THE

SCATER

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Letter from Amsterdam - Cor Burger

One of our very interesting and faithful correspondents from Europe reports in with lots of interesting news and modelling information. Cor, take over:

"I think the U.S.A. A/2 team and other classes are in a disadvantageous position. The U.S.A. is a big country with team members sometimes widely spread over the whole country. As a result of this they don't know the team members and are not accustomed to work closely together. This is an advantage for smaller countries like ours. (Holland) In our modelling world every one knows every one else and knows his models and systems etc. Also our teams, before going to the W.C. have a sort of training days. (not paid of course)

Our A/2 models have the following trends: Wing airfoil- rather thick, round nosed with turbulator thread in front of L.E. All Dutch A/2 have the turbulators. Stab airfoil- sharp nose and undercamber to correct small disturbances. C.G. in the region of 60 - 70%. Decalage = 2 degrees.

The turbulator thread has a big improvement because the critical angle of attack was greatly increased. It is now possible to fly with the optimum angle of attack with out danger of (premature) stall. Further the model must be

able to pull up and walk over the field under the most different conditions. Thus the model must fly as slow as possible on the line (for easy hunting)

We prefer for wing construction mostly the D box spar type. It is rugged enough and gives s warp free construction without diagonal bracing by silk covering. Wing A/R is about 13-14 and stab area about 5 dm . This configuration is for thermal conditions. For fly offs, and we have had them 7 times this year, we sometimes use special still air models.

Do you know the "Austrian Valley"?

I have flown the 63 W.C. on an "Austrian Valley" field. Big and strong thermals and downers, ask Carl Hermes! I don't believe the valley type of models, at least the performance was achieved by the combination model/builder.

Comments on B. Johansson's Wakefield. I met Koster this season at a contest in France. He told me about his airfoils and stated that the turbulator thread on the L.E. gives an improvement of 30 secs. From 180 sec. to 210 secs. on 40 grams 16 strands. Prop as '65 model with near flat airfoil and sharp L.E. and T.E.

The difference in wing construction of Johannsson and Koster give different type of flow and difference in need of turbulators. In my opinion the flow over Kosters foil is more turbulent due to the sag of the covering, spar location and turbulator thread location on the L.E. The flow over Johannsson's wing is more laminar due to the large area of sheeting and absence of artificial turbulating. (Ed.: Or it may be that the particular airfoil shapes used require artificial turbulation in one case and not the other)

Latest news from C.I.A.M. meeting Nov. 5 & 6 in Paris is that '67 W.C. will be at Sazena 40 Km N.W. of Prague on a small airfield 200 m. by 1600m. surrounding free of trees (but full of crops). Wind speed maximum 8 meters/sec., mostly 3 meters/1 sec. Contestants will be housed in a High School 30 Km. from field, and buses will be provided. Entry fee is $40. Time keepers half from C.S.R. and half from other countries."

Thank you for the report, Cor, and keep sending those plans.

Bill Gleasking Denver, Colorado

Bill and his wife Annie both build and fly some mighty potent FAI Power ships. They are now turning out a Monthly Newsletter, rather conservatively titled, "Magnificent Mountain Men Newsletter". (730 Moore #2, Denver, Colorado 80215)

Bill was rather pleased to see his picture in the Dec. Aeromodeller, looking a bit coy, holding onto his Neo-Nemesis. That look has by now turned to astonishment as Bill reads that "Magnificient Moulton" has him in 75th place. Wow! M.M. tried to set things straight though by concealing Bills true identity, calling him John.

We enjoyed talking with Bill at Bong and were impressed with both the effort and results he has to show in FAI Power. Auto stab, rudder, fully cowled engines, specially developed airfoil, hot engines and so on.

Bills first problem at Bong was to get used to flying at 800 ft. rather than 5,000 ft. altitude. Anyone flying FAI knows that a ship can be creamed if it isn't flown at the trimmed power level. Bill did a lot of anxious trimming at Bong getting over that problem.

Here's what Bill has to say about all this:

> "My enthusiasm for the design I flew at Bong has ebbed, and I plan to try something new for next year. Always handicapped by my unerring ability to pick the holes, I've got to find a combination that will sqeak by in the downers, I think I can come up with a reliable auto-stab-rudder-variable airfoil mixture. Big worry is good engine that will accelerate in the air.
>
> I'm still kicking myself for the goofs I made at Bong (you too?) (Ed: Yes John) Looking back it's hard to believe I could have been so dense. For example before first round engine wouldn't run on official fuel (probably castor oil difference). It seemed to smooth out the hotter it got so I held on the ground for about 60 secs. before launching. Seemed to climb OK. I continued to do this for the next 14 rounds! Here I am with an unvented cowl on a warm day and I can't understand why my engine sags on the climb! Next week at the Nats, I notice the problem Annie has with her K&B. Once it gets hot and smooths out, that's it - she had to shut down, cool off and try again. She let her engine get hot on a couple of officials and was knocked down to fifth place. As it always happens by the end of the contest she had it all figured out. I try these

newly learned lessons on my plane after I fire up, I'm in the air within ten seconds. What a difference, at last the damn thing really starts to move out. I imagine my brilliant strategy gone wrong must rank with the Wakefield flyer who lubed his motors with SAE 30. I really cringe when I remember that I advised George Sarinopolis to let his engine get hotter. (I'll never be able to look him in the face)

(Ed. note: Sounds like this problem should be corrected by adjusting head clearance, changing head shape and/or plug.)

