

FLYING LINES

1411 BRYANT AVENUE
COTTAGE GROVE, OREGON 97424

EDITOR: JOHN THOMPSON
PUBLISHER: MIKE HAZEL

July 1979 NEWS OF NORTHWEST CONTROL LINE MODEL AVIATION Number 3

AAA S&R MEET TURNS INTO COZY FUN-FLY

The biggest array of merchandise prizes seen in the Northwest in many moons was split up by just eight entrants in the AAA speed and racing contest that turned into a \$500 "fun-fly" June 23 and 24 in Eugene, Ore.

Race Time '79, sponsored by the Nitroholics Racing Team, has to be called a disappointment in terms of participation, though those that did come enjoyed two full days of friendly competition.

Due to low entry, some of the participants spent Saturday night making Northwest Sport Race planes into rat and slow rat planes, just so there would be competition in those events. And competition there was, though the winning times look just a bit peculiar.

Race time was an experiment in major speed and racing competition, using a new scheduling system devised by NRT's Mike Hazel, the contest director. All racing events (except NWSR) were run both days (if there were entrants), with every entrant entitled to two final races. Best times only counted. Speed entrants were given six attempts, which they could spread over one or two days. A special pit stop event preceded each race except NWSR (where it would be impractical because of the lack of shutoffs).

When it was all over, the hearty handful of greasy, sunburned modelers gathered round a pile of merchandise that included four engines, an electric drill, soldering gun, propane torch, and many quality tools, wood, and hardware. Not a single participant went home empty-handed, and in fact some took quite an armload.

Mike Hazel of Eugene motored home to first place in rat race, using the Cro-Magnon Rat (NRT's mascot) in the absence of his Shark, which was temporarily engineless, in a time of 6:48. Second and third places went to John Thompson of Cottage Grove, Ore., and Gene Pape, Eugene, using identical K&B .40 engines on their NWSR Ringmasters. Those two, by the way, provided excellent racing due to their almost identical air speeds. Only the presence of a fastfill plug gave Thompson the edge, as there were almost no passes during the racing in two consecutive heats.

Richard Simpson of Silverton, Ore., captured AMA slow rat with a 9:06 time, using his K&B .35-powered sport race Yak-9. Thompson and Paul Wallace followed, using Ringmasters re-fitted with supposedly faster engines. Richard left well enough alone and won.

Goodyear featured two entries with "real, live" scale racing planes. The entries were NRT teammates Hazel and Thompson, with Thompson taking first place. He turned a 7:31 time, edging out Mike's 7:38. Mike passed up a chance to make a second attempt due to the late hour. Both Goodyears were powered by Cox Conquest .15s, John's on a Midget Mustang and Mike's on a Rickey Rat.

Thompson breezed to first place in the half-hour marathon sport race, with his usual Ringmaster/K&B .35 combination, turning 478 laps. The time indicates that 500 laps may be within reach with some experimentation with tanks and a bit more nitro (Thompson made 8 pitstops when 6 were required, and he used 5% nitro.) Second was Paul Wallace and third was Hazel, using identical equipment, Fox .36-powered Ringmasters. Richard Simpson was the only entry in junior-senior NWSR marathon, turning 394 laps, which would have been good enough for second place in open.

Thompson took the pit stop event, with a 19.1 stop in Goodyear practice, with Hazel flipping the prop. Right afterwards, the same team and plane turned an 18-second stop in a race. Pit stops were timed from the instant of kill to one full lap after the stop. Hazel took second and third, with Goodyear and rat stops.

Fred and Joyce Margarido of Fremont, Calif., trekked all the way up to the Northwest to be the only speed entrants other than Hazel and a last minute entry in $\frac{1}{2}$ -A by Paul Wallace. Repeating their dominant performance at the Northwest Regionals, the M&M team took first in two of three speed event groupings. Events were grouped in three categories with placing based on percentage of the national record. The M&Ms won $\frac{1}{2}$ -A-A-FAI with a class A speed ship, turning 156.46 mph, for 86.5 percent of the record. They won B-C-D-Jet with a Class D ship turning 183.6 mph for 92.8 percent. Hazel won $\frac{1}{2}$ -A proto-B proto-Formula 40 by flying the Cro-Magnon rat to 116.86 miles per hour (yawn) or 72 percent.

