

Issue no. 68  
February  
1981



## KR NEWSLETTER

	RATES		
USA	\$12.00	Yr	
CANADA	\$15.00	Yr	U.S.
OVERSEAS	\$20.00	Yr	Funds

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A basis for ideas and food for thought only. Use of any of the idea material is at the user's discretion. Not affiliated with Rand/Robinson Engineering Inc.

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It's final! The First National KR Fly-in is set for June 13th & 14th. Bill DeFreze has been the spark plug in arranging the details for this event, but he is going to need some help in setting up the facilities and display areas. A couple of hours of your time will really be appreciated. Call or write Bill today....let him know you want to help. The address is: Bill DeFreze, 7530 Ironwood Dr., Dublin, CA 94566 or phone (415)828-2111. The fly-in location, in case you missed it in the last Newsletter, is at the Pope Valley Airport. It is 24 miles from the Santa Rosa omni on the 55<sup>0</sup> radial, San Francisco sectional. Be there!!

I have recently seen KR projects, in varying stages of construction, exchange owners. A few of these projects were in such poor condition that a knowledgeable buyer would not have even considered buying it. Unfortunately, we are not all knowledgeable buyers. If you're in the market to purchase a KR project that has been started by someone else, take the time to have an experienced builder to look it over first. He may be able to point out unacceptable workmanship and unsafe construction. This could save you a lot of money now and maybe even your life later on. Some builders have had major assemblies such as fuselage, wings, or other sections of their KR built by someone else. This works out fine if the fellow doing the building is competent. Experience is not enough if the experience gained by the proxy builder was not up to aircraft standards. I recently pointed out sub-standard work on some wings and ailerons to a fellow that had finished them (for someone else). His excuse was that he was given poor assemblies to work with and the work he had done was "good enough". Now this remark came from a guy that should know better. He has worked on several other KR's and has been trusted by the owners of these projects to do competent work. If a job is not done right it is not "good enough".

Was talking to Rex Taylor of H.A.P.I. on the phone last night and (surprise) the subject of engines came up. Really, we were discussing the safety aspect of engine installation and the recent incident in which a metal blade departed the rest of the aircraft. Metal prop blades have been known to do this sort of thing before and Rex urges anyone using a metal prop to use a 1/8" safety cable to secure the engine to the airframe at some other point than the engine mount. This will prevent the engine from departing the aircraft and leaving you with a horrendous aft C.G. situation. Racing aircraft using metal props always use this safety device.

Rex also told me that H.A.P.I. is going to sponsor a trophy for the best engine installation at Oshkosh this year. Judging will be done by EAA officials and is open to any VW conversion, not just a H.A.P.I. model.

There will be H.A.P.I. representation at the coming El Mirage Fly-in April 25 & 26, as well as the KR Fly-in June 13 & 14. See them there.

A few subscriptions to the Newsletter have been sent in at the old rates. I'm sending out the Newsletter anyway but the subscription will expire according to the amount of money sent...i.e. a U.S. subscriber sending \$9.00 will get nine months of the KR Newsletter, etc. One Canadian builder wanted to know why they had to pay an extra \$3.00 per year since postage rates are the same. Fair question. The reason is that, according to the U.S. Postal service, 1st class mail or air mail leaving the U.S. must be sealed. This means I must put the Newsletter in an envelope, stamp it, and address it. Which involves triple the time per Newsletter as the U.S. counterpart. This is also true of overseas mail....that's why the price increase.

I have been sent copies of a publication called the "Canadian General Aviation News". It is a small, yellow newspaper, much like the kind we get in the mail that usually ends up in the trash. What prompted the senders to forward the newspaper to me was an article titled "How safe are the KR-1 and KR-2?". The article was written by Reginald P. Lukasik, a self-proclaimed expert on sport aviation accidents. I don't believe Reginald is a government employee...yet. He probably will be soon tho'. Reginald seems to have the typical governmental attitude that they know what's good for you and is all set to pass rules and regulation to protect us from ourselves. Mr. Reginald P. Lukasik has decided that people who sell plans, kits, hardware, etc. are putting a "snowjob" over on us unsuspecting citizens, and "E.A.A. only talks in positive terms about sport aviation because they want restrictions removed".

