THE

SCATTER

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Budget

NEW MAILING ADDRESS:

Please note the new address of our new secretary and subscription manager, Bob Wiehle. John Wordin, after slaving away at this thankless job for some time, is going to be tied up with school studies and figures he had better let someone else keep track of all you guys. John will be temporarily inactive but expects to come back strong next year.

Bob is the craftsman of the Club. He provides the standard of comparison by which all of us fall short by varying degrees. By profession, Bob is an experimental shop manager at Lockheed and you know what they build. Thirty-seven years of paying attention to detail in both his job and his models hasn't hurt Lockheed a bit and sure has resulted in some beautiful models. Bob is a transplanted Easterner from Washington, D.C. He flew against Dick Everett in contests all over the East Coast in the 30's.

He came to California in 1939 and was a staunch member of the San Valeers. In 1959 he helped organize the SCAT Club and was our first president. A high point in Bob's career was a place on the 1959 Nordic team. Bob had some of the best built models at the finals, held at Bourg-Leopold, Belgium. In spite of a fantastic effort of test flying and weather-terrain study before the contest, Bob finished No. 30 (out of 60). Since that experience, Bob has been quite active and has been placing very high in teams trials. He missed one year by two seconds. Although Bob's Nordics are best known, he does great with Wakefields and at times gets hot in power and has built and flown beautiful indoor and scale models.

Bob and wife Olga have two children, Lorna 7 and Kevin 5.

FRED PEARCE - Houston, Texas

Fred has passed along to us a technique for testing rubber that promises to be the last word. We feel that this technique opens the way for a much more accurate approach to getting the most out of a Wakefield.

"I've been making some energy storage tests of rubber, based on the stretch method. I assume that this method is related to the energy storage as when the rubber is wound. My procedure is:

1. Make up 12" loops of new rubber. Weigh the samples making allowance for the knot. Record the exact length.

2. Establish the force to which each sample is to be subjected when stretched as a function of the cross-section density. I use 1785 times the weight in ounces per inch of loop. For a typical sample of 6 mm Pirelli, this comes out to 20 pounds.

3. The rubber is anchored securely and stretched till it just won't stretch any more (this is typically near 8 ft. for a one ft. loop). I maintain the calculated pull force at the max. stretch for 3 mins.

4. Then using a spring scale, I measure the pull force coming in at 6" intervals.

5. A graph is plotted of the pull force as a function of distance. The area under the curve is the energy storage. Dividing this energy by the weight of the sample gives the energy storage. I express this in ft. lbs. per lb. of rubber (unit is ft.). Typically this is around 3300 ft. lbs./lb. for very good Pirelli.

6. As an additional descriptive term, I measure the energy under the lower half of the curve to give some indication of the flatness of the curve. Typically this runs around 800 ft.lbs./lb. for Pirelli.

"Some graphs of the test results are shown in Figures 1, 2 and 3. Description of the samples tested, follows:

New England Wakefield Supply Pirelli received Nov. '63, gave energy storage 3280 with 823 under lower half of curve.

Bud Tenny's 1958 Pirelli gave 2940 with 735 under lower half of curve.

Some unknown type of stuff from Sal Cannizzo which was smooth and smelled different, it gave 2385 with 622 under lower half of curve.

Some very glossy stuff from Gitlow which smelled like Cannizzo's smooth stuff, it gave 2890 with 895 under the lower half of the curve. This rubber was very brittle and took only 5½ times stretch in contrast to Pirelli's 8, but its higher energy under the lower 50% of the curve might be desirable.

Tabulating the tests:

	Energy Storage	Portion Under Lower 50%
Cannizzo Pirelli Nov.'63	3280 ft.lb./lb.	823
Tenny Pirelli '58	2940 " " "	735
Cannizzo Brand X	2385 " " "	622
Gitlow Indoor	2890 " " "	895

RUBBER ENERGY STORAGE TESTS
PIRELLI

	SAMPLE WEIGHT	ORIGINAL LENGTH	AFTER STRETCH	12 HOURS LATER	ENERGY STORAGE	ENERGY IN LOWER HALF
⊙ NEW FORMULA	.149 oz.	12.25"	13.75	13.39	2350 FT. LB.	673 FT. LB.
⊡ " "	.145	12.12	13.87	13.38	2420	630
◈ SAME SAMPLE 2ND TEST 30 MIN. LATER			14.00	13.38	2580	—
◎ LAST PIRELLI	.132	11.81	13.50	12.63	3280	823
△ " "	.146	12.82	14.50	13.62	3360	705