Here are the complete results of the Race Time '79 contest:

MARATHON NORTHWEST SPORT RACE ($\frac{1}{2}$ -hour)

Open

1. John Thompson	478 laps	K&B .35, Ringmaster
2. Paul Wallace	374 laps	Fox .36, Ringmaster
3. Mike Hazel	357 laps	Fox .36, Ringmaster
4. Roger Simpson	315 laps	K&B .35, Yak-9
5. Gene Pape	175 laps	Fox .36, Ringmaster

Jr-Sr

1. Richard Simpson	394 laps	K&B .35, Yak-9
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SCALE RACE (GOODYEAR) (160 laps) (Best time only listed)

1. John Thompson	7:31	Cox .15, Midget Mustang
2. Mike Hazel	7:38	Cox .15, Rickey Rat

FAI TEAM RACE -- No entries

AMA SLOW RAT RACE (140 laps)

1. Richard Simpson	9:06	K&B .35, Yak-9
2. John Thompson	11:11	Fox .36 Combat Special, Ringmaster
3. Paul Wallace	11:33	Fox. 36-X, Ringmaster

AMA RAT RACE (140 laps)

1. Mike Hazel	6:48	K&B .40 RR, Series '71, Cro-Magnon Rat
2. John Thompson	8:05	K&B .40 FR, Series '66, Ringmaster
3. Gene Pape	8:48	K&B .40 FR, Series '66, Ringmaster

PIT STOP EVENT (best stop only listed) $\frac{1}{2}$ A-A-FAI (%of record)

1. John Thompson	19.1 (Goodyear)	1. M&M Team	86.5% (A, 156.46)
2. Mike Hazel	19.7 (Goodyear)	2. M&M Team	80.5% ($\frac{1}{2}$ A, 103.41)
3. Mike Hazel	21.4 (Rat)	3. Paul Wallace	44.8% ($\frac{1}{2}$ A, 57.67)

$\frac{1}{2}$ A PROTO-B PROTO-FORMULA 40 (%)

1. Mike Hazel	72% (F-40, 116.86)
2. Paul Wallace	63.6% ($\frac{1}{2}$ A P, 61.2)

B-C-D-JET (%)

1. M&M Team	92.8% (D, 183.6)
2. M&M Team	80.2% (B, 160.65)
3. M&M Team	78.5% (Jet, 167.06)
4. Mike Hazel	attempt, Jet

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REDMOND COMBAT CONTEST BRAVES THREATENING WEATHER

In spite of indications we at FL hear from all directions that there is a new influx of sport fliers (and potential future competitors) to our hobby, 1979 contest participation continued to be at a low level as the season moved into summer.

Typical of that situation was the combat contest in Redmond, Wash., June 17. At the Regionals, we blamed the gas situation for the low entry. This time, bad weather was apparently the culprit, keeping home even many of the Seattle area regulars. The rain quit at about 10 a.m., however, allowing the contest to go on as scheduled, with five entrants. Quite a few spectators happened by later in the day, and they were treated to some good combat matches.

Best action was in FAI, with three entries. Howard Rush and Gary Stevens started off with a dead tie in their first match. Both launched on the launch signal (FAI rules allow engines to be running at the start), and they both scored one cut in four full minutes of combat. Going back up, Rush managed to squeeze out the win on air time (Gary had to make an unexpected pit stop). Rush and Phil Granderson put on another good match before Phil pulled out the win.

Slow combat, with four entries, started with Stevens dispatching John Thompson in seconds by using the time-proven method of flying inverted and low. Thompson took the bait and flew into the ground. Bill Varner did a bit better before losing to Granderson in the other preliminary match. Granderson and Stevens, both of Seattle, then fought it out, with Granderson winning. Varner, of Astoria, Ore., then beat Thompson, of Cottage Grove, Ore., for third place.

Half-A mouse race was flown in solo heats, since there were only three entries and a lack of pit crews at the time. Stevens appeared to have the win locked up with his howling TD-powered 1/2A combat plane, but his race ended when the crankshaft said goodbye. Thompson motored to a 6:30 in a 120-lap final to with with a Black Widow-powered Little White Mouse. Varner was third with an 11:05 using a Black Widow-powered Mickey II.

Here are the complete results:

SLOW COMBAT (four entries)	FAI COMBAT (three entries)
1. Phil Granderson	1. Phil Granderson
2. Gary Stevens	2. Howard Rush
3. Bill Varner	3. Gary Stevens
4. John Thompson	

	(70 laps)	
MOUSE RACE (three entries)	Best Heat (2 flown)	Final
1. John Thompson	3:27	6:30
2. Bill Varner	6:34	11:05
3. Gary Stevens	4:44	DNFly

Contest director was Buzz Wilson, Edmonds, Wash., assisted by Howard Rush, Kirkland, Wash.

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UPDATED NORTHWEST CONTROL-LINE RECORDS

Several new records have been established for Northwest control-line competition. However, there are still some unclaimed records, and many of the Northwest records are easily assailable. FL started compiling the records with the 1979 Northwest Control-Line Regionals, and will update them as we receive results.