My ideas on using auto-rudder has changed. I now cut in early two to three seconds with much less total movement. This gives better transition and is less critical to speed and attitude of ship. (earlier technique of wheeling ship hard over at last moment often meant loss of altitude if ship was not in groove. Also hard rudder does not put plane in helix but rolls it on side.)

I am taking another look at the K&B Annie has been doing very well with hers and is very hard to beat. (Except for a fifth flight overrun at contest, she would have been FAI Rocky Mountain Champion!!) Annie's K&B is much more sensitive to fuel mixture and temperature compared to Tigres. When engine starts to come in, it must be launched immediately. If it peaks onground for more then a few seconds, it will sag unbelievably in climb. If engine goes lean and gets hot it will still run but needs needle valve cranked over one-half to one turn. Then it sounds fair but this is deceptive as power is way down, perhaps 50%. I suspect that K&B's have been over propped in the past trials. Annie's prop is unreal. A Cox 7x3.5 cut to 6.5. She out climbs anything to be seen around here.

Please be patient and I'll get some drawings and explanations to you before they change the damn rules again."

Thank's Bill, keep at it. Your Editors comments are: Use a small prop for testing the engine on the ground at 19-20,000 RPM. Tinker with head shape, compression ratio etc. so that it runs steady at target RPM. Then prop for flight. Iterate on prop size, both ground and flight if necessary.

There is more to it than that of course so how about some of you experts explaining it all?

FLASH!...SCAT SCOOPS FIELD!

Sundey, Nov. 22nd the SCATs gathered at the basin (the local flying/corn-growing/horse-trotting/go-kart-testing site) to do their civil duty. This incorporated a "sweeping" of the field, outside the take-off pads, to remove various flood debris deposited during the last local monsoons. This was done to enable the Parks Dept. to mow the brambles as they have so neatly done in the take-off areas.

The effort started with several willing SCAT hands, and one brandy/tea powered wheelbarrow driven by Krecek. Within minutes, the volunteers ranks were swollen by several bods from among the other clubs out flying plus many of the local sport guys. The donation of pickup trucks neatly solved the transport problem, and an hour later a large pile of junk had been stacked at the parking area where city trucks could haul it waway.
Among the expected logs, branches and scrap lumber, some unusual items were uncovered in the"sweep". Some of the most interesting included: A 36 channel RC without nameplate, but containing a crudely lettered card saying; "If found please burn... I can buy another ready-made easier than getting my sox full of burrs looking for this one"... a half-sniffed tube of tequila flavored cement... a rusty sword cane with a Coupe D' Poop impaled on the point... $68.00 worth of Solarbo, laid out in a campfire pattern (it won't even burn?).... an old bent "Snicker" with a stereo needle driven through its heart... 32 grams of Pirelli lost in 1957 (a vintage year!) later confiscated by Sykora, and improved his climb 20%!...17 rusty, assorted Tatone timers wrapped in a farewell note from Pat, which said, "If at first you don't succeed.." ...Chapter 164 of an old SST proposal...a shredded road map of Czechoslovakia with a list of the most expensive shops and restaurants clipped to it, and all major beer gardens circled in red... the left wing of a Sans Egal with a tent pole turbulator... a tear stained envelope containing 16 ditto master 3 views from which the carbon shields had not been removed... an assorted set of metric sockets wrapped in a page torn from a Volvo maunual.. a past due bill for $4,672.38 from the Jessie James Motel in East Sweat Sox, Wis.... a 3 view of a 1932 Lithuanian ROW steam-powered cement mixer with a circular airfoil... a cracked A/2 tail boom splinted with a rusty Jteex canister.....an experimental a/2 fuselage made from an old Mogen David wine jug, with a breadstick tail boom... a voodoo doll to the likeness of Frigyes made from

an old bowling score card... a dogearred Alfa owners mannual with significant passages underlined with spaghetti... a well-thumbed pamphlet entitled, "Learn Color TV Tuning For Fun and Profit"... and a JPL booklet entitled,"Five Thousand Insects You Can Classify on The Walls of a Cape Kennedy Motel".

At last report the Parks Dept. has loaded up this junk and is shipping it to England for disposal on Chobham Common.