ENERGY STORAGE IS AREA UNDER CURVE
SAMPLES WERE PULLED OUT TO LIMIT FOR 3 MIN. AND THEN MEASURED COMING IN

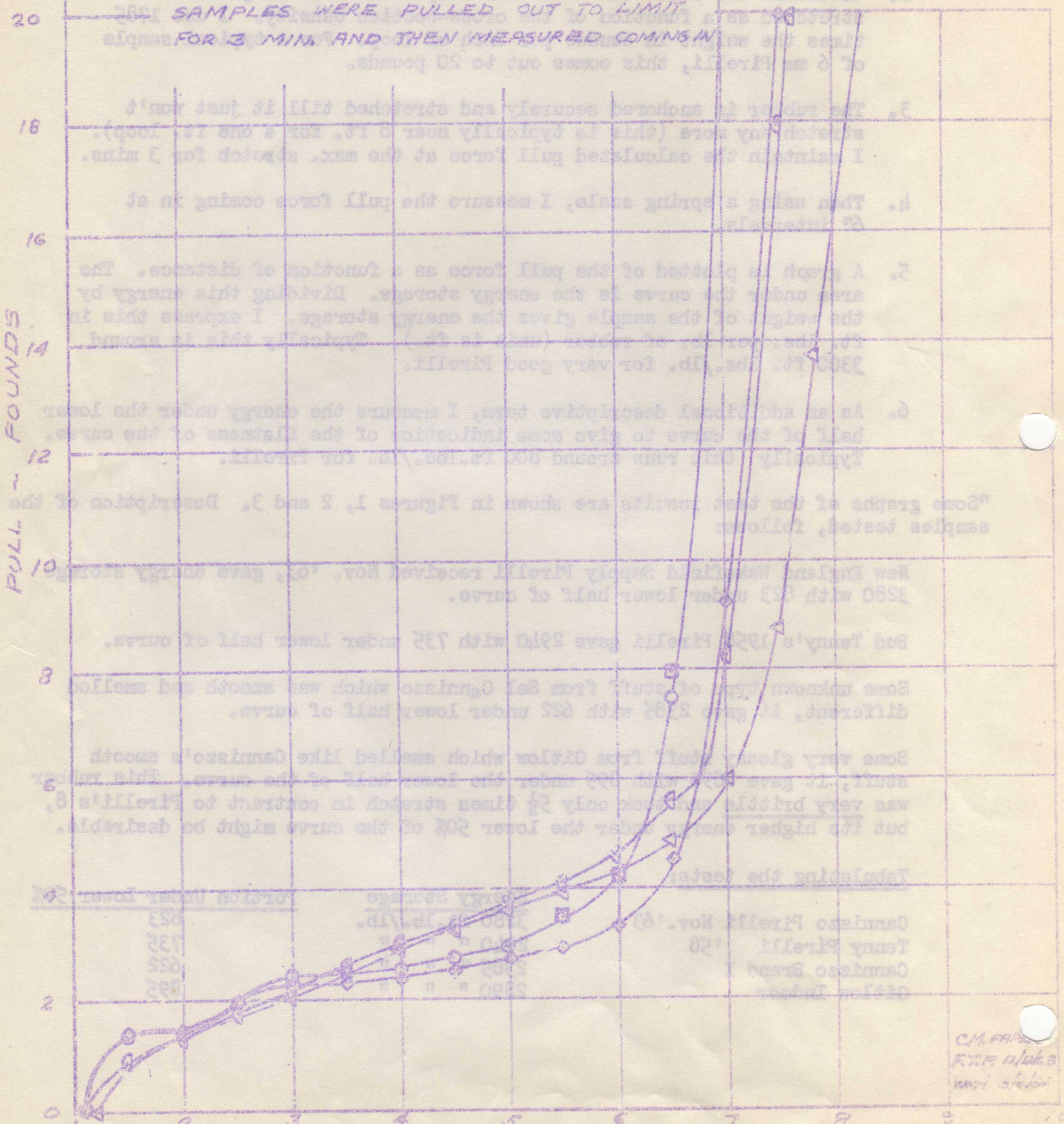


FIG. 1

RUBBER ENERGY STORAGE TESTS

GITLOW & PIRELLI

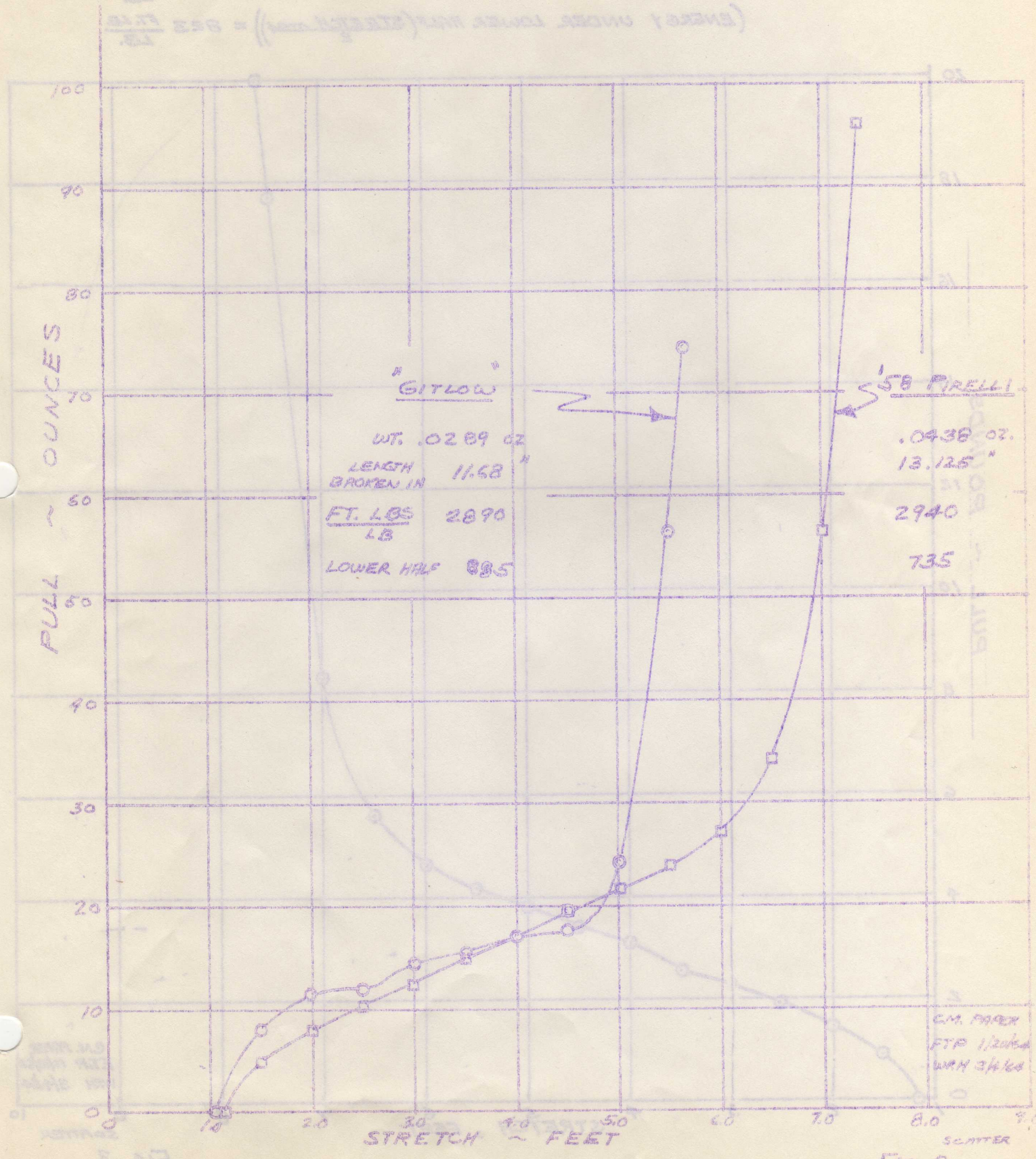


FIG. 2

SAMPLE : PIRELLI FROM NEW ENGLAND
WAKEFIELD SUPPLY NOV. 1963

SAMPLE WEIGHT	ORIGINAL LENGTH	AFTER STRETCH	24 HOURS LATER	ENERGY STORAGE
