FLYING LINES

NEWS OF NORTHWEST CONTROL-LINE MODEL AVIATION

1073 Windemere Dr. NW, Salem, OR 97304 Editor: **Mike Hazel**

SEPTEMBER / OCTOBER 1998

ISSUE # 150

In this milestone issue.....

* Lotsa Contest Results!
* Updated Competition Standings
* Stunt Stuff, by Chris Cox
* Structures, by Orin Humphries
* Engines, Etc., by Paul Gibeault
* Electronic CL Handle, by Fred Cronenwett
* Round & Round, by John Thompson
* Updated NW Competition Records
* And other things lurking about!

Pictured Below.....

Tasha Howell with her NW Clown Racer entry
at the 1998 Raider Roundup in Kent, Washington.
She has lots of helpers! (standing left to right)
Todd Ryan, Ron Howell, Mac Ryan, John Howell

COCKPIT CHATTER

notes from the editor

This issue covers the late summer contest action in the Northwest. The next issue will cover the remainder of the fall contests not already reported herein. This issue is also somewhat of a milestone.....number 150! I can hear the noisemakers now and just imagine the confetti flying! Hard to imagine we have done so many, we just keep chugging away.

As many of you probably heard, the Vancouver Gas Model Club cancelled their September 26th racing contest. This was due to death of VGMC club member Doug Hannay. The club members felt it appropriate to attend the services, which were scheduled that day. Doug was a well known free flight modeler, and a long time VGMC member.

It was great to see the resurrection of the NW Speed Championships meet, which was held over Labor Day weekend in Tacoma. Entry was a bit light, but this will increase as the schedule will probably be changed for next year. Site was the Clover Park Technical College, which is becoming a significant contest location.

We have a great report on the 1998 Raider Roundup, thanks to contest director Dave Gardner. Thanks, Dave!

The American Junior Aircraft Historical Society will hosting a Modelers Swap Meet on November 7th, in Portland. Site is the old Pay n' Pak building, which is the same place as last year. If you haven't received a flyer, you can write: AJAHS, Inc., PO Box 22885, Milwaukie, Oregon 97269-2885

All of you should have received your A.M.A. renewal packet by now. Remember that we have election for A.M.A. president this time around. We usually don't get too political here, but based upon knowledgeable input, your editor favors the incumbent Mr. Brown. (remember, voting sometimes means picking the lesser of two evils!)

1999 Regionals Update..... We just heard from Dave Shrum, who reports that the major renovation going on at the Roseburg airport is complete. Dave has checked it out, and says that the area we use for our contest is very smooth and level. Also the problem with the aircraft tie-downs that have plagued us in the past years is no more. The airport went to a flush style of tie-down, which will be a snap to put in temporary filler. This is great news for us.

Okay, get reading the rest of this issue.....

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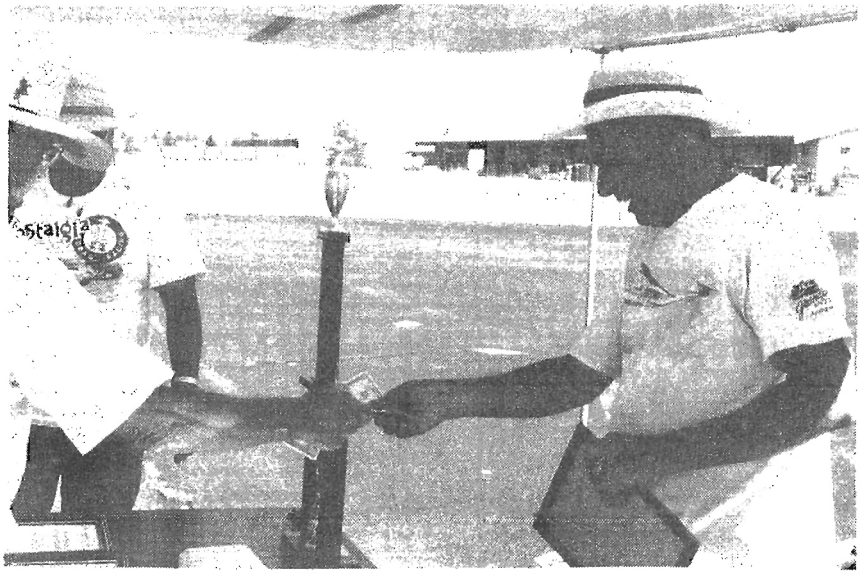
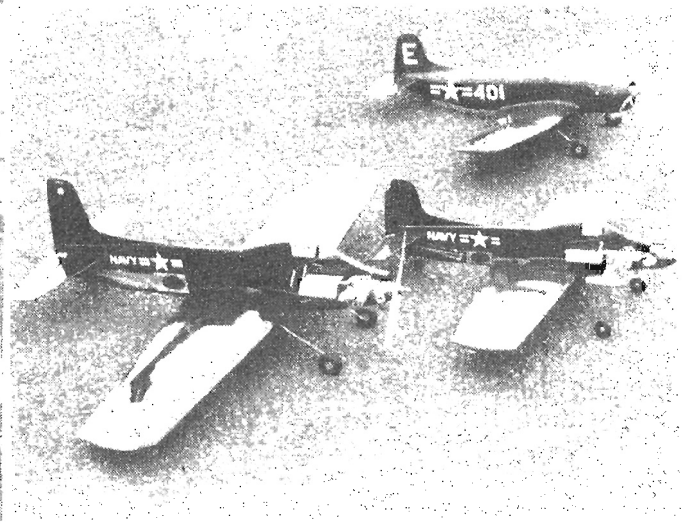
All right! .....Give "Partner" the dough! Chris Sackett collects his first place earnings at the Northwest Speed Championships in Tacoma



Mike Potter's Carrier fleet seen at the "Tailhook" all Carrier meet in Tacoma last August.



CONTEST RESULTS

TACOMA, WASHINGTON
AUGUST 25, 1998

The TAILHOOK all Carrier contest held August 25th at Clover Park Technical College in Tacoma was a great success. There were 7 entrants, entering a total of about 20 models in the various divisions. Many thanks to Vic Lichtenberg for acting as C.D., and to the Seattle Skyraiders for the use of the deck.

(*note, results provided not complete)

PROFILE CARRIER

1) TODD RYAN (MO-1, WILEY 36 REV. ROT)
2) SHAWN PARKER (SKYRAIDER, K&B 5.8)
3) BILL DARKOW (AUTOGYRO, FOX 36 REV.)

CLASS I & II CARRIER

1) MIKE POTTER (MAULER, K&B 61 REV.)
2) TODD RYAN (MO-1, WILEY 36 REV. ROT)
3) JOHN HALL (SEAHAWK, K&B 7.5 REV.)

.15 CARRIER

1) TODD RYAN (SNIPER, COX 15 REV. ROT)
2) SHAWN PARKER (SKYSHARK, COX 15)
3) MARK HANSEN (AICHI D3A1, MDVS 15D)

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COQUITLAM, B.C.
SEPTEMBER 5, 1998

MOUSE RACE I (6 ENTRIES)

1)	PAUL GIBEAULT	4:40.13
2)	STEPHEN COX	5:08.62
3)	JAMES COX	5:41.56
4)	REMY DAWSON	HEAT- 2:49.03

PAC .15 SPORTS RACE (4 ENTRIES)

1)	PAUL GIBEAULT	7:35.72
2)	STEPHEN COX	8:54.05
3)	MIKE CONNER	10:01.44
4)	RON HOWELL	14:41.00

NORTHWEST SPORT RACE (3 ENTRIES)

1)	PAUL GIBEAULT	8:55.00
2)	RON HOWELL	DNF
3)	FRANK BODEN	DQ

NW FLYING CLOWN RACE (7 ENTRIES)

1)	STEPHEN COX	243
2)	MIKE CONNER	235
3)	PAUL GIBEAULT	221
4)	JAMES COX	219

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TACOMA, WASHINGTON
SEPTEMBER 5 & 6, 1998

NORTHWEST CL SPEED CHAMPIONSHIPS

RECORD RATIO SPEED (9 ENTRIES)

1)	CHRIS SACKETT	(FAI - 175.64)	98.92%
2)	DICK SALTER	(SPORT JET-150.19)	98.83
3)	JERRY THOMAS	(AMA JET - 178.68)	95.56
4)	MIKE HAZEL	(SPORT JET - 141.12)	92.86

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RICHMOND, B.C.
OCTOBER 3, 1998

This was the last contest of the season for the PAC, and although it rained most of the day, at times heavy, the contest was considered a great success. We were using the Old Time Stunt stunt pattern and rules, but open to any profile. Same 10 point bonus for no flaps applied.