Ron Hagill - Auckland, New Zealand

Back 'n Oct'65 we asked what happened to the Austrians, why didn't they compete at Kauhava? Well now we know. First an interesting report from Ron:

> "In the 2 months after Finland, I spent a week in Russia and a couple of weeks in Austria. I attempted to look up Eugenii Melenkiev in Leningrad, a week after the World Champs but evidently he was still with the rest of the team in Moscow for "debriefing".
>
> I called on an old friend from the finals at Wiener Newstadt, Karl Bajc, who was their top man. He has since found that producing offspring is more expensive than producing models and can't be combined. His neighbor, Otto Zifho, would have flown at Kauhava but the Austrian Aero Club had insufficient finance to send a full team and would not allow any entrants to travel privately. (!) I understand that Bugl the engine designer offered to assist a power team but even that was not permissable.
>
> I was fortunate enough to meet up with the other Austrian fliers at the Waldorf International. Vaclav Horcicka, Horst Wagner and Manfred Koller - all of whom had been present at the '63 Finals. All flew as well as ever and would have been competition had they been able to attend at Kauhava.
>
> Wish you could see the slides I took of Kauhava especially a shot of Norm Ingersoll about 3 ft. off the ground in an aerial Nordic release. Also one of the Hostesses! Thank you for the kind remarks about my Wakefields. I am now developing an eye lotion to enable timekeepers to see models for Maxes!"

We heard from Vaclav Horcicka of Austria and he also confirms the travel problems encountered by his fellow competitors. Participation with costs taken care of by competitors themselves was not permitted. They were told that only capitalists could make it and this the leading men of our Aero Club's aeromodelling section who are Socialists (in fact 'Austro - Marxists") would not allow. The Aero Club also rejected the proposal of Bugl (capitalist privately owned manufacturing firm) to finance at least a power team including a team manager of the Aero Club without any further conditions. That was why there were no Austrian models at Kauhava.

This is one of the problems we face in FAI competition. You can't fly in world competition unless you belong to the specially anointed "group". And on the other hand the leadership of some of these groups is not responsive to the needs and desires of the members. What to do?

"Mojave" Nordic A2 Bill Hartill

This ship was not designed as a ready - to - go contest machine. Instead it was a test ship to try out several ideas that I was considering using in future contest ships. These ideas were, pylon wing, thin rolled tube tail boom and completely enclosed timer and control linkages. These are not original ideas of course as many ships have been built with some of these schemes.

Tail Boom: A special form was made for rolling the boom. Select straight grain pine was sawn on a table saw using a home made taper attachment. A blank 15/16 sq. at one end and 1/2 sq. at the other, 31 in. long was made. The square cross section was then trimmed to circular using hand tools. Light but stringy A grain 1/32 sht. is cut to proper size of length and circumference. Dope the inside surface. Give the boom form several coats of sanding sealer.

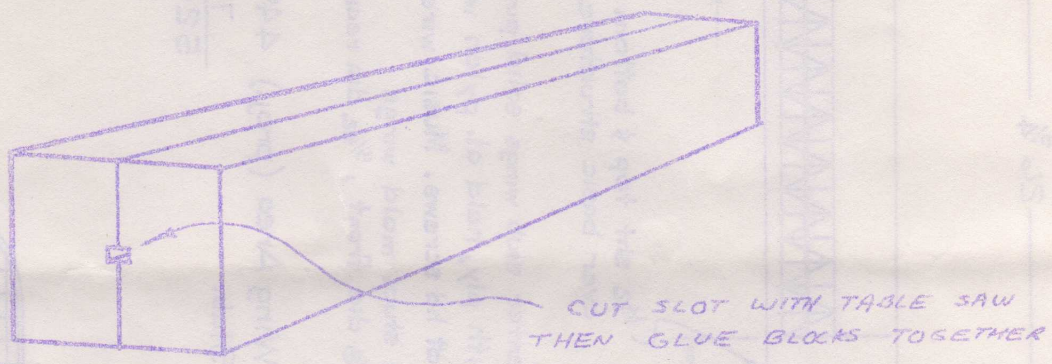
Sheet is wrapped while wet and held with gauze. Your oven won't be big enough so make these in the summer and put it in a hot place to bake. When dry slide the rolled sheet toward the big end so that the seam opens up about 1/16. Glue seam, put on a mess of small rubber bands and then slip the tube off the form. Wipe the excess glue off the form. When the tube is dry put it back on the form and get the next layer ready. It is stuck to the first layer with contact cement. Thin it out and brush on.

It doesn't take much. Wet the outside of the top layer with water by brush as you work the wood around. Don't forget to put the seams opposite. Glue the second seam with Ambroid.

I have made 3 of these booms. Two are flying and the other, which was the first one made, has an outer seam not quite as neat as the others but I still might use it. They don't take long to make and the weight is fantastic. The real question though was, would it be strong enough?