132 oz.	11.81"	13.5"	12.68"	3280 Ft. Lb./Lb.

(ENERGY UNDER LOWER HALF ($\frac{\text{STRETCH}_{max}}{2}$)) = 823 Ft. Lb./Lb.

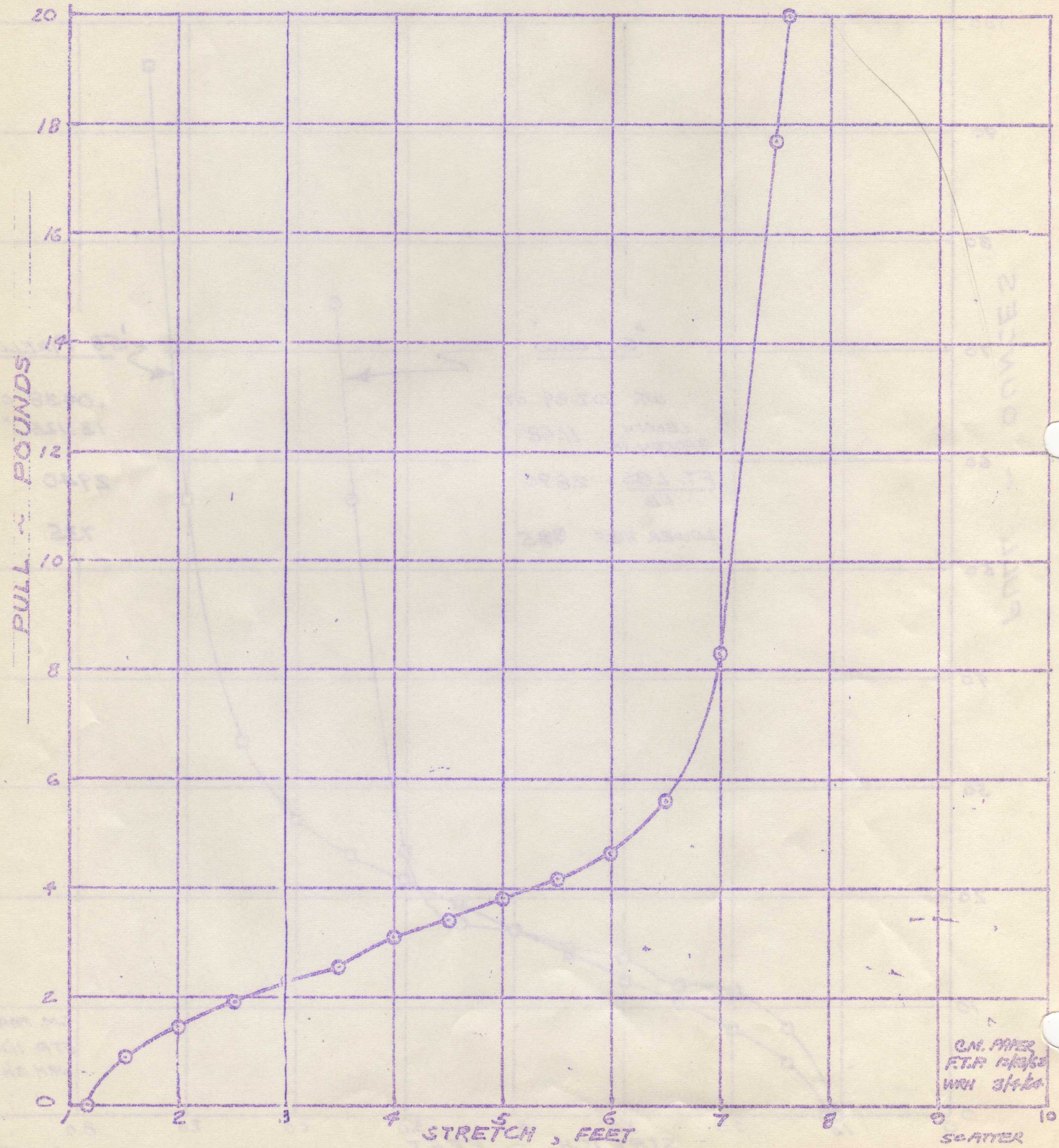


FIG. 3

"Perhaps if a widely accepted standard of testing were inaugerated, we could get a line on stocking up on good batches of rubber. Sal Cannizzo's new Pirelli tests like good stuff."