Mike Conner and Dan Rutherford went into the last round tied for first. Mike had an excellent second flight on the go until the handle slipped in his hand during the horizontal eights. He was able to save the airplane, but it took a couple of maneuvers before he was able to get back into the groove. This left the door open for Dan, who was last to fly. He did not disappoint us and flew the best pattern we saw all day for the win.

Jim Johnson came up from Olympia, Washington to enter his second ever stunt contest. His first was two weeks ago at the Raider Roundup in Seattle. Jim is very keen and is sure to make heads turn in the not too distant future.....way to go, Jim!

Judges: Chris and Joan (aka dragon lady)Cox

PROFILE STUNT (9 ENTRIES)

1)	DAN RUTHERFORD	275.5
2)	MIKE CONNER	259.0
3)	KEITH VARLEY	252.5
4)	MEL LYNE	237.25

1998 RAIDER ROUNDUP
KENT, WASHINGTON
report by Dave Gardner

The 1998 Raider Roundup was held on September 19-20, 1998, after much confusion as to the dates. Even after final coordination with the Boeing Sports Car Club (Autocross), we were bumped from our normal part of the Boeing Space Center parking lot on Sunday. The second day of the contest was relegated to the East lot near the tennis courts. It worked out well, however, since the Precision Aerobatics events were the only events on Sunday and we only needed the one circle.

This was some of the best weather and best flying for the Roundup in several years. On Saturday, the weather was overcast, but moderate temps and wind. (No sun in the eyes!) Sunday, the sun broke through for a lovely, if not a little windy day. There were 51 contestants flying 111 event entries. There were no Juniors this year, but mainly because they've all grown up to be Seniors! There was room here, however, since several of the Senior flyers are now Open category.

Four racing events (Mouse 1, NWSR, NWSS, NWFC) had 30 event entries, more than any in the last 5 years. Tom Knoppi put his FAI F2C background to work as Racing Event Director. With Tom's direction, the volunteer timers kept the racing running well. There was a minor disagreement among some of the pilots DURING one of the races....apparently had to do with space allocation in the pilot's circle! Northwest Flying Clown had 12 entries, providing 4 heats of three teams and a 4-up final. The racing was close, with even 6th place making it into the 200 lap club. Todd Ryan capped the event with 304 laps, while Joe Rice was close behind with 290 laps! Mouse Race I was solidly taken by Joe Rice. Max Boyd came out of the combat circle to win Northwest Sport Race by a narrow margin over James Cox, a Senior flyer. (20 seconds out of 140 laps!) Northwest Super Sport Race was taken by the Nitroholics Racing Team (Mike Hazel / John Thompson) with a solid lead of over 1:20 over Stephen Cox, also a Senior.

Combat was also well attended, since we brought back AMA combat. Three Combat events (AMA, 80 mph, Vintage Diesel) drew 27 event entries, also a new high. Jeff Rein and the yeoman group of combat flyers ran a well organized combat program, with only minor mayhem and no flyaways! Tom Strom just edged out Jeff Rein for First in AMA Combat. Paul Dranfield topped Mel Lyne to win Vintage Diesel Combat, while Jeff Rein outmaneuvered Ken Burdick for the leader in 80 mph.

The Navy Carrier events drew 13 event entries, including Bill Darkow's profile Autogyro. Bill managed a very respectable 4th (of 7 entries); this has to be taken in the perspective of limited high speed flight for the autogyro (but low speed wasn't bad!). Shawn Parker and Mike Potter co-directed the Carrier events, managing all the intricate details and scoring procedures very well. Todd Ryan held a solid first place with his Profile Carrier entry, as well as showing the others how to fly 15 Carrier too!.

Todd also entered Class I/II combined. As the sole entrant, Todd did not get an official flight. He did, however, get the spectacular Carrier flight award, by getting his Class I plane ***inverted*** *from slow speed flying. His 10 or so inverted laps gave him negative points, but even with limited down elevator, he did manage to get the beast back around upright. (fly high inverted, then lotsa UP!). His landing, although "in the drink", was successful, since both he and the plane walked away from it!*

Scale actually drew 5 entries in both Profile and Sport Scale, marred only by the crash of Ron Canaan's old but nice P-61 Black Widow. (Those twins are a bear!). Nick Stratis hustled this event with Dennis Patera doing an excellent job of judging, with only minor payoffs (just kidding, Dennis; we know there's not enough money out there to buy off a judge!) Nick Stratis took first in Sport Scale, with Shawn Parker showing the way in Profile.

All the Stunt / Precision Aerobatics events were well managed by Paul Walker and Bob Parker, including organization, judging and appearance judging. Gary Letsinger brought his wonder scale dead-lift pull tester and made sure everyone had their turn on the rack. Tallying of the various events was done by Don West, Steve Scott and Joan Cox. James Cox acted as high speed runner on his in-line skates.

Old Time Stunt had 8 entries. (This may be a better Beginner's class!) Dan Rutherford finally beat Keith Varley! This was a closely fought event, with only 50 points difference between 1st and 7th. 5th and 6th were only _ point apart! Classic Stunt had 9 entries, with some very nice airplanes. Don McClave took first again, with 503 points. John Leidle was second with 502.5!

Beginner and Intermediate were combined, flying the full pattern. We only had 4 flyers in this event; either people are afraid to fly or they've moved up to Advanced! David Finnie took the combined event, and will soon work into Advanced himself.

Advanced class had 7 entries, with more close flying; 5th place was only 30 points below the winner. Dan Rutherford won with a 460.0, while upcoming Jerry Eichten was second with 456.5. Expert Class had 5 entries, after Don McClave was persuaded (by Paul Walker) to enter Expert with his Classic Oriental. Don didn't win this one....he was second (510.5) to Chris Cox, of the Canadian FAI team, who won with a 521.5.

All in all, it was a very good contest, CD'd by Dave Gardner. His lovely assistant, Alice, was not in attendance, being involve with painting their new house! She did bring lunch, however, along with comments about managing to get out of work on the house by running a silly contest.

PROFILE CARRIER (7 ENTRIES)

1)	TODD RYAN	296
2)	SHAWN PARKER	224
3)	MIKE POTTER	216
4)	BILL DARKOW	210

.15 CARRIER (5 ENTRIES)

1)	TODD RYAN	234
2)	MIKE POTTER	178
3)	FRANK BODEN	81

CLASS I/II CARRIER (1 ENTRY)

1)	TODD RYAN	NO SCORE

PROFILE SCALE (3 ENTRIES)

1)	SHAWN PARKER	119
2)	CHRIS GOMEZ	83
3)	RONALD CANAAN	81

SPORT SCALE (2 ENTRIES)

1)	NICK STRATIS	371
2)	JIM FULLER	342

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OLD TIME STUNT (8 ENTRIES)

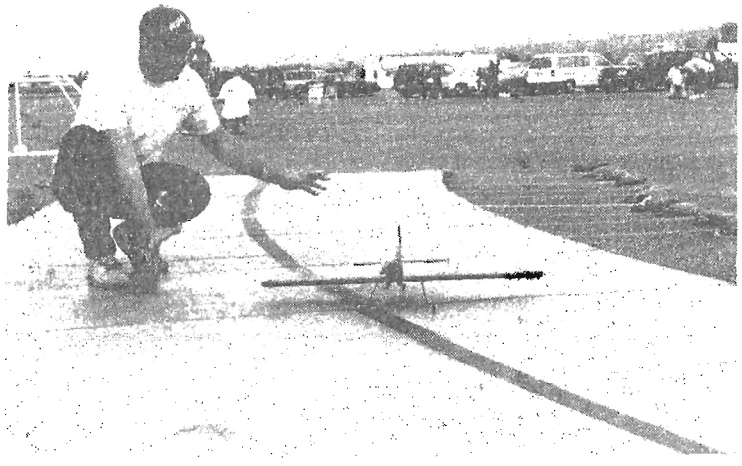
1)	DAN RUTHERFORD	293.0
2)	KEITH VARLEY	272.0
3)	SCOTT RIESE	271.0
4)	BOB EMMETT	262.5

CLASSIC STUNT (9 ENTRIES)