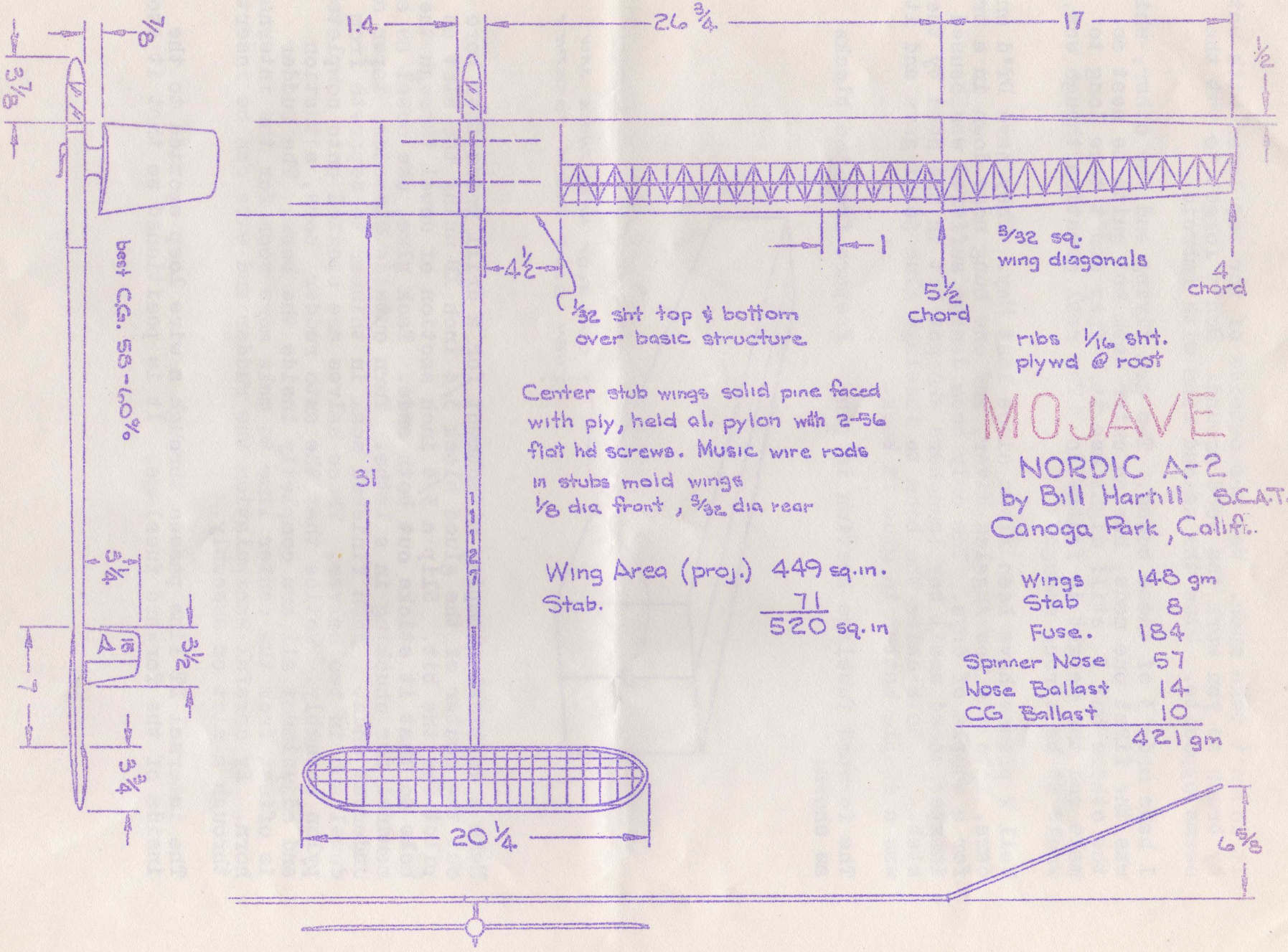
Well 2 planes have been flown since last May. They have DT'd onto cars, into the Los Angeles River, and one hung nose down in a tree for a couple of days. The only boom damage suffered was caused by inexperienced small boy launchers who got hit in the head by the stab. In both cases the boom to fuselage glue joint gave and it was a simple matter to glue it back.

The forward fuselage section is pine. Prepare from two blocks as shown:



Make a vertical clamping attechment for a drill press then bore out the center of the glued block 3/4 inch ID using the slot as pilot for the bit. Slip a 3/4 inch section of dowel through the hole so that it sticks out both ends. Tack glue, use dowel as a mandrel for chucking in a lathe. Turn outside diameter, taper and undercut ends. When finished soak in thinner to separete from dowel and in two halves. These halves are epoxied onto completed pylon assembly. Notice that the auto rudder horn, actuation and adjustment all are completly inside the boom. The rudder is offset from the center line to make more room for the internal horn. By careful manipulation the rudder and wire can be inserted through a slot on assembly.