Very good, Fred, a very stimulating experiment. Some of our readers may remember an article by Dick Baxter in the 1957-58 Frank Zaic Yearbook on rubber tests. Dick found the specific energy content of Pirelli (what batch?) measured 3000 ft.lbs./lb., in tension tests which reduced to 2300 ft.lbs./lb. in torque tests.

GEORGE XENAKIS - Houston, Texas

Once having figured out how much energy can be extracted from a Wakefield motor, what do you do next? Easy, you design a prop. For those of us interested in such things, there must be a reasonable way other than just hack and try.

George passes along some interesting results of an analytical approach that ties in to the rubber tests of Pearce. Let's let George tell it:

"One of the first people I ran into when I got to Houston (I'm with NASA) last August was Fred Pearce. He promptly kindled the dormant Wakefield spark that I've carried around since my more active modeling days of the past, and now I'm hot at it again.

"Currently I've been spending quite a lot of time on an analytical approach to the Wakefield prop - rubber question. Whether I'll have any success remains to be seen. One of the things I needed in the process though was an indication of how the total motor run varied as a function of prop diameter, pitch and blade width. Starting with Palmgren's stuff in the Zaic '38 Yearbook and Hatscheck's June '61 M.A.N. article on Pirelli, I've evolved an expression that appears to work reasonably well. The final constant was obtained by using 12 and 14 strand motor runs from Pearce's and my ships. Haven't had any good reliable 16 strand motor run data though so we're not too sure how well it checks out there. It does seem to work pretty well for 12 and 14 strands though. I would appreciate any precise motor run results from the readers of SCATTER, so we can get a better handle on the constant. Needed are the prop dia., pitch, max. blade width, unstretched motor length and rubber weight along with the motor run."

A summary of George's estimates is given in Figure 4.

MERRY CHRISTMAS.....to all the SCATTER Fans.

If you all have been good and sent in material for the SCATTER, Santa willbe sure to find some extra select Sig or other goodies for you.

M. VAN DIJK - Delfi, Holland

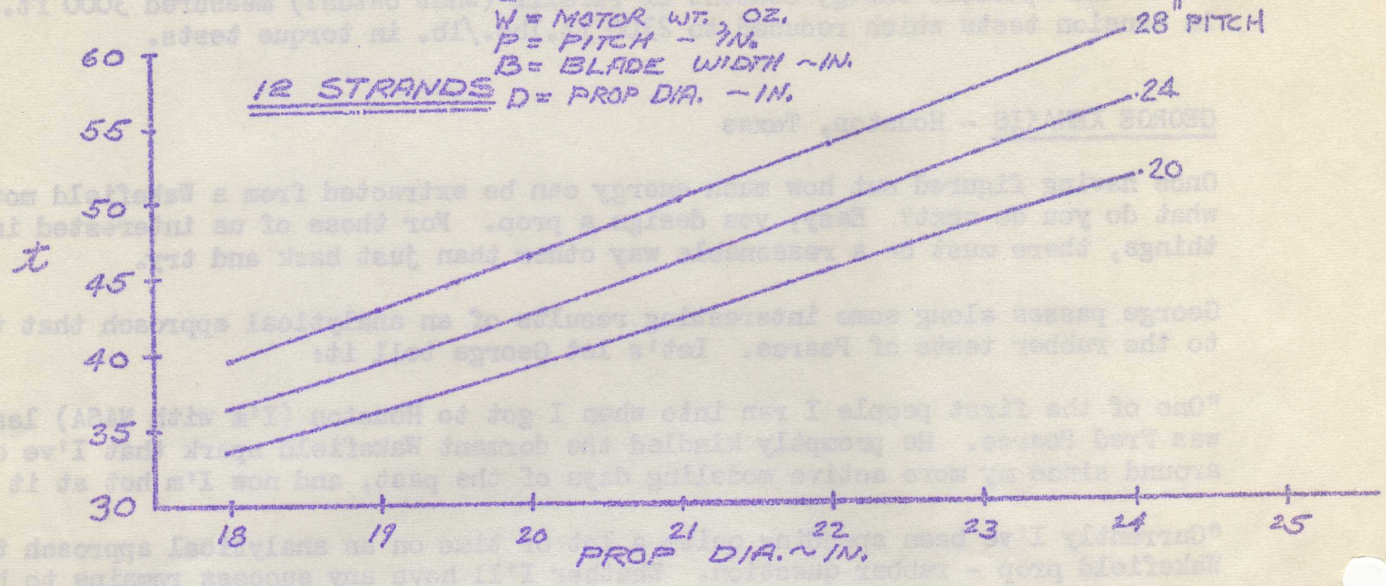
Here is a potent looking FAI power ship that has that clean look about it. M.D. (we have trouble with first names) placed 19th in power at Wiener Neustadt, 1963. This ship, "Flevoschumer" was put together using some parts from "Jankhals" (April '63 SCATTER). It looks like the wing and stab were used. Still air time was 210 secs.