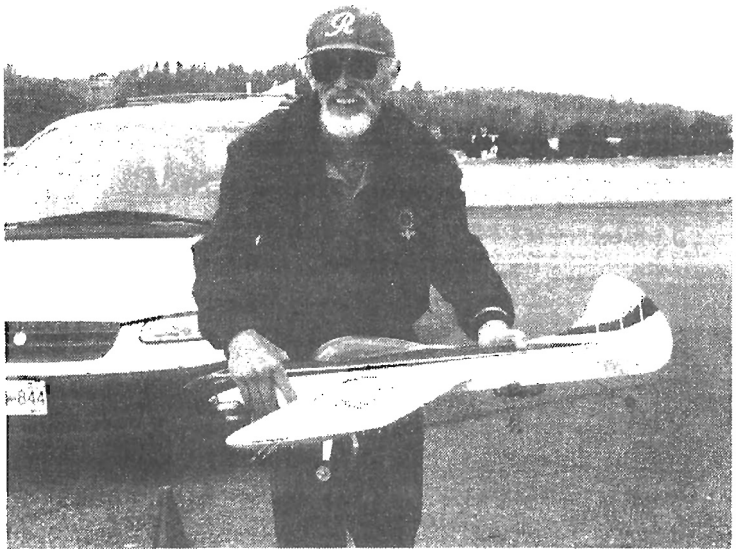
1)	DON McCLAVE	503.0
2)	JOHN LEIDLE	502.5
3)	DAN RUTHERFORD	474.5
4)	SCOTT RIESE	455.5

PRECISION AEROBATICS - BEG/INT. (4 ENTRIES)

1)	DAVID FINNIE	373.0
2)	BRUCE HUNT	228.5
3)	JIM JOHNSON	132.0



Shawn Parker launches Mike Potter's Profile Carrier entry at the Raider Roundup meet. Model design is the Skyshark.



Keith Varley of Vancouver, BC entered Classic Stunt, with his "Oriental" model. Shown here giving the plane the ol' pull test yank on the dead-lift pull test device.

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PRECISION AEROBATICS/ADVANCED (7 ENTRIES)

1)	DAN RUTHERFORD	460.0
2)	JERRY EICHTEN	456.5
3)	MIKE CONNER	443.0
4)	KEITH VARLEY	438.5

PRECISION AEROBATICS / EXPERT (5 ENTRIES)

1)	CHRIS COX	521.5
2)	DON McCLAVE	510.5
3)	JOHN LEIDLE	488.0
4)	RANDY POWELL	466.0

FAST COMBAT (12 ENTRIES)

1) TOM STROM
2) JEFF REIN
3) HOWARD RUSH
4) GARY HARRIS

80 MPH COMBAT (8 ENTRIES)

1) JEFF REIN
2) KEN BURDICK
3) MARK HANSEN
4) RICH McCONNELL

VINTAGE DIESEL COMBAT (7 ENTRIES)

1) PAUL DRANFIELD
2) MEL LYNE
3) KEN BURDICK
4) BUZZ WILSON

MOUSE RACE CLASS I (5 ENTRIES)

1)	JOE RICE	5:09.54
2)	STEPHEN COX	99 LAPS
3)	JAMES COX	89 LAPS
4)	NITROHOLICS TEAM	2:49 HEAT

NW SUPER SPORT RACE (5 ENTRIES)

1)	NITROHOLICS TEAM	7:53.70
2)	STEPHENCOX	9:15.91
3)	TODD RYAN	54 LAPS
4)	RON HOWELL	DNF

NW FLYING CLOWN RACE (12 ENTRIES)

1)	TODD RYAN	304 LAPS
2)	JOE RICE	290
3)	JAMES COX	265
4)	STEPHEN COX	256

NW SPORT RACE (8 ENTRIES)

1)	MAX BOYD	8:40.23
2)	JAMES COX	9:00.75
3)	NITROHOLICS TEAM	9:38.81
4)	MEL LYNE	(TIME N/A)

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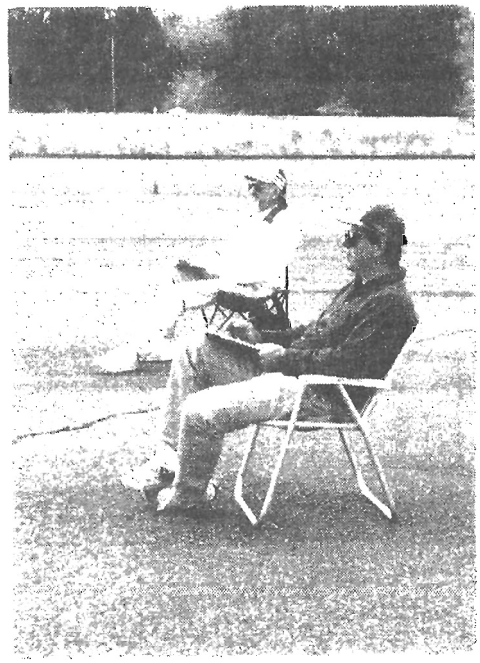
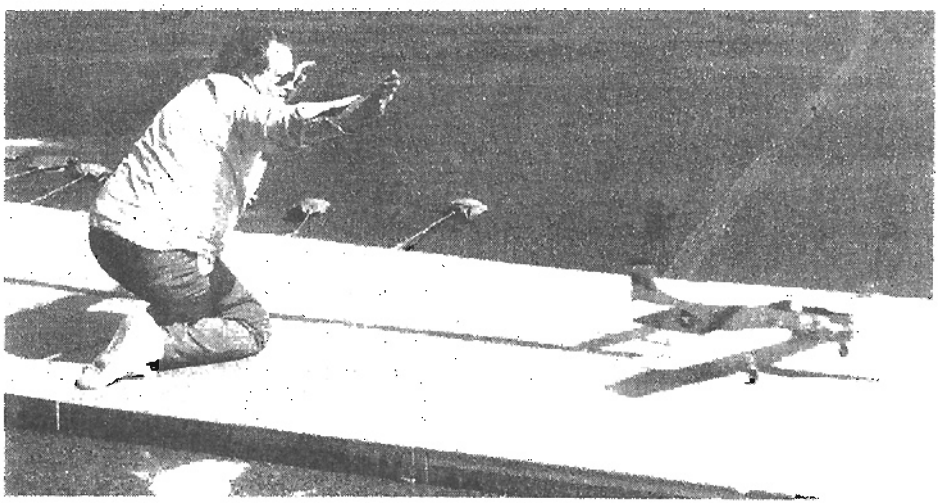
Paul Walker (foreground) and Bob Parker pull judging duty at the Stunt Circle on Sat.





Mike Conner gives a clean launch to John Hall's Skyraider at the Tailhook contest in Tacoma.

(Mike Potter photo)

FLYING LINES is produced by a staff of volunteers interested in keeping lines of communication open between Northwest region control line modelers. *FLYING LINES* is independent of any organization, and is made possible by the financial support of its base of subscribers.

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ENGINES, ETC.

BY PAUL GIBEAULT

ENGINE BLUEPRINTING

On occasion the term engine "blueprinting" comes up. What this term technically means, is that a particular example has been measured to be within the limits & tolerances of the designers specification drawing (i.e. blueprint). Well, just exactly, what does that mean??????? Doesn't the factory do a good enough job? The following discussion is about "good enough".

All component parts of an engine are drawn on paper with all the relevant details included, such as the material type, the finish, heat treatment required, and allowable maching tolerances. So.....if your particular engine consists of say, 100 parts, then there are at least 100 drawings for these parts, and usually more (fasteners not included). In addition to these drawings there is usually either a maintenance manual or a component overhaul manual to tell you how to correctly assemble the engine and also how to measure its power output. Often the maintenance manual will include a series of charts or graphs corrected to STP. (standard temperature & pressure, which is 20 degrees C. @ sea level). This allows the operator of the engine to run it in most weather conditions and still be able to determine its relative output horsepower.

Now in the auto, bike, & aviation industry, there are outfits that have access to the pertinent documents (which are often proprietary and given out only under license) and they also have professional testing equipment; such as dynometers and engine test cells, fully equipped with a myriad of sensors and monitors. This type of firm is really the only true source of "blueprinted" or factory spec. engines.

The blueprinting process basically involves the following steps: 1) Disassembly of the engine 2) A thorough cleaning of all parts 3) Often an NDI (non-destructive inspection) i.e. x-ray, ultrasonic, eddy current, magnetic particle, or dye penetrant test, to check for possible cracks. 4) Testing for proper hardness and heat treatment of metal components. 5) A very carefull measuring up of all component parameters, i.e. crankshaft trueness, connecting rod trueness, distance between centers, hole roundness, concentricity, tapers, radius, surface finish, etc. 6) A comparison of the figures obtained in step 5 versus the factory drawings. 7) Based on step 6, a number of parts will have to be rejected and/or reworked. Here's an important item to know.... For example, some tolerances are large (+/- .010, that is ,plus or minus 10 thousandths of an inch). And others are small (+/- .000005", or plus/minus fifty millionths of an inch). Yes, unfortunately, in our case certain items, notably the piston and cylinder sleeve must be made to an almost unbelievable fine dimension. This requires special tooling and very expensive measuring equipment not found in most shops. 8) A careful re-assembly of all the blue-printed parts, paying particular attention to certain critical set-up dimensions, such as, bore T.D.C. & B.D.C., stroke, port timing, head clearance, compression ratio, shimming, etc. set-up in accordance with the manufacturer's instructions. Now here's when the blue-printing really comes into play. Often from operational experience and testing, the shop endeavors to try and balance out, match, or stack the tolerances, in such a way as to obtain the maximum performance possible while still remaining with the stock designers drawing dimensions.