The internal DT line passes through a wire loop epoxied to the inside of the forward fuselage. It is positioned so that it stops



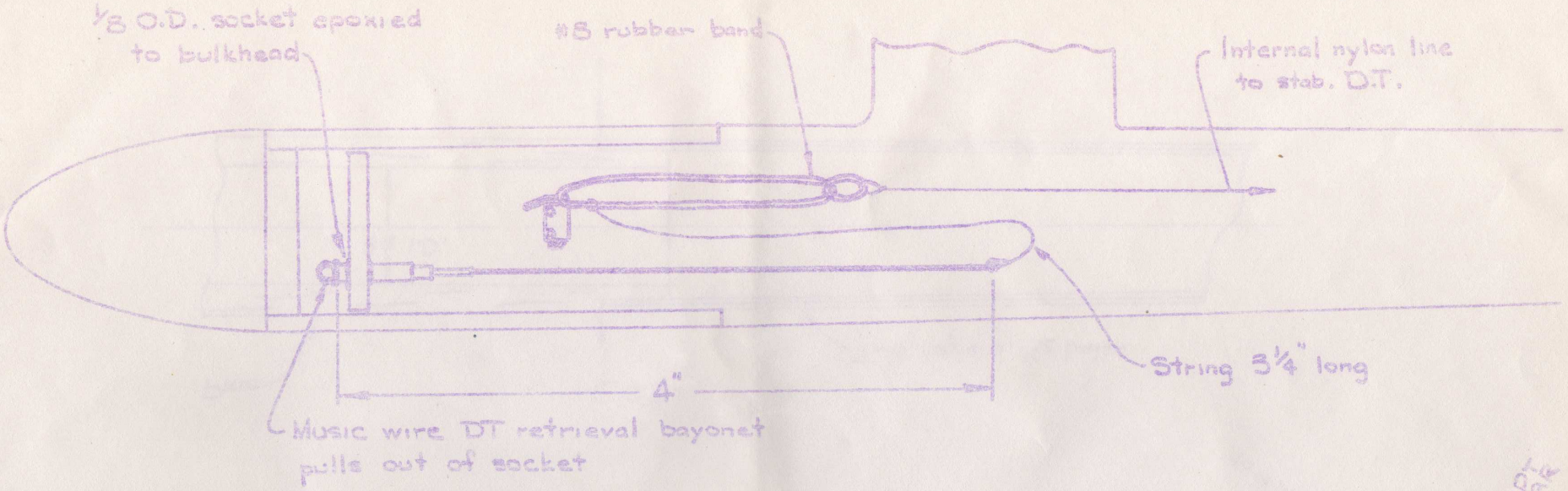
MOJAVE

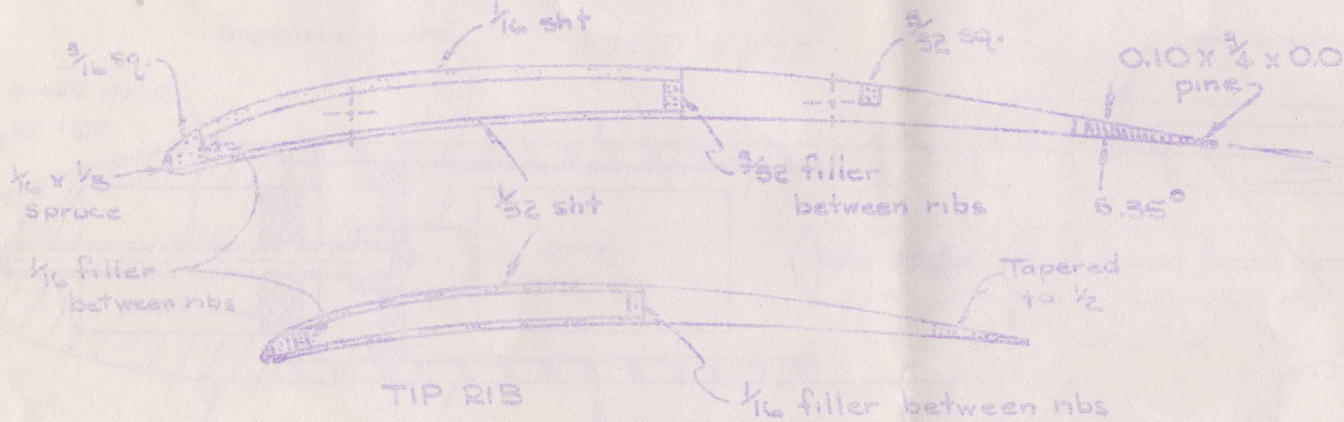
NORDIC A-2

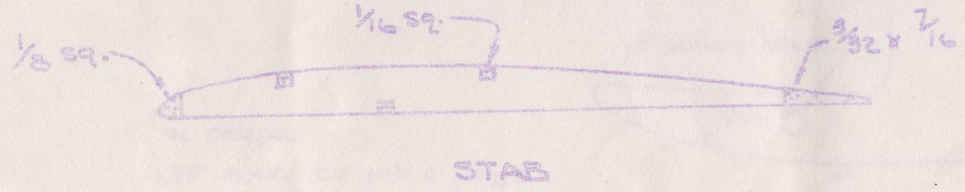
by Bill Hartill S.C.A.T.
Canoga Park, Calif.

