent political goings-on make that seem a bit less certain. Oh, well.

--Sam Burke, 93 Wellington St., Cambridge, Ontario, Canada NIR 3Y8. (519) 621-5424.

DEAR FL:

I have heard of your newsletter...I would like it by airmail...Are any back issues available?

I write a CL column in our national magazine Airborne. I like to get the latest news and have found newsletters to hold most useful information.

Hoping this note finds you in good health.

--Vernon D. Crawford, 25 Christopher St., Sunnybank Hills, QLD 4109, Australia.

(Editor's Note: No back issues are available to FL. However, we can make photocopies of specific articles upon request. Send SASE and 25¢ to cover copying costs.)

DEAR FL:

Knocking out a quick letter on behalf of the Seattle Skyraiders Model Airplane club. We discussed the issue of fuel shutoffs for Northwest Sport Race. It was a unanimous decision that fuel shutoffs are not in keeping with the intent of the sport race. There are plenty of speed events incorporating all the gadgets for the serious flier who has to have one of everything. Besides, sport race is intended for us hackers to get into the twilight zone of competition.

Not that we want to increase your hat size any more than it already is, you are producing better newsletters month by month. We all appreciate what and how you are doing it.

Although I humbly affix my signature to this document, the following Skyraiders do not favor the use of fuel shutoffs in Northwest Sport Race.

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

--Co-signed by Allyn Johnson, Max J. Thue, Mike Jacoby, Mike Biderbost, Dan Cronyn, Dan South, Scott Swanson, George Banat, and Steve South.

DEAR FL:

Got some time here while I'm waiting for some glue joints to dry on my stunter.

I am enclosing \$6 to subscribe to Flying Lines.

Now that I am on the mailing list I would like to put in my opinions on Northwest Sport Race.

I would like to see existing rules be more strictly enforced. Equipment and airplane specs should stay the same with the possibility of one exception, fuel shutoffs. I think fuel shutoffs should be allowed to be on board. This would save a lot of flying time and fuel when all you are after is a needle setting and some pit warmup. For competition the fuel lines and/or etc. should be routed so engine cannot be shut off at will.

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

(Editor's note: Based on John's last comment, we are counting his letter as a vote against shutoffs in the racing event. Shutoffs are currently allowed for warmup purposes, as long as they are bypassed for the race. Correct us if we interpret your opinion wrong, John.)

AIR MAIL continued

DEAR FL:

I would favor a rule change to limit NWSR to Fox .35 only. Because: It would be more competitive and more fun. Maybe we could get more fliers interested. Also, I would be interested in a slow rat event...

--Dick Salter, 7217 S. 133rd, Seattle, WA, 98718 (206) 226-1129

WHERE THE ACTION IS

Here is the schedule of control-line competition events for 1980, as of our deadline Feb. 1. If you know of a contest or informal event not listed here, remind the contest director to send details to FL for inclusion in the next edition of the contest calendar. No need to wait until the flyer is ready. Give us the outline now so people can start planning. FL also will publish flyers free of charge and report results. Fun-fly events can be listed, too.

- March 9.....SEATTLE, Wash. -- Northwest Sport Race Drizzle Circuit No. 4. NWSR (above details) and slow combat. Entry fee \$3. Trophies. Site: Carkeek Park. Contact John Thompson c/o Flying Lines or Al Johnson, c/o Hobby House, 10011 Holman Road NW, Seattle, WA, 98177. Sponsored by Seattle Skyraiders. Combat starts at 10 a.m., NWSR at noon sharp.
- March 23.....PORTLAND, Ore. -- Northwest Sport Race Drizzle Circuit No. 2 (snow date). NWSR (above details) and AMA combat. Site: Delta Park. Entry fee, \$3 for one event, \$5 for both. Contest Director: Mike Hazel, 1319 Aspen St., Eugene, OR 97401 (503) 726-1185. Combat director Gene Pape. Combat starts at 9 a.m., NWSR at noon sharp. Points only for NWSR, merchandise for combat. Sponsored by Eugene Propspinners.
- April 13.....EUGENE, Ore. -- Northwest Sport Race Drizzle Circuit No. 5. NWSR (above details), Scale Race (Goodyear), and FAI team race. Merchandise awards. Circuit trophy presentation. Entry fee \$3 for first event, \$2 for each additional. Site: Mahlon Sweet Airport. Contest Director: Mike Hazel, 1319 Aspen St., Eugene, OR 97401, (503) 726-1185. FAI team race starts at 9 a.m., Goodyear at 10 a.m., NWSR at noon sharp. Sponsored by Eugene Propspinners.
- May 4.....YAKIMA, Wash. -- CL contest sponsored by Control Line Association of Sunnyside (CLASS). Precision aerobatics, old-time stunt, NWSR. Contact Joe Just, 713 Crescent, Sunnyside, Wash., 98944, (509) 837-5983.
- May 4.....YAKIMA, Wash. -- Yakima Valley Cherry Blossom control-line contest, sponsored by Control Line Association of Sunnyside (CLASS), Valley Aero Modelers and Clover Leaf Hobbies. Precision aerobatics (three PAMPA classes), Northwest Sport Race (JS)(O), old-time stunt. \$5 entry fee. Registration opens at 8 a.m., flying at 9. Site: Parking lot behind Valley Mall in Union Gap, Wash. Trophies and merchandise. Contest Director: Bill Tucker (509) 829-5027.
- May 24-25.....EUGENE, Ore. -- Northwest Regional Control Line Championships (AAA). Navy carrier (all classes), precision aerobatics (2 PAMPA classes), speed (all classes), NW Sport Race, AMA rat race, slow rat race, scale race (Goodyear), AMA combat, FAI combat, slow combat, mouse race (unofficial). Contact Gene Pape, 4528 Souza St., Eugene, OR 97402, (503) 689-1623. Sponsored by Eugene Propspinners in cooperation with all Northwest CL clubs. Site: Mahlon Sweet Airport.
- Aug. 30-31...EUGENE, Ore. -- Northwest Control Line Racing Championships, sponsored by Nitroholics Racing Team. AMA rat race (JSO), AMA slow rat race (JSC), AMA mouse race Classes I&II, (JS)(O), Scale Race (Goodyear) (JSO), FAI team race (JSC), Northwest Sport Race (standard and expert), Formula 40 speed (SO), Formula 21 speed (J). Contest director: Mike Hazel, 1319 Aspen St., Eugene, OR 97401, (503) 726-1185. Site: Mahlon Sweet Airport.