The records listed here will be those set by Northwest modelers only, though they need not be set in the Northwest. Appropriate documentation (some sort of official results) is necessary. Records will be accepted from sanctioned meets only.

Here are the records to date:

1/2A MOUSE, CLASS I	50-Lap: --	100-Lap: --
1/2A MOUSE, CLASS II	75-Lap: --	200-Lap: --
	70-Lap: 3:27 (John Thompson)	140-Lap: 6:30 (J. Thompson)
GOODYEAR:	80-Lap: 4:11.2 (John Thompson)	160-Lap: 7:31 (John Thompson)
AMA SLOW RAT:	70-Lap: --	140-Lap: 9:06 (Richard Simpson)
AMA RAT RACE:	70-Lap: 2:37 (Mike Hazel)	140-Lap: 5:21 (Mike Hazel)
FAI TEAM RACE:	100-Lap: --	200-Lap: --
NW SPORT RACE:	70-Lap: 4:25 (Mike Hazel)	140-Lap: 9:45 (Mike Hazel)
1/2A SPEED:	76.57 (Jeff Bell)	JET SPEED: 165.83 (Mike Hazel)
A SPEED:	116.84 (Mike Hazel)	FAI SPEED: 88.05 (Scott Newkirk)
B SPEED:	142.47 (Mike Hazel)	1/2A PROTO: 71.97 (Jeff Bell)
C SPEED:	--	B PROTO: --
D SPEED:	--	FORMULA 40: 148.09 (Mike Hazel)
PROFILE CARRIER:	197.99 (Jeff Shelby)	CLASS I CARRIER: 268.98 (Terry Miller)
CLASS II CARRIER:	319.65 (Orin Humphries)	

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SKELTON PROVIDES MISSING CARRIER SCORES

Carrier scores were not available immediately after the Northwest Control Line Regional Championships, but they were provided by Bill Skelton, event director, for FLYING LINES. Here is Bill's note:

I received your card today, and yes I have the scores for carrier which I am sending you. I am going to write them as they are in NCS contest results. Also, have gotten quite a bit of background info from CLCB (Control Line Contest Board) and NCAC (National Carrier Advisory Committee) to bring me up to date on proposals and cross-proposals on changes in carrier rules. I expect to receive a ballot in July for voting on these proposals to be back in August for the current voting cycle of the CLCB, who will act on the recommendations of the NCAC. So, I'll have to get hot to get these out and back in time. The most sensitive and emotional is the engine rule and changes in this.

Bill Skelton, 45 SW 11th (P.O. Box 105) Warrenton, Oregon, 97146

(Editor's Note: Bill is District XI's representative to the NCAC. He indicates he is trying to keep a record of engines and planes used in this area. However, he says Regionals results did not include data on equipment of Loran Howard of Portland. Loran, let us know what class you were using in I and II combined, so we can be sure our records are accurate. Also tip Bill off on your equipment.)

Here are the Regionals carrier results:

PROFILE CARRIER	HIGH SPEED	LOW SPEED	LANDING	SCORE	ENGINE	BONUS
1. Jeff Shelby	64.72 mph	26.58 mph	100 pts	197.99	McCoy .35	10
2. Stan Johnson	69.2	28.74	100	193.27	Supertigre .35	0
3. Bill Skelton	71.97	26.58	0	109.04	Supertigre .35	10
4. Orin Humphries	65.53	25.26	0	101.53	Supertigre.35	10
5. Loran Howard	attempt--crash			0	McCoy .35	10

PROFILE CARRIER, JR-SR	HIGH SPEED	LOW SPEED	LANDING	SCORE	ENGINE	BONUS
1. Jeff Zehrung	70.01	29.99	0	103.35	Supertigre .35	10

CLASS I & II (JSO)	HIGH SPEED	LOW SPEED	LANDING	SCORE	ENGINE	BONUS
1. Orin Humphries	90.87	26.9	95	319.65	ST .60 w/pump	100
2. Loran Howard	76.89	32.48	100	300.56	????	100
3. Terry Miller	54.2	27.39	95	268.98	Fox .36	100

LAST CALL FOR DRIZZLE CIRCUIT QUESTIONNAIRES AND OPINIONS

Planning for the 1980 Drizzle Circuit will begin soon, with the first contest probably in December. Those of you who have not returned your questionnaires on how the circuit should be run should do so as soon as possible.

For those that didn't get a questionnaire (it was in the May FL), it asks what kind of events should supplement the main feature (Northwest Sport Race) anything that should be changed about NWSR rules, or contest procedures.