Reginald decided KR's were not safe and listed some very frightening statistics based on 30 of 50 known accidents. According to Reginald, 12 deaths were the result in 9 of these accidents for an overall fatality rate of 29%. He compared that 29% figure to all homebuilts with 24.48% and General aviation at 16.4% fatalities for the same period. What if someone were to ask about fatalities in the remaining 20 KR accidents? Why do I get the impression Reginald only used the statistics that would prove his case? If I were to apply the number of fatal accidents (9) to the entire accident total (50), I get a figure of 18%. These figures are not really representative because they are incomplete. So are Lukasik's. He admits that the figures he used do not represent the entire KR population.

Let me give you some of the reasons Reginald decided the KR's are not safe:

1. It's a taildragger and most pilots are not familiar with taildraggers anymore.
2. The Volkswagen engine used in the KR turns opposite to more familiar aircraft engines.
3. Pilots don't pay attention to weight and balance. Aft C.G. conditions seem to be common.
4. The aircraft is very responsive and light on the controls. May cause over-controlling.

Reginald has more reasons why he thinks the KR's are not safe. Those, as well as the one listed above, are very hard for me to point to and say that these reasons are applicable only to KR's.

A person can use statistics to prove almost any point he wants to make. Reginald P. Lukasik has shown us his statistics....now maybe he will show us his motives. I expect the next time we hear from Reginald P. Lukasik he will have some official title. The Canadian KR builders have had other bureaucratic roadblocks and the article in Canadian General Aviation News will undoubtedly bring more. Good luck Canada, you're going to need it.

Our Australian counterparts have their own problems to cope with. All the modifications we make on our KR's, as a matter of course, are not legal in Australia. For a KR builder there to deviate from the plans one iota, he has to have proof it has been done successfully by someone else. Can you imagine the mess we would all be in if the Wright brothers had been born in Australia?? Anyway, what they need is proof that the flaps or dive brake work. If you have these (or any other) modifications on your KR, drop me a note. Include a list of modifications and how many hours flying time you have accumulated. I'll forward the info on the right people and maybe we can get some more KR's flying.

Have you been following the articles on Composite Construction in "Homebuilt Aircraft" magazine? Recent issues have included a series of articles on Rutan's Vari-eze. Much valuable info and some of it applicable to KR construction. The most recent issue (Feb. 81) kicks off a series on the KR-2. It will be a continuing article on alternating months. The Feb. issue also had a pictorial article on the Polliwagen, again lots of good information for foam built aircraft. A future article on the KR-2 will have photos of the new KR-2 being constructed by R/R.

The proliferation of kit aircraft with ready made parts and the F.A.A.'s apparent acceptance of this concept, has prompted R/R to re-evaluate their kit parts with the idea of having the metal fittings ready-made when the homebuilder purchases them. First will be the wing attach fittings, since many builders just aren't properly equipped to machine 4130 steel. The rest of the fittings will follow shortly. For those who can't wait, Miniature Metrics has been turning out an excellent, high quality set of hinges and bellcranks at a very reasonable cost. Their address is 7801 14th St., Westminster, CA 92683 phone (714)894-4875.

# BUY $\diamond$ SELL $\diamond$ TRADE

FOR SALE...Stitts SA3A Playboy. 1200 T.T. 15 S.M.O.H. Cont. A65, metal prop, in license and flying...\$3100.00 or will trade for avionics, radios, etc. or good dual ignition, large cc VW conversion for my KR-2. Paul Scovil, P.O. Box 1487, Battle Mountain, NV 89820 phone (702) 635-2829.

WANTED..Flying KR-1 or -2. Send photo, price and all information to Michael Paulikakas, 3232 Sumter Drive, #318, Dallas, TX 75220.

FOR SALE...KR-2 kits, fiberglass parts, Revmaster engine mount, all KR Newsletters, Defreze tri-gear plans...\$1975.00. Will deliver up to 600 miles. Bill DuRee 6461 Macleay Rd. SE, Salem, OR 97301 phone (503)399-1703 days.

FOR SALE...2100 D Revmaster. Normally aspirated, still in crate...\$2400.00. phone (405)223-5544 after 5:00 pm.

FOR SALE or TRADE...KR-2 spring bar. New, has not been drilled...\$50.00 or will trade for a R/R aluminum spinner. Phone (503)231-7612 (a.m.)