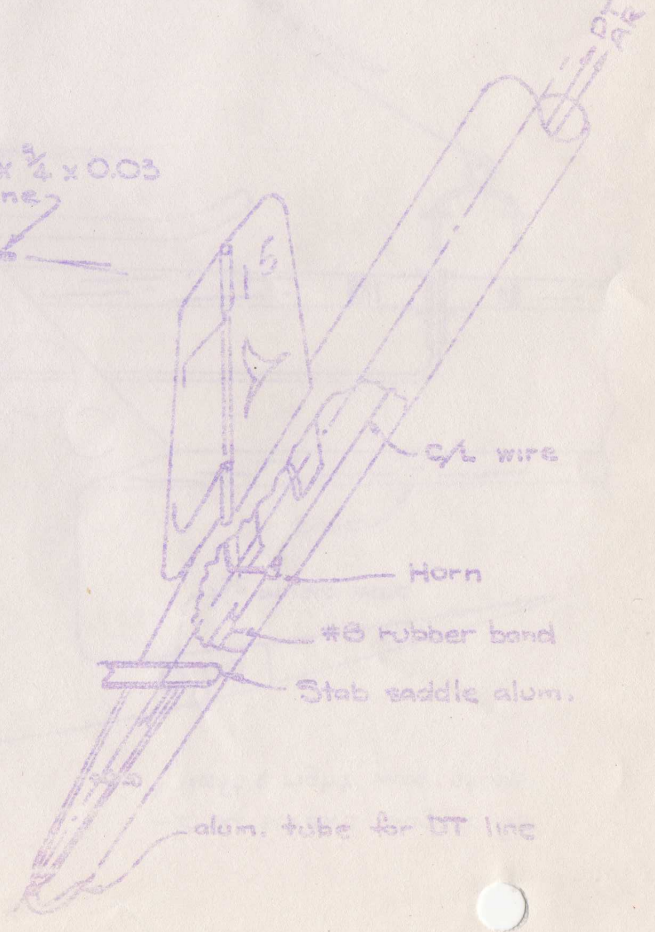
Wing Area (proj.) 449 sq.in.
Stab. 71
520 sq.in

Wings	148 gm
Stab	8
Fuse.	184
Spinner Nose	57
Nose Ballast	14
CG Ballast	10
	421 gm