So, although not modifying anything, the toelrance matched blueprint engine may have a higher power output and in some cases, may also have smoother running characteristics. 9) A run-up in the test cell, including intake or carburetor adjustments, exhaust or pipe adjustments, with a reading of steady-state power output and throttling characteristics. 10) Back to the owner with a bill ($$$$$$) for doing all the above good work.

For all the above trouble and expense you are assured of an engine that will perform and last as long as the engine designer intended it should. This process while not necessarily increasing the power of an engine, is done mainly to increase its reliability. The owner need not worry that the engine was a Monday or a Friday built engine, or that the builder(s) were having an "off day" on your engine. On a great engine, the above may be a waste of money (because nothing wrong was found) or on the other hand, it may save you a great deal of money if the shop found major defective parts. It all amounts to how much trust you have in the original engine factory, and how much you have "on the line" to lose, in the event of a failure or loss of rated power. People who specialize in speed and racing applications where any power or reliability loss is unacceptable, and where the stakes are high, will often use kind of service.

So, where does that lead us? Well, although there ae several reputable model engine repair/modification shops around, I would doubt there is more than 1 or 2 at most that can do blueprinting to factory design standards. Not that they are not

neccessarily capable, it's that the engine manufacturers are not prepared to give away their proprietary drawings and factory information. A discussion with notable former US national teamrace member Tom Knoppi, yielded a most useful comment: "There's just no way Henry (Nelson) would give out his engine drawing specs, just so that some yahoo would return one of his engines saying that "I want another engine because I measured the boost port on mine and it is a 1/2 degree out".

Since the manufacturer: a) cannot rely on the accuracy of the average modeller who is generally not skilled, nor has access to using precision instruments. b) cannot rely on the average modellers engine building skills and equipment. c) makes no promise as to a specific power rating under specific conditions it's better off in many cases, for the manufacturer to do most of the repairs and by doing a bench run, determine the status of the engine.

SYNOPSIS: Factory engine designers such as Clarence Lee, who was involved with the K&B /Veco engines, I would bet has the drawings for them. I would expect the same with Dale Kirn (Cox), and Dave Shadel (Nelson). However, without a factory connections somehow, the closest the average guy can get, is to measure a new engine and hope that we have an acceptable example. The problem there is that it's quite possible to have 6 engines with 6 slightly differing sets of internal dimensions. So what do you do then??????

(editor's note... we stay tuned 'til next time!)

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SUBSCRIPTION EXPIRATION DEPARTMENT

THIS IS THE LAST ISSUE FOR THE FOLLOWING SUBSCRIBERS, YA'LL GET THOSE RENEWALS SENT SOON, AND KEEP SUPPORTING CL AVIATION IN THE NORTHWEST!

Frank Boden.....Art Lander.....Leo Mehl.....Nils Norling.....Shawn Parker.....Randal Powell.....Scott Riese.....Chuck Schuette.....Richard Scherer.....Bruce Sheldon.. .....Doug Taffinder.....Mark Wahlster.....

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Nostalgia Diesel Combat was flown at Carkeek Park in Seattle on April 26 this year.

(left to right) Burdick, Rein, Lyne, Boden, Duncan

Dranfield, Matthews

The Stunt pit area at the Raider Roundup in Kent.

"Classic" class planes were flown on Saturday.

The new "Electronic" CL handle

By Fred Cronenwett

Before we get going here, lets give credit to the person who created this new CL handle. Bill Young from Arizona has been making sophisticated electronic devices for RC, CL and FF models for many years now. He is a avid electric powered modeler. He recently completed this prototype CL handle that combines the advantages of electronics and the typical CL stunt handle for a winning combination.

For those who have been flying with or following the electronics that are fast becoming popular for CL scale and sport flying know that the use of converted RC radios has been a well proven system. But we are still taking equipment that was designed to be used for RC and use it for CL. The transmitter must hang off our belt and then a wire is plugged into a connector at the handle. This handle was designed to combine the transmitter and handle into one package, at the same time reducing the size and overall weight.

This new handle takes a three channel system and puts it into a handle that resembles the older 3-line handle that everyone is familiar with. This handle combines the precise neutral elevator adjustment capability, comfortable grip and trigger for throttle control. A toggle is located on the side for a function like flaps or retracts. Additional channels can be added, you just have to figure out where to put the switch.

Bill wanted some experienced CL pilots to test this handle to see if the system would work properly under actual flying conditions. One of the handles was sent to Grant Hiestand for testing with his fleet of electric airplanes. Grant pulled his Bruce Tharpe Venture 60 down and installed Bill's system for some relaxed flying. Steve Davis and yours truly joined Grant that day to put the handle thru it's paces. The Venture 60 is powered with an geared Astro 40 (small gearbox) and features throttle and flaps.

The throttle response was smooth and responsive. We were able to taxi, fly steady speeds and land under power without any problems. The toggle on the left side of the handle operated the flaps (3 position toggle). The flaps could be set at neutral, 1/2 down and full down. All you had to do was lift your thumb upwards the toggle was right there. This movement was very natural and did not force you to move your hand in a unnatural way affecting the smoothness of the flight. The trigger throttle control was spring loaded so if you let go the electric motor would shut down. The light spring tension was easy to hold in one position.

After putting three flights with the Venture 60 the electronics was transferred to the authors Hanger Nine Piper Cub that is also powered with a Geared 40 (Superbox this time!). The main difference being the speed control. This system worked very well with the 204 speed control that was installed in the Cub. The receiver that Bill assembled for this test unit was based upon the ACE decoder. The speed control in Grant's Venture 60 was the older type with neutral and gain manual adjustments. The 204 has automatic centering circuits that eliminate the need for the neutral and gain adjustment.

For those you fly with gas motors the trigger will have to be modified slightly to make sure the engine will idle when the trigger it at the relaxed position. Additionally some kind of switch to provide for an engine kill will have to be provided for. The handle and receiver was tested on the work bench with a servo and it worked just fine. Another option could be to replace the spring with a friction washer to allow the trigger to be put into any position and stay there until moved. Based upon our experience the best setup would be have the engine idle with the trigger in the relaxed position and have a switch for the engine kill.

While electronics has become popular with CL scale modelers, it has not proven to be popular with Carrier pilots. This new handle is a very easy transition from the existing 3-line handle since the trigger is in the same location. The 2nd channel (toggle on the side) could be used to drop the hook, flaps or line slider. The added bonus is the neutral adjustment for the elevator that is not possible with the older 3-line handle. In 1999 the .36 profile carrier event will drop the requirement to have 3 lines, thus allowing a system like this to be used. Class I and II already allow 2 line systems to be used. While the lines are thicker due to the nylon coating the number of lines drops from 3 to 2. Additionally the throttle response is not a function of line tension.