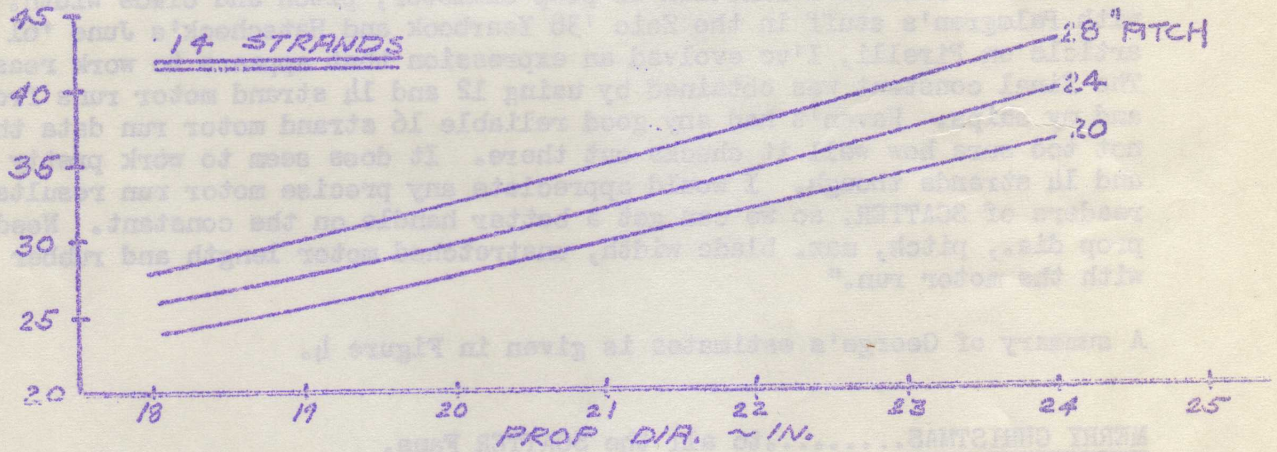
WAKEFIELD
MOTOR RUN TIME

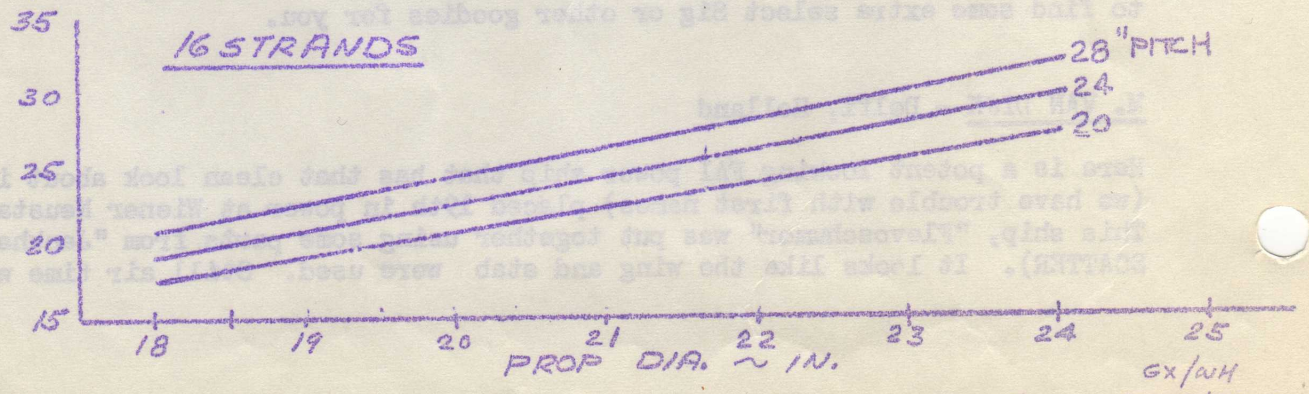
ALL CURVES FOR 50 GMS. (6 mm - 24 ft) PIRELLI & PROP BLADE WIDTH = 1 7/8". FOR OTHER BLADE WIDTHS $t = t_{(1\frac{7}{8})}\sqrt{\frac{B}{1.875}}$

$$t = 0.00012 \frac{L^{0.4}}{W^{0.4}}\sqrt{PBD^3}$$

L = MOTOR LENGTH UNSTRETCHED
W = MOTOR WT. ~ OZ.
P = PITCH ~ IN.
B = BLADE WIDTH ~ IN.
D = PROP DIA. ~ IN.







GX/WH
JAN 64/APR. 64

FIG. 9

(with Oliver). Not much information available though since ship was lost in a practice session just before the finals, with a stuck timer. Short nose moment says, keep that tail light!

DAVE LINSTRUM - Manhattan, Kansas

Dave says we are clever. Ha! He also says Chris Machin (Rev-Up Props) in Dallas has a Cox mount design almost identical to Craig's and Bob's. C.O. Wright and Dave tried to get Chris drunk last Labor Day (Southwest Contest) and make off with a mount or two but they failed.

It now transpires that Bob Van Nest has had some cast for the Cox and Super Tigre. They are very expensive and I don't know whether he wants to sell any or not. I think he would rather let somebody else get rich selling them, and leave the flying to us!

J. ALOYSIUS PROPKNUT III - Arleta, California

(America's answer to Pylonius)

"All of this talk about thermals is getting a little absurd. Having studied many contemporary theories on the birth, life, death and resustication of these elusive, invisible creatures, I finally have figured them out.