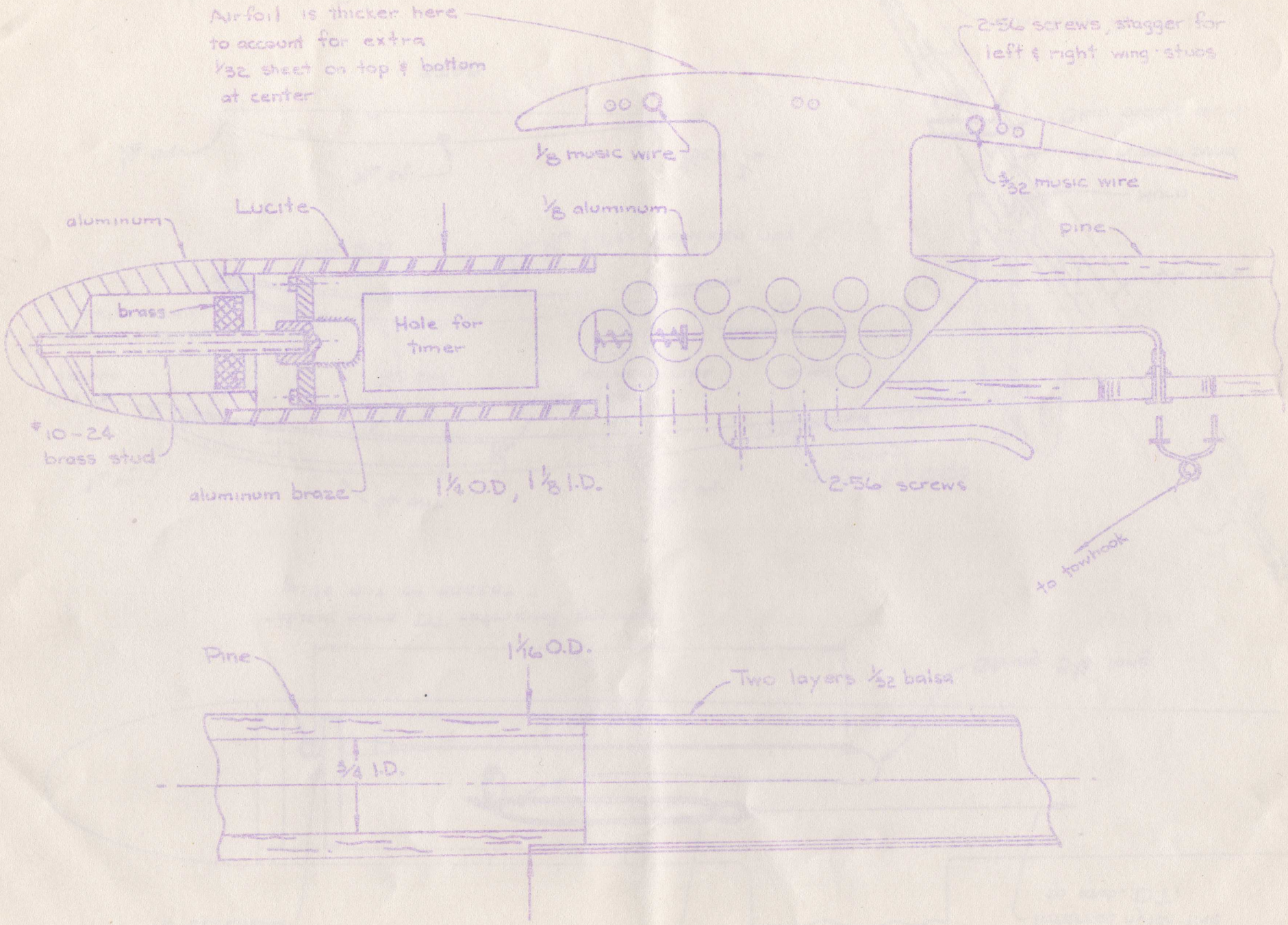

1/8 O.D. socket epoxied to bulkhead
#8 rubber band
Internal nylon line to stab. D.T.
String 3 1/4" long
4"
Music wire DT retrieval bayonet pulls out of socket

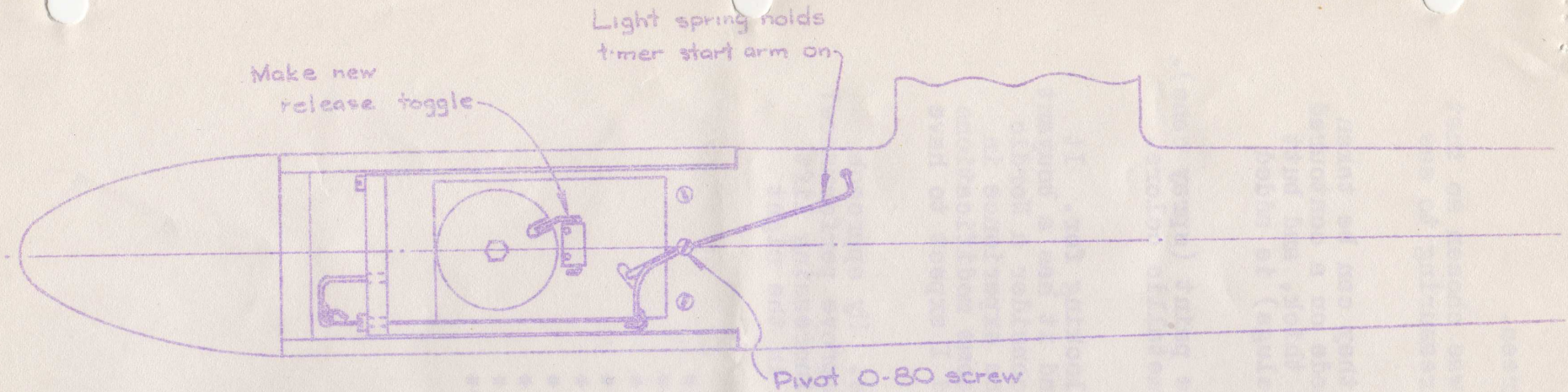

1/16 sht
3/16 sq.
3/32 sq.
0.10 x 3/4 x 0.03 pine
1/16 x 1/8 spruce
1/32 sht
3/32 filler between ribs
5.35°
1/16 filler between ribs
Tapered to 1/2
TIP RIB
1/16 filler between ribs