Last year's drizzle circuit featured five NWSR contests, with a full day of racing (each plane flew four preliminary heats) plus secondary events (mouse race, rat race, 1/2A combat, fast combat, Goodyear), and more than 30 persons participated.

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Dear F.L.:

I decided to reply to your Drizzle Circuit questionnaire even though I only fly the event (Northwest Sport Race) once a year. As such my reply probably shouldn't be counted in any tabulation you might make for popularity of the event and/or changes proposed.

However, here goes.

First of all I do like shutoffs and anyone can make a simple shutoff that will work every time. Heck, I'll even build the shutoff for people who can't do it themselves. It might take 10 or 15 minutes of my time per shutoff for NWSR.

I am sure use of shutoffs would permit safer races, due to being able to stop the engine when lines get crossed, etc. (Editor's note: We can think of a couple of cases where THAT is true.) Take a pit stop and not lose an airplane. For my personal situation I cannot run more than 15% nitro in my fuel system anyway so I wouldn't be able to go any faster. However, a shutoff would have prevented the problems that occurred to me both in '78 and this year (at the NW Regionals). In '78 I had run out of fuel after just passing this very slow-flying airplane. I had to hold it up till this slowpoke got out from under me so I could land. My airplane got hit in midair. Had I been able to pick my shutoff time I would have come down a few laps earlier, behind the slowpoke and to my pit crew with no damage to the airplane.

Then, this year on my second pit, in the finals, my airplane ran out of fuel just after going crosswind and was unable to get it down before 3/4 lap. My pit man re-started it and let go headed into the wind. Naturally it came in and dusted the prop and shut off the engine, also damaging the prop tips. As a result I finished 8-10 seconds behind Mike (Hazel) for second place. (Editor's note: Welcome, Vic, to the wild and wooley world of NWSR. Thrills, spills and chills!)

As you know I have a shutoff on my airplane so that I can get N.V. settings in short order. After I get the needle set I remove the shutoff and no trace of it can be found 10 seconds later. Sure enough this adds a complication to the event but I feel this minor complication is more than justified by increased safety and reduction of damaged airplanes. It might make the event more competitive but you already have lost the "don't take it serious" attitude that was there in 1977. Hey, there were several people that were really upset that I was able to do so well in their event this year. This old guy has been in competition with CL airplanes since 1948! If I can't think about an event and in my mind design a competitive airplane then somewhere I missed a trick or two. After 31 years in the hobby I should have seen most of the tricks.

Anyway, it's a great event as is, and only a little change (in my opinion) would improve NWSR. In the heats for the 1980 Drizzle Circuit, rather than use results from each heat to determine points, use the times turned to rank each

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round of the preliminary heats to assign points. One system that could be used is a point per each competitor you have beaten in that round. There are pluses and minuses in any system used, however, so this is intended only as a suggestion to think about.

Anyway, keep NWSR alive and well and I'll be in Eugene in 1980.

--Vic Garner, P.O. Box 573, Livermore, Calif., 94550 (415) 447-1766

(Editor's reply: Thanks, Vic, for your insightful comments. Your experience is valuable in improving our racing event. We'll be thinking about your suggestions. There is no question that shutoffs would have a safety advantage, but our ears perceive strong reluctance in these parts to any kind of technological tricks that require more of a beginner than simply putting a plane on the circle. There is a strong move now to slow down the event, as we resist the creep toward high speeds and dominance by "experts." The '80 DC may be a critical period in which we see whether NWSR will survive the current schizophrenia -- will it continue to be a "sport" event or become another slow (Ha!) rat?)

WHERE THE ACTION IS

Northwest Control-line Competition Calendar, as of July 5:

- JULY 21-22..KENT, WASH. --Boeing Management Association Scholarship and Open Contest. Scale Racing (Goodyear), Northwest Sport Race, AMA combat, FAI combat, slow combat, profile carrier, stunt, $\frac{1}{2}$ A profile proto spd. Saturday events: Goodyear, Northwest Sport Race, slow combat (junior-senior only), carrier, stunt (JS). Sunday events: $\frac{1}{2}$ A profile proto speed (junior-senior only), AMA combat, FAI combat, precision aerobatics (stunt) (open). Free flight, rocketry, RC soaring competition also included in contest. Junior-senior entrants eligible for BMA scholarships. Registration opens 8 a.m. both days. Site: Boeing Space Center. Contact Ted Caputo, Boeing Management Association, P.O. Box 3707, Seattle, WA. 98124.
- JULY 29-Aug. 4 ... AMA AAAA National Championships, Lincoln, Neb. All AMA events. Write AMA HQ for details, registration forms.
- AUG. 12.....EUGENE, ORE. -- Propspinners' Annual Summer Meet. Fast and slow combat. Goodyear, rat race. Contact Gene Pape, 4528 Souza, Eugene, OR 97402, (503) 689-1623. Site: Mahlon Sweet Airport.
- AUG. 26.....PORTLAND, ORE. -- Aeroliners' annual Control Line Classic. Northwest Sport Race, $\frac{1}{2}$ A mouse race, precision aerobatics, AMA combat, all carrier classes. Site: Delta Park. Contact Dave Gardner, 17870 Shasta Trail, Tualatin, OR, 97062, (503) 638-4224.
- SEPT. 1-2...(tentative) ASTORIA, ORE. -- Second Annual CLAMBash, sponsored by North Coast Control Line Aero-Modelers' Society (CLAMS). A two-day contest and social bash is contemplated. Contact Dave Green, contest director, 200 W. Franklin, Astoria, OR 97103. (503) 325-7005.
- SEPT. 16....(tentative)EUGENE, ORE. -- RatBash Racing Contest. AMA rat race and ??? Site: Mahlon Sweet Airport. Mike Hazel, contest director, 1319 Aspen St., Eugene, OR 97401. (503) 726-1185.
- OCTOBER ???..REDMOND, WASH. -- Bladder Grabber for AMA combat. Contact Gary Stevens, 217 NW 40th, Seattle, WA. (206) 633-3992.
- DECEMBER ??..EUGENE, ORE. -- Northwest Sport Race Drizzle Circuit 1979 kickoff contest. The DC is tentative at press time, with five contests probable. Each will have Northwest Sport Race as a main event, with other events secondary. Contact John Thompson c/o FLYING LINES.
- OH, NO!!!...Your contest didn't get listed in this issue of FL? Well, we can't read your minds...send us your information. Also send us 50 copies of your flyer and we'll include it in the newsletter. Don't forget-- just in case one of our "editorial staff" doesn't make your contest, we need results and description of the action, too.

LOOKING AFTER OUR OWN AFFAIRS DEPT:

FL editors urge all control-line fliers to fill out the questionnaire on Page 126 of the July Model Aviation magazine and return it to AMA headquarters. The questionnaire asks us to rate which features of MA we like best. Undoubtedly the magazine's editors will use the results to influence their emphasis on various subjects. Those of us interested in seeing as much or more CL news in MA as there is now should not miss this opportunity to comment.

In case you hadn't noticed, MA provides the best balance of coverage of all sectors of model aviation of any of the major magazines, and it isn't cluttered up with cars, boats, etc. There are regular columns on speed, racing, combat, aerobatics, carrier and scale, as well as regular articles on CL planes, technical topics and major competition coverage.

The Northwest's own Howard Rush recently wrote at length in MA (July) on combat design trends (great reading, Howard!) and Gene Pape will be featured in an article on one of his combat designs later on.

PYLON POOP
News from the speed circle
By Mike Hazel

This is going to be the first of who knows how many columns regarding speed flying. I am not following my original intention of combining racing and speed information together. While the two types of events are similar in many respects there still are differences in many aspects regarding the two. So, look for a column devoted exclusively to racing later on.

As for writing this column, let me state that I can hardly be classified as an expert. Without getting into any boring details, I would like to mention that I have dabbled in just about every class in the book, which gives me a basic understanding (or confusion) about the requirements for each. I suppose many associate my speed flying with the annual tradition of lighting off my jet at the Regionals every year. However, when possible, I also frequent speed meets in California every year. Anyway, as I mentioned, while I am no expert as such, the information presented here will hopefully be adequate and informative enough (maybe even interesting?), to get some of you to give this facet of control line a try.

The first thing I wish to touch on is the general psyche of a speed competitor. Leaving all Freudian stuff aside, the speed flier obviously likes to see a plane go fast. The speed flier also must be regarded somewhat as an individualist, since there are not too many of them. You won't see any "Do your own thing, so long as everybody else is doing it," types out at the speed circle. Most speed competitors are, on the whole, a more serious modeler about their event, as the time and money put into it requires them to be if they want to be successful and get ROI (return on investment). An excellent article titled "An approach to competition speed flying" can be found in the April, 1979 issue of Aeromodeller magazine. This article talks about the psyche of the speed modeler, and what it takes to achieve success, not in regard to your equipment, but your personal attitude and philosophy of competition. I suggest it for required reading. Those who are unable to locate it may obtain a photocopy of the article by writing me (c/o Flying Lines).