NOTE: All events are AMA sanctioned unless otherwise noted. Age groupings key:
J = junior (under 15). S = senior (15-18). O = open (19 and older).

THE "OTHER" BLADDER GRABBER (photos, next page)

You've seen the fast combat pictures from the fall Bladder Grabber contest. That was the hot 'n heavy Sunday action. This time, here are scenes from Saturday, the day of other kinds of competition. Top left: Slow combat winner David Ireland fires up his engine, while Gene and Keith Iwanski assist. Center, left: "Dirty" Dan Rutherford, left, times slow combat along with Tom Knoppi, center, and Gary Stevens, right. Bottom, left: Don Schultz releases Joe Dill's stunter. Top, right: Dill fires up engine that gave him trouble all day, while Schultz holds. Center, right: Dick Salter starts slow combat engine. Bottom, right Buzz Wilson launches another slow. Thompson photos.

YAKIMA VALLEY

CHERRY BLOSSOM

• CONTROLL LINE CONTEST •

- EVENTS:
1. CONTROLL LINE PRECISION AEROBATICS
 2. NORTHWEST CONTROLL LINE SPORT RACING
 3. OLD TIME CONTROLL LINE STUNT

IN SPORT RACING, THERE WILL BE TWO CLASSES, THE JR. & SR. WILL BE COMBINED FOR ONE, AND THE OTHER IS OPEN AGE.

IN AEROBATICS, PAMPA RULES SHALL APPLY, AND 1 & 2 WILL BE COMBINED AND 3 & 4 WILL BE SEPARATE.

TIME: REGISTRATION WILL BEGIN AT 8:00 A.M. MAY 4, 1980, AND CONTEST WILL BEGIN AT 9:00 A.M.

COST: \$5.00 ENTRY FEE WILL BE CHARGED, WHICH MAKES YOU ELIGIBLE TO FLY 1, 2, OR 3 EVENTS.

LOCATION: WILL BE HELD IN PARKING LOT BEHIND VALLEY MALL IN UNION GAP, WN. UNION GAP BORDERS YAKIMA, WN, ON THE SOUTH SIDE.

PRIZES: PRIZES WILL BE AWARDED TO 1ST THROUGH 3RD PLACE IN ALL EVENTS EXCEPT OLD TIME STUNT. THERE WILL BE TROPHIES AWARDED TO 1ST THROUGH 3RD.

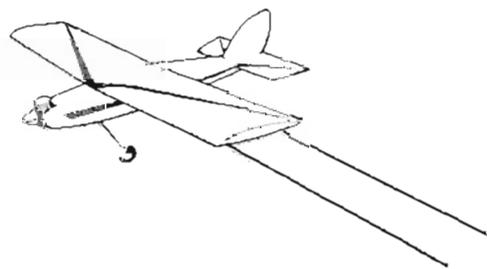
SPONSORED BY:

1. VALLEY AERO MODELERS, ZILLAH, WASHINGTON.
2. CLOVER LEAF HOBBIES, VALLEY MALL.
3. CONTROLL LINE ASSOCIATION OF SUNNYSIDE.

INFORMATION: CONTACT CONTEST DIRECTOR:
BILL TUCKER
PHONE # 829-5027 (AREA 509)

OR JOE JUST
509-837-5983

AMA RULES WILL APPLY!



MAY 4, 1980