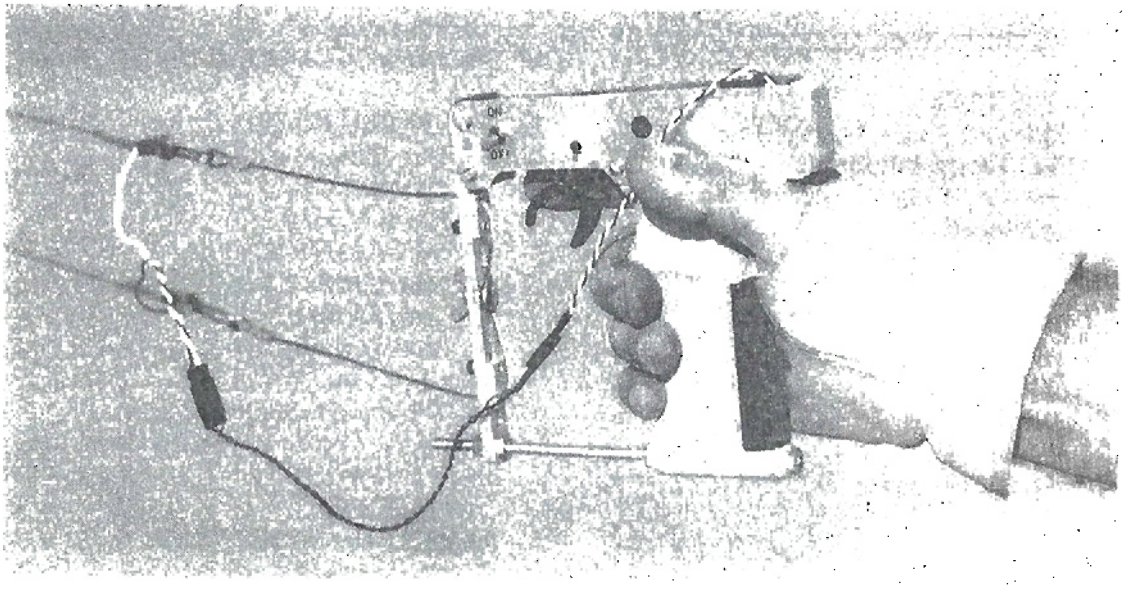
So you ask is Bill going to stop here and quit? Not quite, he is interested in hearing from interested parties that would like to purchase the system. Since this system was only the prototype variation from this configuration is possible. Based upon our flight testing we can see this becoming popular for Carrier, Scale and general sport flying. If you wanted 6 or more functions the handle will get crowded. However if you only need 2 or 3 functions (most scale models only need 3 channels) then this system is ideal. Plug it in, turn it on and go flying. I spoken with many CL pilots who are afraid to hang a RC transmitter on the belt. Well now you have no excuses, if you are comfortable with the J-Roberts 3 line handle then you will like this handle. For carrier I would recommend the 2 channel system. Good luck and keep your wings level.

Contact Bill Young at the following address if you are interested in a handle of your very own!

Bill Young
4403 E. Rustic Knolls Lane
Flagstaff, AZ 86004
Send SASE for reply please

For detailed information about CL electronics, flying lines and other related material contact:

Fred Cronenwett
21320 Parthenia Street, #101
Canoga Park, CA 91304
Send 10 first class stamps for complete package on CL electronics



The Scoreboard

Northwest control-line competition standings.

Fall contests have kept the standings in flux, and it looks as if the interesting races in some categories are going to play out until the end of the year. This month's update includes the Raider Roundup and several smaller contests. There's still time to move up the standings in those fall contests!

Contests counted to date: March 14, Richmond, B.C.; March 28, Portland, Ore.; April 4, Mission, B.C.; April 18, Richmond; May 2, Mission; May 3, Salem, Ore.; May 9, Richmond; May 22-23-24, Roseburg, Ore.; June 13-14, Kent., Wash.; July 11, Mission; July 25-26, Richmond; Aug. 22-23, Salem; Sept. 5, Richmond; Sept. 5-6, Tacoma, Wash.; Sept. 19-20, Kent; Oct. 3, Richmond.

Following are the standings for updated events:

1998 STANDINGS

CLASS I MOUSE RACE

1. Stephen Cox, Delta, B.C.	24
2. Joe Rice, Richland, Wash.	19
3. Will Naemura, Portland, Ore.	13
4. Nitroholics Racing Team, Oregon	12
5. Greg Nelson, Roseburg, Ore.	10

CLOWN RACE

1. ToddRyan, Pasco, Wash.	40
2. Mike Conner, Pitt Meadows, B.C.	28
3. James Cox, Delta, B.C.	26
4. Ron Howell, Hoquiam, Wash.	17
5. Stephen Cox	16

NORTHWEST SPORT RACE

1. Paul Gibeault, Richmond, B.C.	24
Todd Ryan	24
3. Mel Lyne, Garibaldi Highlands, B.C.	19
4. Ron Howell	15
5. Melvito Elito Team, B.C.	12

NORTHWEST SUPER SPORT RACE

1. Nitroholics, Racing Team	12
2. Todd Ryan	10
3. S&S Racing Team, Seattle, Wash.	8
4. Stephen Cox	4
5. Ron Howell	3

OVERALL RACING

1. Todd Ryan	85
2. Stephen Cox	50
3. James Cox	49
4. Paul Gibeault	48
5. Nitroholics Racing Team	46
6. Ron Howell	39
7. Joe Rice	36
8. Mike Conner	30
9. Will Naemura	23
10. Mel Lyne	19

PRECISION AEROBATICS

1. Dan Rutherford, Bothell, Wash.	44
2. Jerry Eichten, Dundee, Ore.	30
3. Paul Walker, Kent, Wash.	24
4. Bob Parker, Renton, Wash.	23
5. Mike Conner	20

CLASSIC STUNT

1. Don McClave, Portland, Ore.	27
2. John Leidle, Kirkland, Wash.	23
3. Dan Rutherford	20
4. Scott Riese, Portland, Ore.	6
5. Roy DeCamara, Vancouver, Wash.	5

OLD-TIME STUNT

1. Dan Rutherford	23
2. Keith Varley, Vancouver, Wash.	15
3. Emil Kovac, Issaquah, Wash.	13
4. Mike Conner	8
5. Chris Cox, Delta, B.C.	7

OVERALL STUNT

1. Dan Rutherford	77
2. Don McClave	48
3. Keith Varley	33
4. Mike Conner	28
5. John Leidle	24
Jerry Eichten	24
Paul Walker	24
8. Chris Cox	23.5
9. Bob Parker, Renton, Wash.	23
10. Alice Cotton-Royer, Portland, Ore.	15

AMACOMBAT

1. Jeff Rein, Bothell, Wash.	16

2. Tom Strom, Seattle, Wash. 12
3. Howard Rush, Bellevue, Wash. 10
4. Ken Burdick, Seattle, Wash. 6
5. Buzz Wilson, Edmonds, Wash. 4

80-MPH COMBAT
1. Jeff Rein 21
2. Tom Strom 10
3. Mark Hansen, Portland, Ore. 9
4. Mel Lyne 8
5. Ken Burdick 7

VINTAGE DIESEL COMBAT
1. Mel Lyne 37
2. Troy Lyne, Garibaldi Highlands, B.C. 33
3. Ken Burdick 27
4. Rick Meadows, B.C. 22
5. Mike Conner 13

OVERALL COMBAT
1. Jeff Rein 53
2. Mel Lyne 50
3. Ken Burdick 40
4. Troy Lyne 33
5. Rick Meadows 22
Tom Strom 22
7. Buzz Wilson 21
8. Gary Harris, Forest Grove, Ore. 16
9. Mark Hansen 14
10. Mike Conner 13

PROFILE NAVY CARRIER
1. Todd Ryan 26
2. Shawn Parker, Seattle, Wash. 24
3. Mike Potter, Auburn, Wash. 19
4. Rick Meadows 7
5. Bill Darkow, Olympia, Wash. 5

.15 NAVY CARRIER
1. Todd Ryan 19
2. Mike Potter 18
3. Shawn Parker 13
4. Frank Boden, Burnaby, B.C. 5
5. Mark Hansen 3

OVERALL NAVY CARRIER
1. Todd Ryan 51
2. Mike Potter 44
3. Shawn Parker 35
4. Rick Meadows 9
5. Frank Boden 8
6. Bill Darkow 5
7. Mark Hansen 4
Mike Conner 4
Roy Beers, Vancouver, Wash. 4
10. Dennis Matthew, B.C. 3
Loren Howard, Vancouver, Wash. 3

SPEED (all classes combined)
1. Dick Salter, Seattle, Wash. 19
2. Mike Hazel, Salem, Ore. 17
3. Jerry Thomas, Edgewood, Wash. 14
4. Chris Sackett, Burnaby, B.C. 13
5. Bob Spahr, Brush Prairie, Wash. 10
Chuck Schuette, Vancouver, Wash. 10
7. Paul Gibeault 6
8. Ron Salo, Richmond, B.C. 5
9. Loren Howard 3
10. Craig Bartlett, Corvallis, Ore. 1
Chris Hazel, Salem, Ore. 1

SCALE(all classes combined)
1. Shawn Parker 3
Rick Meadows 3
3. Chris Gomez, Auburn,Wash. 2
Nick Stratis, Auburn, Wash. 2
Gerald McHale, B.C. 2
Bruce Tharpe, B.C. 2
8. Jim Fuller, Seattle, Wash. 1
Harold Youds, B.C. 1
Ronald Canaan, Auburn, Wash. 1

Flying Lines keeps track of standings in all AMA rulebook and Northwest official events, in all Northwest sanctioned contests.

Your *FL* editors do their best to keep up with the results, but contest directors can help keep the standings up to date by making sure to send the results to *FL* immediately after the contest. When you send your report to AMA, remember to send the results to *FL*, too. If you spot any errors, please let us know.