Now that you are all excited about speed (of course you are), let's talk about some of the major stumbling blocks to the beginner. The first one is the idea that speed competition is tough. Well, it's all relative. How well do you want to do? It is just like any other highly refined event. You will get out of it what you put into it, no more. There's very little luck in speed. MPT (money, practice and time) is required. That doesn't sound a whole lot different than stunt or combat, does it?

Next, clear your mind of the notion that to fly speed you must have a full machine shop. This is an excuse for losers not to try. While all that neat equipment may be nice to have, it isn't necessary to be successful in most classes. Besides, you can take the M factor from above and have a specialist do any special work or modification that you may desire. Over the years it has been demonstrated that good almost stock (nothin' is stock), equipment can perform quite well when given the chance.

The next problem facing newcomers is the availability of the special equipment. However, in many cases, it is only an apparent lack of availability. That stuff is out there. Just look closer. You will obviously not see pans and twist handles advertised in flashy magazine displays along with your basic twiddly stick magic box. Look in the classified section in the back, or throughout the pages of the control line columns for a mention of the address of specialty equipment. Yes, indeed, folks. You are going to have to mail order. Not only you won't find the supplies you need widely advertised, you probably will never find much of it in the glass case at your local hobby dealer either. For more addresses also try the special interest newsletters. The FAI Gazette and CL-RPM Racing News are two that come to mind. I know many people don't like to mail order for supplies but I guess it just comes down to how badly you want to participate. Many modelers will mail order to discount houses to save some bucks, so at least for these people there should be no mental block about licking a stamp. I will be more than glad to help anyone round up equipment, so lazy types got no excuse.

The next hurdle is getting the information so you know what it is that you are doing. I suggest that you read all pertinent material that you can. Check out the speed column in Model Aviation magazine, plus see what you can find in old magazines. Even most old material still is fairly relevant today, excepting actual modern engine performance. Also, subscribe to newsletters like the FAI Gazette, and digest all that you can. No, stupid, don't eat the pages, read and think. Now, while getting lots of good info on paper is quite helpful, there is nothing like having an experienced flier help you. Obviously, this is not always going to be possible. In our region, I am willing to help out anyone as much as I can, but of course, not always in the flesh. Unlike some people around, I will answer letters and correspond. Anyway, if you do meet up with an active flier, they usually are more than glad to help out a newcomer, to the end of getting another into the fold.

PYLON POOP, continued

A popular misconception about the actual flying of a speed model is that it is difficult. Not really true, folks. Obviously you can't be asleep at the pylon, but other than the physical strength required for the large classes, a properly built speed plane is not hard to fly. A good speed plane is built to fly stable and level. With some practice, it is not long before you can fly one quite proficiently. The monoline control system looks really strange to some people, but is in fact a simple system and not hard to fly. I taught myself to fly monoline without benefit of any pros helping me. I also have watched some local fliers put up a monoline trainer plane of mine, and to their credit and the control system's, they mastered the technique almost immediately. So let's not hear any song and dance about "weird control systems." All that aside, it is not necessary to use a monoline system, it is simply to your advantage in terms of performance. And for those who wish to stick to conventional two-line systems, there are some classes where monoline is prohibited, equalizing non-monoline fliers. Anyhoo, I will get into the actual flying of both control systems regarding speed planes in a future article. In the next article, I am going to cover details pertaining to the Formula 40 speed event, as I regard it to be a good one for the experienced modeler to get into.

Closing note: Why do I fly speed? All the "philosophy of competition" junk aside, I think it's neat, keen and a lot of fun.

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

PROPELLER DESIGN
By Scott Newkirk

(Editor's Note: The following article assumes that you have a basic understanding of where your prop goes and what it does, etc.)

In designing propellers, I have found that we have some relatively stable standards that we can work from. They are:

1. A prop is most efficient at about 70 to 85 percent out from the hub towards the tip. The tip only pulls about 90 percent as well at best as the maximum pull range. The hub should be at 100 percent efficiency pitch as the hub does little work. Don't have less pitch near the hub than the 100 percent efficiency pitch.
2. Our props are between 60 and 80 percent efficient. In other words the prop slips at all times during its operation. The idea is to have as little slippage as possible.
3. If an airfoil is going through the air with 20 to 40 percent slip (pitch inefficiency), it is easy for it to stall. A stalled condition creates very little lift.
4. Our props travel at low speed at the hub and progress to high speed at the tip.

These are some very basic principles but they are very necessary in the design of a propeller and the information relates to all classes of prop-driven aircraft. Let's take a look at how this information applies to us.