"In reality, there are no "thermals", only good fairies and demons. Sometimes an upward, heavenly wind seems to pluck our models from the gravitation of the down-draft demons, and sometimes vice-versa. Now most good fairies stay away from these demons, resulting in a relative purity of so-call "thermal" bubbles likewise, down-draft demons prefer their own company. The only way to assure yourself of a really pure heavenly wind is to:

1. Wait for a calm period so the fairies can hear you.

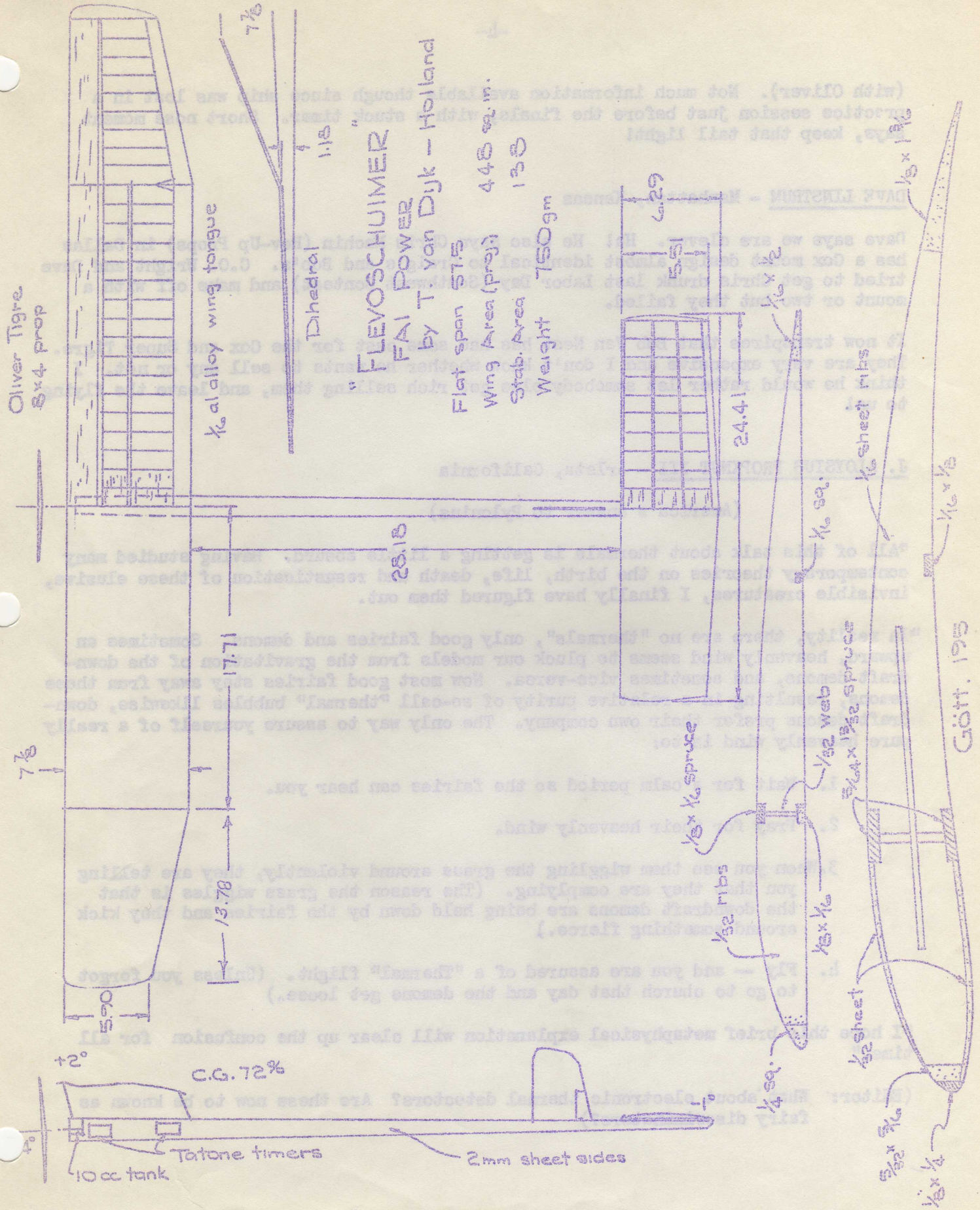
2. Pray for their heavenly wind.

3. When you see them wiggling the grass around violently, they are telling you that they are complying. (The reason the grass wiggles is that the downdraft demons are being held down by the fairies and they kick around something fierce.)

4. Fly -- and you are assured of a "Thermal" flight. (Unless you forgot to go to church that day and the demons get loose.)

"I hope this brief metaphysical explanation will clear up the confusion for all time."

(Editor: What about electronic thermal detectors? Are these now to be known as fairy discriminators?)