Results must include the placing in each event through fourth place and the report also must list the number of contestants in the event, in order for the point standings to be counted accurately.

Also, please include in your report the hometown of the contestants, and note which contestants are juniors. Only Northwest residents are counted in the standings (AMA Dist. XI and British Columbia). The score of each contestant also should be listed for general reporting purposes and for checking against the Northwest records, another popular *FL* feature.

Remember, only results that we receive can be counted, so send them in. If you flew in a contest that doesn't appear to be counted, contact the contest director or *FL* and let us know.

Send contest results, corrections and other correspondence regarding Northwest Competition Standings to John Thompson, 2456 Quince St., Eugene, OR 97404, e-mail John4051@aol.com. For a printed copy of complete standings for any event, or for a copy of the rules for any Northwest event, send a self-addressed, stamped envelope.

The following article was provided by Craig Bartlett. He says he found it on the internet, the original being from some hot rod publication.

ANODIZING AT HOME

(EDITOR'S NOTE: FOLLOWING ARTICLE IS NOT VERBATIM TO ORIGINAL, TO ELIMINATE NON-RELEVANT STUFF)

...Often anodizing is considered and/or presented as a difficult and expensive procedure. As it turns out, it really isn/t that hard or that pricey.

SUPPLIES NEEDED:

The first thing to do is to get the following things together..... first on the list is the most expensive a 6 or 12 volt battery charger. This item is what might make this too expensive for some. They run from $45 to $100 depending on model, functions, etc. The next item, though not that expensive will take some effort to find, battery electrolyte, a.k.a. sulfuric acid. This should be available at a battery wholesaler for about $2 per gallon. To make the negative ground, you will need some aluminum ground wire and aluminum foil. The wire can be found at an electronics store for about $35 per spool, and you should have the foil in your kitchen. If you happen to be out of foil, you can pick up some more at the store when you go to buy the last item for this project.

No super special chemicals or solutions are necesary to make the colors, just plain old fabric dye. (such as Rit brand, for about $5). Rit offers something like 30 to 40 different colors, so you have quite a number of choices for what color you want your parts to be. An optional item is nitric acid. This is used to clean parts prior to anodizing, but there are some cheaper alternatives-keep reading. This is available at chemical supply stores. Should you not be able to find any, you can try to get on the good side of the local high school science teacher, who may help you out since you only need a few ounces.

SAFETY PRECAUTIONS

There are a few precautions I want to go over to help keep you from blowing up the house or trashing the garage. First of all, do not mix or store your anodizing solution in a glass container. Something could happen to make it break, and most households are not equipped to deal with that kind of spill.

You also do not want to knock over the container, so a stable rubber bucket makes a good choice. You will also need to be certain the part you want to color will fit in the container without sticking out of the solution, and without touching the negative ground in the bottom of the container.

Any acid that you don't use, keep in what it came in, or an old plastic bottle, like a bleach bottle. You can also store your used solution this way for doing more parts later. (Make sure that there is absolutely no bleach left in the bottle. Acid and bleach make chlorine gas-bad stuff!) Safety also applies to the nitric acid, but in a different way. It is imperative that you label and keep track of this stuff, as it is a stronger acid than sulfuric, and more dangerous.

The breakage/spill problem is not as likely since you won't have that much around. The last note about the acids is to mix properly when adding acid and water. Always pour acid into water, never the other way, and do so slowly, being sure to mix in well. There is a reaction taking place and it releases a lot of energy.

During the anodizing process, you will be running electricity through a weak acid solution. This creates hydrogen (just like charging a battery) which is very flammable. This stuff burns at the speed of thought when ignited, so do be careful. Make certain that there is some way to ventilate the project area, and do not let any sources of ignition near the project area. Other precautions you should take include safety glasses, rubber gloves, and maybe some sort of drop sheet under the area.

PREPARATIONS:

One of the most essential things you need to do in order to get even color over the whole part is to be sure that the part is absolutely clean. You want it free of all contaminates, from dirt to the oils in your skin. This is where the nitric acid and some rubber gloves will help. A solution of 1 - 2 ounces of nitric acid in a gallon of distilled water will aloow you to clean the surface in prepartion for the anodizing. Aluminum oxidizes very quickly when exposed to air, so the easiest way to keep it clean is to clean it just before you are ready to start working on the piece. You should rinse the part with distilled water before you put it in the next acid solution.

Other options for cleaning are carburetor or brake cleaners, or other similar degreasers. Soap and water will work also, or cleaners like Simple Green. These are cheaper, but a nitric acid wash is the best. You decide, it's your money and your project.

Make your negative ground with the aluminum wire and foil. Shape the end of the wire into a paddle shape and cover the round part with the foil. What you want to do is create a flat, round shape to sit on the bottome of the bucket, with a lead that comes up out of the bucket. You will clip the battery charger negative lead to the wire that comes out of the bucket. When you are ready to start, you will want to mix up your immersion solution.

In your rubber bucket, combine the sulfuric acid and water to come up with a solution that is aobut 30% water. (1 part water to 2 parts acid). Place the paddle in the bucket and attach the negative lead. Then attach the positive lead to the part, making it an anode, and immerse it in the solution. Remember that the two leads the paddle (cathode), and the part (anode) should not touch.

This is the best time to turn on the charger: once the part begins to fizz. Leave it in there for aobut 10 to 15 minutes. After about this time the part should no longer conduct electricity. You can also use an ohmmeter to check conductivity, but this is not needed. Turn off and disconnect everything and rinse the part in COLD water.

COLOR: So now it doesn't conduct electricity, and is ready for color. It's been rinsed and waits eagerly to change to a new look. Don't wait too long to do the color, due to that oxidizing thing again. You want to mix up a strong solution of dye and water, in a container that can be heated. The solution needs to be a low heat, such as on the stove, so bread and cake pans work well. Again, you need something that will fit the whole part, but it's okay if it touches the bottom this time. I would recommend turning parts every few minutes just to make sure that you get all-over color.

The pan can be washed out. It is important that the heat be low enough. If the solutions gets too hot, you will seal the surface, and it will no longer take any color. Leave the part in the dye until it is slightly darker than you want it. The next step is to seal the surface of the metal in clean boiling water. This will leech a bit of color from it, thus the slightly darker color in the previous step.

END NOTES:

It is important to realize that the process described above will yield only one color on your part. Also, this process is for aluminum. I don't know how, or if, it will work on other metals. Anodizing only works well on raw metal stock, like bar or sheet stock, as opposed to castings. If it was forged or machined, it should have the density to take color through this process.

Something to consider when looking for a charger, is how many amperes it puts out. Anodizing relies on 10 to 40 amperes per square foot. The other note is about part size, has to do with how long you leave it in the solution. Before it said 10 to 15 minutes, but that is for a smaller part. The larger parts may not only need higher amperes, but more time as well.

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STUNT STUFF

by Chris Cox

At the promise of riches beyond my wildest dreams (and I have some pretty wild dreams) and all the women I can possibly handle (one, and I already have her), I have agreed to take a stab at writing a regular stunt column for Flying Lines. I plan to cover the usual stuff such as flying tips, trimming, construction, and should anyone find the time to ask, I will make time to anwer any questions that may come my way.

Which brings me to my first tip, which you have all heard before, never be afraid to ask questions. Believe me, there is not enough time allocated in our life to learn ever y thing by trial and error. Asking someone who already knows the answer is much quicker and easier.

Please Don't Squeeze the Charmin! .....

No doubt many of you have heard the above adage for a long running TV ad, but how does it pertain to stunt? Well, I'll tell you.

I don't know about the rest of you, but believe it or not, I have been known to develop the occasional case of "contest jitters". I know, you are probably thinking to yourself, "What in the world is Chris talking about? Why he is probably the coolest, loosest guy out there". Well sports fans, I'm not, I just hide it well!

What the relationship between ability to wiggle the handle versus the mental aspect of stunt flying is we'll probably never know, but I suspect it is huge. If left unchecked, I can mentally beat myself to the proverbial pulp in no time. When I do this, I will start to squeeze the Charmin (substitute Charmin for HANDLE) much too tight, hit the corners too hard and prevent the airplane from doing what it does best, fly! It is not until I force myself to relax and lightly grip the handle comfortably in my hand that my pattern makes a pronounced improvement.

I seem to consistently put in what I would consider a stinker of a flight (for me at least) in the first round and bounce back with a fairly respectable flight in round two. Even the judges comment on the transformation and ask what trim changes I made. My response is, "Nothing, I simply relaxed".