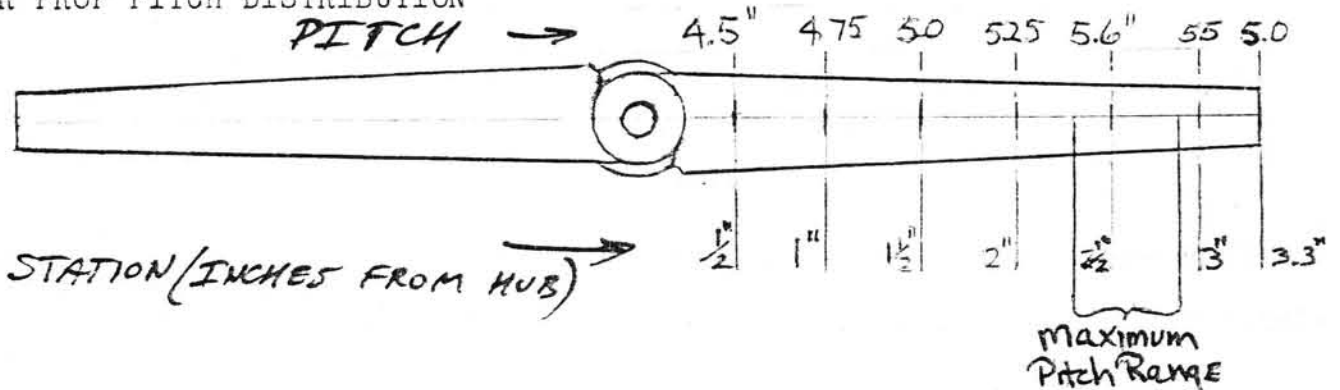
First off, a prop is most efficient at 70 to 85 percent out. This means that this is where the maximum pitch should be. Our props are 60 to 80 percent efficient. If this is the case the parts of the blade that aren't doing the work should have 20 to 40 percent less pitch so that they are not creating excess drag and also that they are less likely to stall. If it is easy for prop airfoil to stall at high angles of attack, either: The pitch should be lower or the airfoil needs to be of a type that doesn't stall easily. If our props are low speed at the hub and high speed at the tip the airfoils need to correspond with the speed range that they will be operating in.

So let's make an example of this so that you can see how I would design a propeller for Goodyear:

Airspeed: 115 mph Engine RPM: 27,000 100% efficient pitch: 4.49"
80% realistic efficiency: Pitch required for airspeed and RPM -- 5.61"

So this tells me that the pitch at the hub should be 4.49" or round off to 4.5". The pitch at the 70 to 85 percent range should be 5.6", and the pitch at the tip should be about 5 inches, as the tip is about 85 to 90 percent as efficient as the most efficient part of the prop. This is close to the currently popular 5.5 percent pitch Goodyear props now in use.

GOODYEAR PROP PITCH DISTRIBUTION



SUNDAY FLIER
By Chris Genna

FLYING LINES Editor John Thompson has decided I'd make a good spokesman for the sport flier in Flying Lines. I'm honored and enthusiastic, though I think his choice may have been based on the inevitable brain damage caused by continued inhalation of high-nitro fuels.

I'm enthusiastic because it will be the first publication I've seen in the hobby to devote regular space to perhaps the largest single segment of the hobby. Since I returned to modeling in 1976, I've been on a crusade of sorts for recognition of the sport flier. Permit me.

I once read that the majority of AMA members have never entered competition; I welcome figures, if anyone has them, to support or refute me. When you consider that most of the benefits of AMA membership accrue to competitors, and therefore competitors should have most of the interest in joining AMA, it's a pretty fascinating thought.

For every AMA member, there's at least one serious modeler who doesn't need uniform rules, doesn't need sanctioned meets, doesn't need magazines that tell him how to squeeze the last RPM out of his engine and most fiberglass props and who won the FAI championships. Or one modeler who can't afford the dues. Or there's at least one kid who can't start the .049 in the chrome plastic, bomb-dropping P-51 he got for his birthday.

We AMA members know well that these people are missing a lot that AMA still can do for them, but they don't.

So here we have all those "sport fliers" out there, and yet magazines print plans for rat racers, Goodyears, super-stunters and combat ships. Every now and then, something for the sport flier: how to break in an engine, work with foam, or basic adhesives.

Well, there's a lot of reasons for that. One is to encourage competition, an admirable goal. No doubt part of it is that competitors buy more things and more expensive things. What's harder to understand is the way readers of many mags are subjected to endless ramblings about metaphysical aspects of rules changes.

Endless ramblings like this is turning into.

Another problem in dealing with sport fliers is that it's hard to put a statistical finger on them. It's easy to count combat entrants at the Nats, or number of meets held every summer in this region or that, or even numbers of competition items sold.