"FLEVOSCHUIMER"
FAI Power
by T. van Dijk - Holland
Flat span 57.5
Wing Area (proj.) 448 sq. in.
Stab. Area 138
Weight 750 gm
Oliver Tiger
8x4 prop
1/16 alalloy wing tongue
Dhedral
1:18
7/8
28.18
17.71
13.78
5.50
4.29
5.51
24.41
1/16 x 1/2
1/16 sq.
1/16 sheet ribs
1/16 x 1/16
1/32 web
3/64 x 1/32 spruce
1/32 ribs
1/8 x 1/16 spruce
1/16 sq.
1/32 sheet
Gött. 196
+2°
C.G. 72%
-1°
Tatone timers
10 cc tank
2mm sheet sides

INTERNATIONAL SHED SURVEY

The Northern Area News (George Cameron, 13, The Avenue, Birstall, Nr. Leeds, England) has published an exhaustive survey of all outsize houses or sheds suitable for indoor flying, in the January issue. We would like to see a world-wide list and so offer up a few that may have escaped attention:

1. Taj Mahal - Agra, India. Although quite large, there are certain obstructions. The tomb, at the center of the platform, is a square in plan with chamfered corners. Within the considerable thickness of the walls is a circumambulatory corridor marked by octagonal chambers within each corner angle. At the center of the plan is the octagonal tomb chamber, crowned by a shallow dome and entered through lofty portals in each face of the structure. The structural core is covered with white marble decorated with designs inlaid in semiprecious stones.

2. Tower of Bable - Babylonia. Highly recommended by the FAI Models Commission.

3. Pyramid of Uxmal - Yucatan, Mexico. Not too much is known of this Central American hotbed of indoor activity. We are outfitting an expedition to investigate this site as soon as Dick gets the Volvo lubed.

We will continue this list as a public service so send in your information.

JIM SCARSOROUGH - Artesia, California

Jim has built a new Nordic! Let's have a fanfare of trumpets or something to honor this great occasion. It is expected that Jim will be flying this ship as soon as it can be removed from the aging tanks. String Along XIV will soon be taking its place alongside String Along XIII which was built in 1956. String Along I was featured in the 1822-23 Zaic Yearbook.

Jim says XIV embodies all the latest proven features. I guess he means it has a natural tendency to be released in the vicinty of thermalling models.

Seriously though, when you compete with Jim you come away knowing you were in a contest. He doesn't concede a round to anyone. We enjoy flying with him and wish that all our teams could adopt his competitive spirit.

RON MAGILL - London, England

Ron has been reading the SCATTER in New Zealand over the last few years, for free. Now he is in London, waiting for the 1965 Championships, with a couple of bucks in his jeans. Well now we have his money and the postal service has his SCATTERS. Suppose the 1965 Finals are held in New Zealand?

STRING-ALONG XIV
Nordic A/2
by Jim Scarborough
Artesia, Calif.
scale ½" = 1"
More detail later
Wing airfoil NACA 4409
½ al alloy tongue
Sorry, Jim, if these are a little off.
Cub. scale
Cub. airfoil

HENRIK DAHL - Baerum, Norway

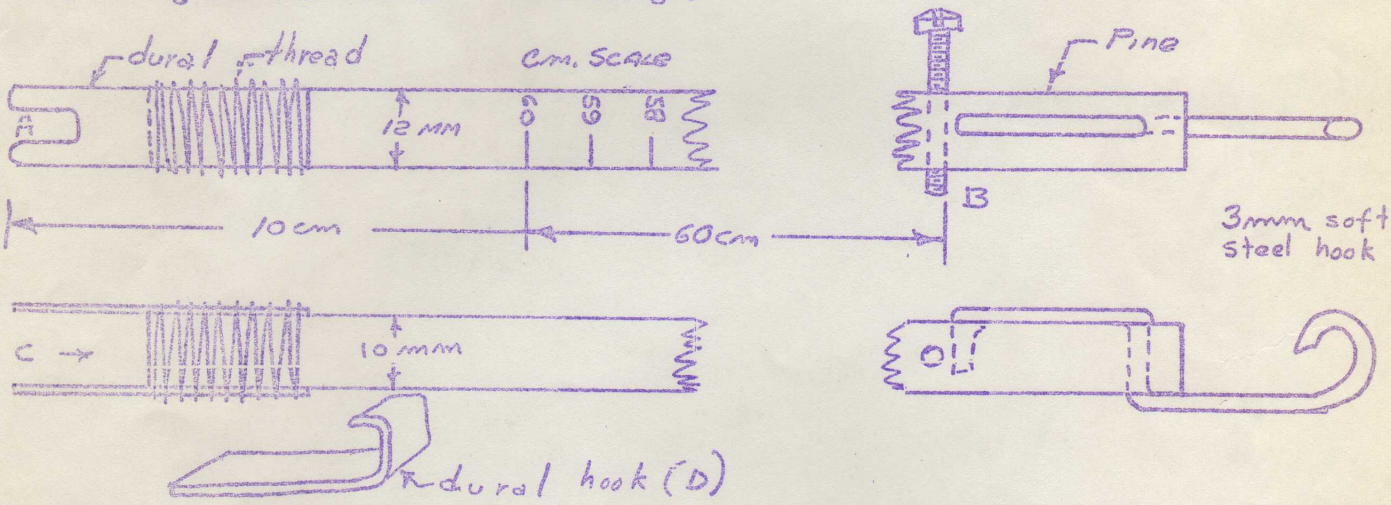
H.D. is one of our avid fans and contributors from the land of the fiords. This month he brings us a potent looking tool he calls, "The Wake-Flyers Best Friend". He says:

"This device has been in use for some years here in Norway. Originally it was only used to put motors in fuselage. If use is not self evident: Place one end of motor in A, other end over screw B. Thread stick with motor into fuselage--A first. Peeking through hole for motor securing tube thread tube through C. Hook on noseblock and redraw stick.

"I have also found that it is a boon when making up motors. To make up a motor, tie 50g rubber in loop. Hook of dural is attached to stick with rubber band so that it can be moved fore and aft. Stick is held upright and the motor lying on a clean newspaper is laid between screw B and hook D. Placing of D is adjusted until the right distance is obtained and all strands of motor are at the same tension.