When do you fly your best? While stressed out due to contest jitters, lack of sleep, fear of failure, or when relaxed and enjoying yourself.

Although not easy, contest jitters can be controlled. Try to relax, talk with your buddies, deep breathing exercises, drink plenty of fluids (preferably not coffee or high caffieine beverages) and remind yourself that in practice your flights are great. Do not squeeze the handle so tight that your knuckles are turning white! You cannot possibly fly an accurate pattern while maintaining a death grip on the handle. The ability to produce accurate corners and flat bottoms are near impossible when clutching the handle. For me, I must constantly remind myself before and during the flight to ease up on the handle pressure. When I do, my flying improves remarkably.

Paul Walker told me recently that he had learned this technique years ago, but I suspect that the majority of you are like me and need to be reminded of these things. During the World Champs in August, I asked Paul to come over and give me a swift boot to the backside just prior to my last official and remind me to relax and have fun. True to his promise, I received the kick just before entering the circle. It worked, I relaxed and put in my best flight.

All of the above may seem a little too simplistic, but I believe it to be one of the quickest ways to see your flight scores make a substantial improvement.

Until next time, relax, stay loose, and fly stunt!

Round & Round

The Control-Line modeler at large

By John Thompson

Modeling thought for the month:

"The man is tactful who can make his point without making an enemy."

— Charles L. Wheeler

Planning for a Good Year!

The time has come to get serious about updating the Northwest Goodyear rules for 1999.

The rules for the event were last revised in 1993.

As most racers know, the rules for Northwest Goodyear are identical to AMA Scale Racing except that the power plant is limited to specific engines, and .015 stranded wires are allowed. The purpose of the rule is to keep the cost of the event within reason. When drawn up in 1993, the list included most engines available at that time, except for the high-dollar Rossi and Nelson engines.

Some of the engines on the list are relatively fast, but they're all reasonably inexpensive, the most costly being the Conquest.

During 1998, racers have been submitting various suggestions for additions to the list. All the suggestions have been within the spirit of providing a variety of possible viable racing engines while limiting the cost to $100 or less per engine.

Below I'm listing the currently permitted engines. After that, I'll list the engines that have been suggested so far, with some additional information if I happen to have any.

Here's what racers interested in Northwest Goodyear should do, right now: Take a look at the list of proposed engines and think about it. Do whatever research you want to back up your thinking. Send your comments about the suggestions to me at the address below by Nov. 1.

The next edition of *Flying Lines* will contain the actual NWG 1999 rules ballot. At that time you will be asked to vote, engine by engine, on additions to the list. The results of the vote will be the engine list for 1999.

Remember that once an engine is on the list it is difficult to remove, because removal would obsolete airplanes built in good faith. So do the research now, and cast your votes carefully when the time comes.

Engines currently permitted:

- Fox: Any version
- K&B: Any version
- Cox: Any version
- Conquest: Any version
- O.S.: Any version
- SuperTigre: Front intake versions
- Enya: Any version

Engines suggested for addition to the list:

- AME/Norvel (four versions ranging up to $99)
- Magnum XL-15A ($49)
- MDS
- Mecoa Wildcat EP15 ($59)
- Moki (this is a fast, inexpensive, but difficult-to-obtain engine)
- MVVS 15 DFS/R ($80)
- MVVS 15 GFS/R ($90)
- Picco (around $80)
- Thunder Tiger GP15 ($60)

Parenthetical remarks with the engines on the "suggested" list above provide information I've collected or been given. Absence of such remarks indicates that I have no further knowledge of this engine. Note that the above list does not constitute a recommendation from me; this is just the list of engines that has been compiled from various people. The ballot will give a yes/no option to each one.

Now is the time to add your suggestions, or forward your remarks. The next issue of the newsletter will publish your remarks as space permits, as well as the ballot. Remember to get your thoughts to me by Nov. 1.

This has been a good year for racing, and we're seeing some new faces coming out and joining the fun.

I'm hoping we'll see a lot of the new racers and the old familiar faces at the Really Racing season finale on Oct. 10 in Salem, Ore. That will also be a chance to discuss some of these engine suggestions.

Remember, the Northwest rules-making process includes you. Don't neglect your duty to take part in the process!

Send comments, questions, and topics for discussion to John Thompson, 2456 Quince St., Eugene, OR 97404. E-mail John4051@aol.com. World Wide Web: http://members.aol.com/JohnT4051/NorthwestCL.html

SPECIAL TOPICS

I-BEAMS PART 4
by Orin Humphries
STRUCTURES PART 6

It is time to visit the second major fallout from our long journey into the land of I-beams rather than push on with scholastic ideas. Let's APPLY.

A few short years ago one of the electric scale men from California was up for the Regionals with a bird that needed outer wing panels that came off for transportation. He had used the method of bracing them that had been widely seen in the '60s in the Kyosho kits. They had designed in a very strong (!) piece of hardwood to bridge the separation line. (You already know how I feel about imbedded hardwood stiffeners from previous articles. **Worst** mistake you can make.) It was rectangular, about 2" fore and aft, about 1/2" thick, and maybe 6" spanwise. Half of it was imbedded in the inboard portion of the wing and a slot was provided in the outer wing panels so they could slip on. This man, now, had added something on a hunch. He had put metal straps, the small landing gear attach variety, on the spar across the gap on the upper and on the lower wing surfaces. He said, "There must be some significant forces there, as I have had to repair cracks around the ends of the straps three times". Talk about being right up to the edge and not knowing what was there! That's okay; I wasn't born knowing this, either.

In the previous installment I talked about the Neutral Axis of an I-beam. There is a simple formula in engineering that tells how much stress you will find in a beam if you say how far away from the axis you want to consider. Recall the caps of the beam being a t-c pair. As you leave the axis and proceed toward a cap, the stress at each point on your journey increases linearly with the distance traveled. Look at Fig. A.

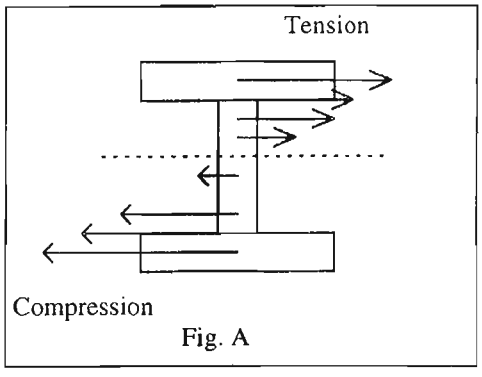


Fig. A

Tension forces actually come straight out of the paper at you; not to your right. Compression goes straight into the paper. The length of the arrows indicates the intensity of the force supported by the beam at locations above and below the neutral axis. Note how the intensity (stress) grows as you get away from the neutral axis, toward the chords . The force supported by the beam is at a maximum in the outer most layers of the upper and lower chords. Again, the forces are parallel to the long axis of the beam; not to this paper.

The hardwood block in the above-mentioned model, buried at the chord line of the wing, was like a lead anchor. The loads near the chord line, due to bending, are small. The wing was carrying a sledgehammer to kill a mosquito. The real loads across the gap between inner and outer wing panels were trying to pass through the metal straps the builder had put on the spar caps. Unfortunately, the size of the forces, this far away from the neutral axis, overwhelmed the wood structure he had in his spar caps/chords, and cracks were always going to appear.

When I build my larger models someday, there will be no imbedded blocks across the wing separation gaps to carry loads. (There will be small alignment pins, of course.) The spar caps will have pieces of plywood for a ways on either side of the gap, changing back to balsa when I have enough contact area between the plywood pieces and the surrounding structure. The small metal straps holding the tips on should not make cracks around them, then. See Fig. B