But it's hard to count kids at the ballfields or pints of Cox Glow Fuel sold.

Most people are aware that competitors were once sport fliers. What's hard to get recognition for is the fact that there are sport fliers out there who will stay sport fliers and who like it that way.

Our club here in Astoria, Ore., has done a pretty good job for the sport fliers. We all started out sport fliers and many of us have stayed so. We've appointed a special officer to look out for the interests of the non-competitors. We stress recruitment and helping new modelers get started right. (That usually means telling them what balsa kit to get for the engine in their chrome-plastic, bomb-dropping P-51.)

It's important for all clubs to encourage beginners, because a club gets older when no new members are added. Not necessarily older in years (though that can happen too) but older in the hobby.

Its members, who thought nothing of buying a \$60 engine last year, think nothing of buying an \$80 engine this year. So a man comes out with a \$20 Fox stunt and figures he's not in these guys' league.

Mere encouragement isn't enough, though it helps a lot. Encouragement too easily becomes mere condescension.

A dyed-in-the-wool sport flier, for example, who just successfully pulled out of a sweat-soaked half lap inverted, may not want to hear, "Congratulations, Bob, Pretty soon, you'll be ready to enter fast combat."

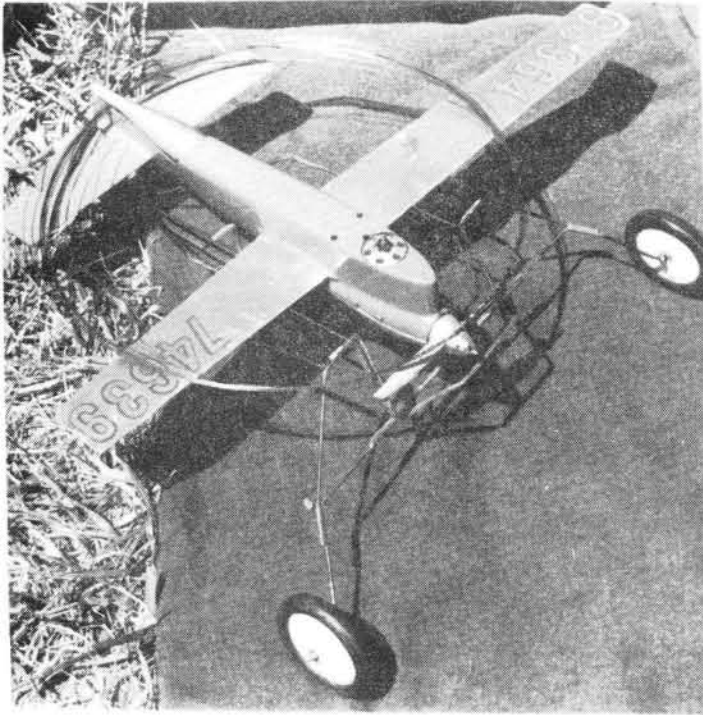
Advice may be what a sport flier needs. Then, it should be advice on how to get the most enjoyment out of equipment he has, not advice on what to buy next.

If it's true that sooner or later everyone wants to compete in something, then a club or group of guys should think up a low-pressure event that puts the win in the hands of the skilled pilot, not the hottest engine.

Rules don't make an event "low-pressure." I think we can all see that in the history of Northwest Sport Race. What makes an event low-pressure is the attitude of the entrants. If they want to test themselves, it's a low-pressure event. If they want to win, it's not. Better minds than mine have been scrambled trying to put this simple adage into practice.

But it's been my experience -- experience shared by everyone of the CLAMS -- that just being aware of the sport fliers, thinking about what they want in daily flying and in "competition" helps. That is, an awareness of the group's duty to the hobby to encourage sport fliers will naturally lead to more consideration for them.

That was the purpose of this column. (Editor's note: As requested, Chris sent us a biographical sketch for our ongoing "Profiles" column. We ran out of room this time. Look for it next month.)



Not all competition is fast and furious action, as revealed by our roving photographer. Top: Howard Rush prepares FAI combat plane for match at Redmond, Wash., contest, while Bill Varner assists. Center: How else do you draw matches for FAI combat? Spitting glow plugs for matches are, left, Gary Stevens; center, Howard Rush, and right, the winnah, P.T. Granderson, defending national glow-plug spitting champ. Bottom left: M&M Team's A speed plane at Race Time '79, Eugene, Ore. Bottom, right. Joyce Margarido gets ready to shove D speed plane into starter, while Mike Hazel cranks and Fred Margarido pilots.

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FOR

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***** AMA RAT RACE *****

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