"The cm-scale gives the length of motor hanging on screw B, thus one may get a hint of the condition of the motor. (Long motors are dud.)

"Recently a new gimmick has been tried. A steel hook E fastened to the stick is used to dig out burst motors from fuselage."



Thank you H.D., a gadget such as this is very useful. We have seen several similar tools in use here. Suggestion: How about a beer can opener on the end?

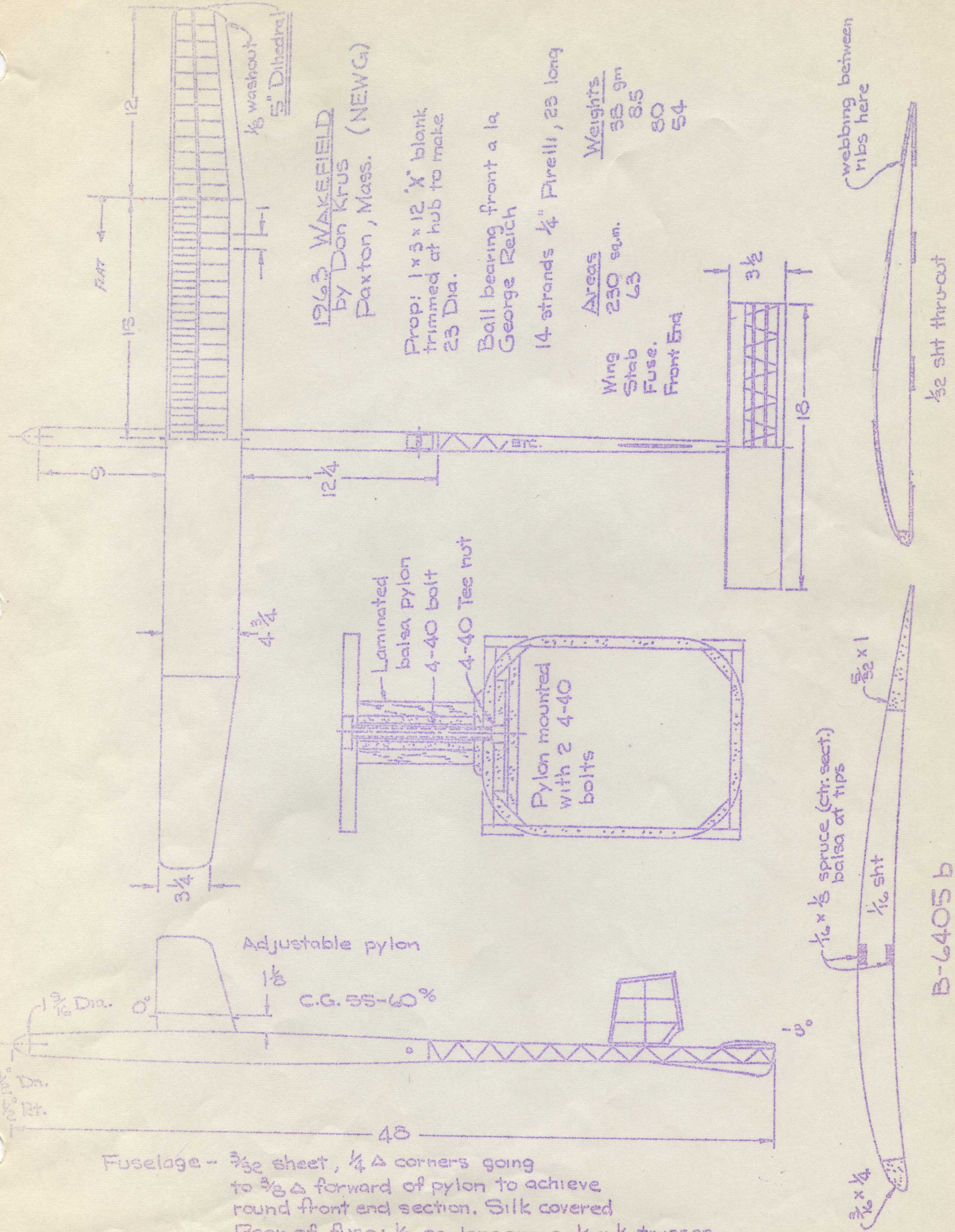
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* NEXT MONTH: Cherny's FAI Power Model, Buckeye *

* Contest Report and a Review of Laminar Separation *

* Bubbles, Among Other things. *

* *


1963 WAKEFIELD
by Don Krus
Paxton, Mass. (NEWG)
Prop: 1 x 3 x 12 'X' blank
trimmed at hub to make
23 Dia.
Ball bearing front & la
George Reich
14 strands 1/4" Pirelli, 23 long
Weights
38 gm
8.5
80
54
Areas
230 sq.in.
43
Wing
Stab
Fuse.
Front End
webbing between ribs here
1/32 sht thru-out
Laminated balsa pylon
4-40 bolt
4-40 Tee nut
Pylon mounted with 2 4-40 bolts
Adjustable pylon
C.G. 55-60%
1/16 x 1/8 spruce (ctr. sect.) balsa at tips
1/16 sht
B-6405 b
Fuselage - 3/32 sheet, 1/4 Δ corners going to 3/8 Δ forward of pylon to achieve round front end section. Silk covered
Rear of fuse: 1/8 sq. longerons, 1/16 x 1/8 trusses, tissue covered.