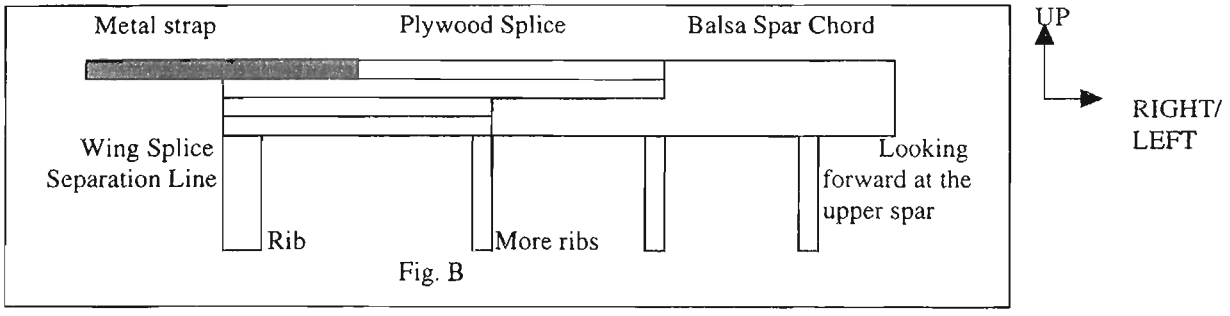


Fig. B

NORTHWEST COMPETITION RECORDS

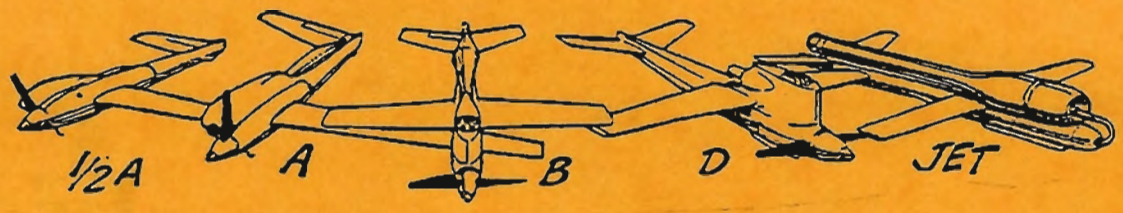
Record performances established between NW CL modelers in sanctioned competition

Here's your records update, which includes new marks set during the summer months. From top to bottom..... In 1/2 A Speed, Mike Hazel bumped his own record up by 5 mph..... Hey! That 'A record slot is still wide open!.....At the recent P.A.C. racing meet, Paul Gibeault took the Mouse I race feature by 1 second from Stephen Cox.....In the NW Sport Race feature, Todd Ryan takes back the standard by 3 seconds from the Melvito Elito team.....At the Raider Roundup, Todd bumps up his .15 Carrier mark by 5 points.....And way back in July at the Salem Endurance Record Trials, Mark Hansen improved his score by 6 minutes..... Congrats, All!

Note that we now have another record-setting venue. Last year, Salem went onto the record books as a competition location. And now we add Tacoma, which is the Clover Park Technical College site. Technically, it is in Lakewood, a Southern Tacoma suburb, but we will call it Tacoma so everyone knows where it is.

1/2 A SPEED	110.34	MIKE HAZEL	9-06-98	TACOMA, WASH.
A SPEED				
B SPEED	168.47	RON SALO	6-14-97	KENT, WASH.
D SPEED	183.41	BOB SPAHR	7-14-95	RICHLAND, WASH.
JET SPEED	196.64	JERRY THOMAS	8-8-93	RICHMOND, B.C.
FORMULA 40 SPEED	153.13	MARTY HIGGS	6-26-94	RICHMOND, B.C.
21 SPORT SPEED	152.87	CHUCK SCHUETTE	7-20-97	COQUITLAM, B.C.
FAI SPEED	179.54	CHRIS SACKETT	8-17-97	COQUITLAM, B.C.
1/2 A PROFILE PROTO	101.60	CHUCK SCHUETTE	5-26-96	ROSEBURG, OREGON
21 PROTO SPEED	133.03	CHRIS SACKETT	5-25-97	ROSEBURG, OREGON
NW SPORT JET SPEED	151.97	DICK SALTER	5-03-98	SALEM, OREGON
MOUSE RACE I -50 LAP	2:17	STEPHEN COX	8-23-97	SALEM, OREGON
MOUSE RACE I -100 LAP	4:40	PAUL GIBEAULT	9-05-98	COQUITLAM, B.C.
MOUSE RACE II -75 LAP	3:32	WILL NAEMURA	5-23-98	ROSEBURG, OREGON
MOUSE RACE II -200 LAP	10:00	JAMES COX	5-24-97	ROSEBURG, OREGON
AMA SCALE RACE -70 LAP	3:25	MARTY HIGGS	7-20-89	RICHLAND, WASH.
AMA SCALE RACE -140 LAP	7:47	JOE RICE	5-25-96	ROSEBURG, OREGON
NW GOODYEAR -70 LAP	4:00	JOE RICE	5-22-98	ROSEBURG, OREGON
NW GOODYEAR -140 LAP	8:01	JULIE RICE	5-27-95	EUGENE, OREGON
SLOW RAT RACE -70 LAP	3:10	HAZEL/THOMPSON	5-30-93	EUGENE, OREGON
SLOW RAT RACE -140 LAP	6:38	HAZEL/THOMPSON	10-17-92	EUGENE, OREGON
AMA RAT RACE -70 LAP				
AMA RAT RACE -140 LAP	5:38	TODD RYAN	5-24-98	ROSEBURG, OREGON
FAI TEAM RACE -100 LAP	3:36	KNOPPI/McCOLLUM	6-84	SHANGHAI, CHINA
FAI TEAM RACE -200 LAP	7:40	KNOPPI/McCOLLUM	6-84	SHANGHAI, CHINA
NW SPORT RACE -70 LAP	4:00	BRUCE DUNCAN	5-12-87	RICHMOND, B.C.
NW SPORT RACE -140 LAP	8:30	TODD RYAN	7-25-98	RICHMOND, B.C.
NW SUPER SPORT -70 LAP	3:14	DAVE GREEN	4-13-86	PORTLAND, OREGON
NW SUPER SPORT-140 LAP	7:03	DAVE GREEN	3-8-87	PORTLAND, OREGON
FLYING CLOWN RACE, LAPS:	308	TODD RYAN	6-14-97	KENT, WASHINGTON
CLASS I CARRIER	318.30	ROY BEERS	9-13-86	KENT, WASHINGTON
CLASS II CARRIER	330.25	ORIN HUMPHRIES	9-19-87	KENT, WASHINGTON
PROFILE CARRIER	314.00	TODD RYAN	5-23-97	ROSEBURG, OREGON
.15 CARRIER	234.00	TODD RYAN	9-19-98	KENT, WASHINGTON
AMA ENDURANCE	39:56	MARK HANSEN	7-12-98	SALEM, OREGON

records as of 10-01-98



NORTHWEST SPEED FLIER'S

OctoberTest

October 24, 1998

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A friendly little competition & test session, with all the A.M.A., N.A.S.S., & Northwest C.L. Speed Event Classes.

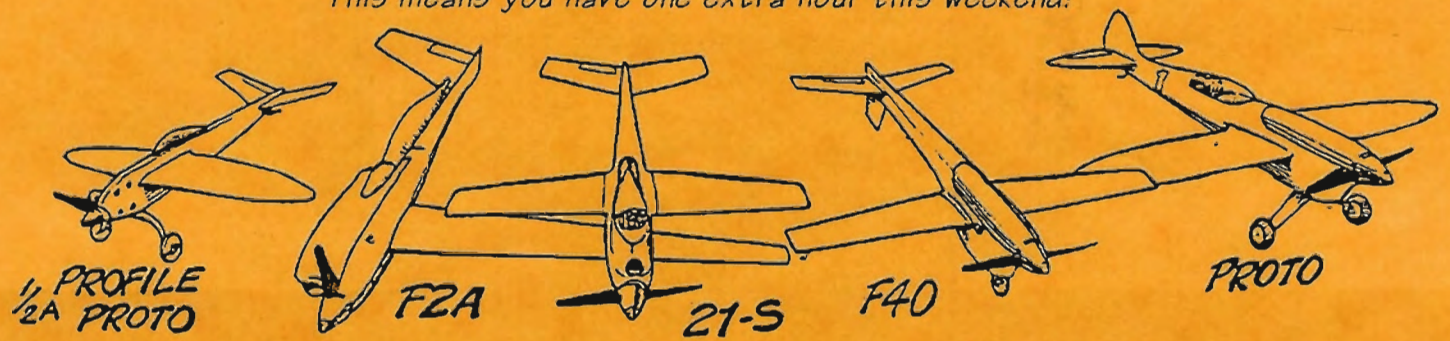
The Details:

Site: Bill Riegel Model Airpark, Salem, Oregon
Time: Saturday, 10 AM to whenever we get tired of flying
Entry Fee: Just five bucks for unlimited entry
Prizes: NONE! Fly for fame and glory, maybe a record!

A.M.A. Class 'A' Sanction #82293
Contest Sponsored by the
Western Oregon Control Line Flyers

Contest Director: Mike Hazel (503) 364-8593
E-Mail: ZZ CLspeed@aol.com

Long distance travelers note: this is the last day of daylight savings time. The clock goes back one hour on Sunday AM. This means you have one extra hour this weekend!



FLYING LINES
1073 Windemere Dr. N.W.
Salem, OR 97304

JOHN THOMPSON O/O
2456 QUINCE STREET
EUGENE OR 97404

FIRST CLASS MAIL