1/16 sq.
1/8 sq.
3/32 x 7/16
STAB

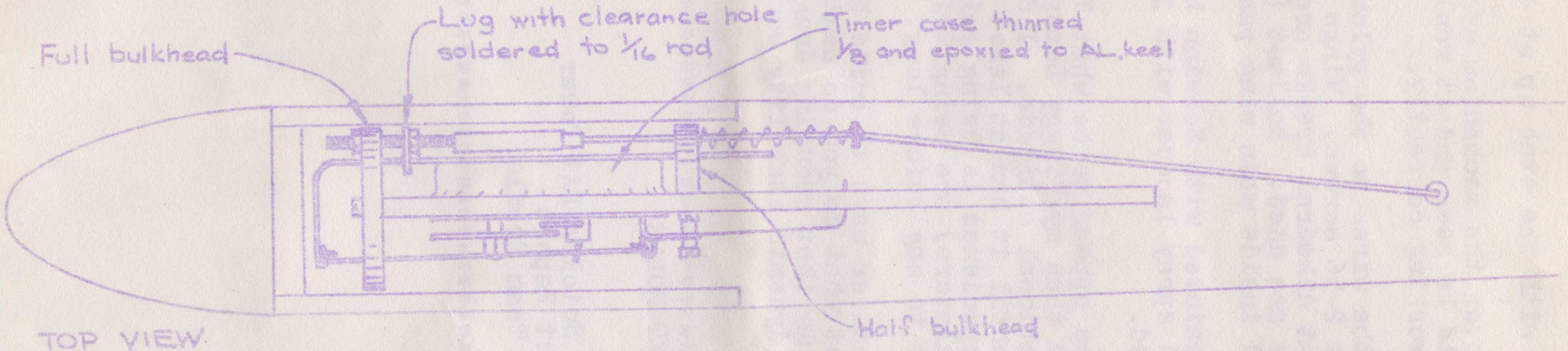

0-4
C/L wire
Horn
#8 rubber band
Stab saddle alum.
alum. tube for DT line

MOJAVE A-2

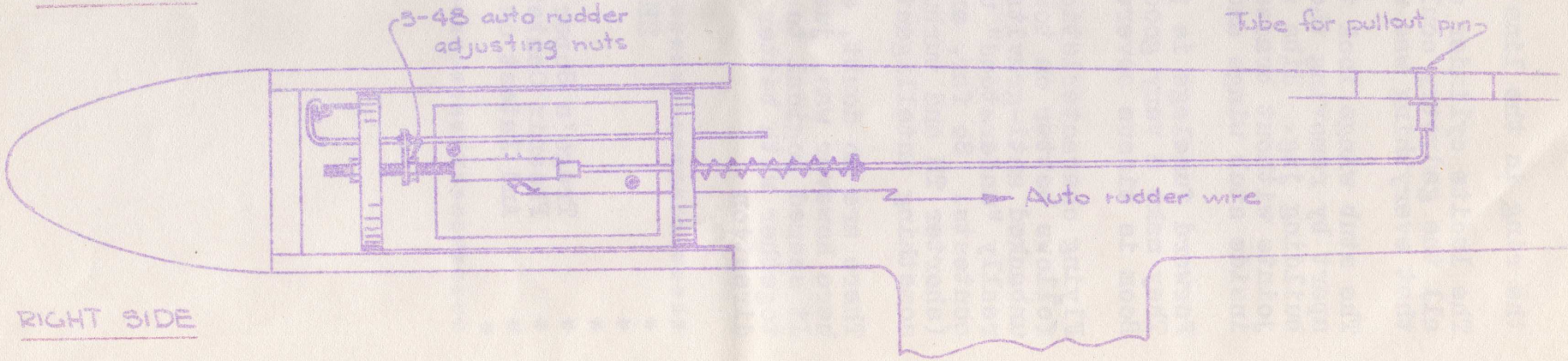

Airfoil is thicker here to account for extra 1/32 sheet on top & bottom at center
2-56 screws, stagger for left & right wing studs
1/8 music wire
1/8 aluminum
3/32 music wire
aluminum
Lucite
pine
brass
Hole for timer
#10-24 brass stud
aluminum braze
1¼ O.D, 1⅛ I.D.
2-56 screws
to towhook
Pine
1/16 O.D.
Two layers 1/32 balsa
3/4 I.D.



LEFT SIDE



TOP VIEW



RIGHT SIDE

MOJAVE A-2

the ring in the line with the stab up at 45 degrees.

The lucite cylinder over the mechanism section was chosen so that all the gadgetry could be seen and it would be reasuring to see that everything was working correctly.

The stub wings lock the wires to the pylon and they can be taken apart by removing the 2-56 screws. Wings are made on a contoured building jig. Ribs at dihedral breaks are 3/16 thick, and butt joints without braces are used. Ballast (lead slugs) is added inside stub wings and inside main wing panels.

Forward fuselage is painted with Schwinn bicycle paint (spray cans). They make a very good spray lacquer with jazzy metallic colors. Boom is tissue covered.

Flying characteristics appear to be what I was looking for. It follows better on tow than my "Tuggy Buzzard" and it has a bouyant unbanked anti-gravitational attitude. I don't consider a Nordic really "understood" until it has at least a years experience in contests. So far, experience is being gained, some modifications (shorter TH and turbulators) are being tried and I expect to have something intelligent to say before long.

There are no doubt, easier ways to build Nordics. My approach here however was, just what do you do next to improve performance? It seemed logical to me that reducing drag and increasing lift together with better dynamic stability would be in the right direction

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*
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