FOR SALE...Posa injector carb, 32 mm... \$45.00. New Volkspower accessory case with 25 amp alternator...\$150.00. Warnke 3 blade ground adjustable prop... \$225.00. Mike Lamb, 5327 West Ave. L-10, Quartz Hill, CA 93534.

TRI-GEAR PLANS...Retractable system that uses Rand's parts, wheels, gear legs and spring bar. Conversion plans..\$25.00. Bill Defreze, 7530 Ironwood Dr., Dublin, CA 94566 phone (415)828-2111.



A Performance Tuned Exhaust for the VW Aircraft Engine!

\*\*"The Sting" will give you a 5 to 15% increase in engine performance over the customary "straight pipes":

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\* Will fit 1600cc to 2200cc conversions. It's ready to bolt on your engine, nothing to fabricate.

\*\*"The Sting" is designed specifically for Revmaster, Diehl, and HAPI VW conversions as installed in a KR. Will fit most other VW powered aircraft also.

\$150.00 ppd. in U.S.

Ernest Koppe  
6141 Choctaw Drive  
Westminster, CA 92683

## THE DIEHL SUPERCASE

The only accessory case on the market designed to fit either of Rand's engine mounts. Provides electric starting and 20 amp solid state alternator. Now available with starter on top to allow clearance for tri-gear.

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STARTER..... 65.00

We also have the special tailwheels for the KR's. These are \$15.00 and will fit the Rand fork. And... TRANSISTORIZED FUEL TRANSFER PUMP for \$25.00. Price on wheels and pumps include shipping...Dan Diehl, 4132 E. 72nd St., Tulsa, OK 74136 Phone (918)492-5111.

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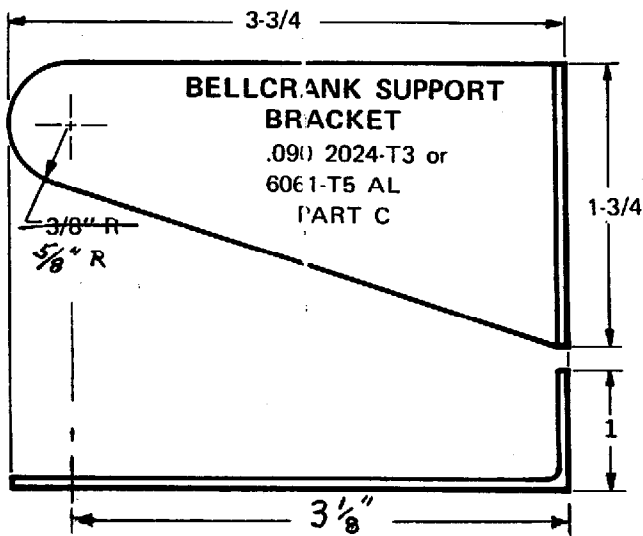
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PLANS ERRORS-KR-1 ONLY

Drawing #21 on page 26, lower left corner, in the KR-1 plans book shows a drawing of a bellcrank support bracket. The  $3/8$ " radius should be a  $5/8$ " radius. This will give a dimension of  $3 1/8$ " from the base of the bracket to the center of the  $5/8$ " radius. All other dimensions are correct.



BUY  $\diamond$  SELL  $\diamond$  TRADE

Now you can get your aluminum parts precision machined. In addition to our large supply of hard to find bolts and lock nuts, we now supply ready-made aluminum hinges and bellcranks. Our 11 piece "starter set" consists of one (1) tailwheel arm, two (2) bellcranks (elevator & rudder) and two (2) corresponding hinge halves, top rudder hinge (2 pieces) and outer elevator hinges (4 pieces). Total price for all 11 pieces is \$53.00. We can make these parts from your material for \$35.00. Order now from..

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## KR STUFF

Embroidered KR patches for hat and jacket..\$1.50 ea or 3 for \$3.50.  
Vinyl patches, stick anywhere....  
50¢ ea or 3 for \$1.00  
KR belt buckles....\$5.50  
T-Shirts..med, large, extra large  
cotton/polyester blend  
\$6.50 ea or 3 for \$18.00  
Ernest Koppe  
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## HEY GUYS!

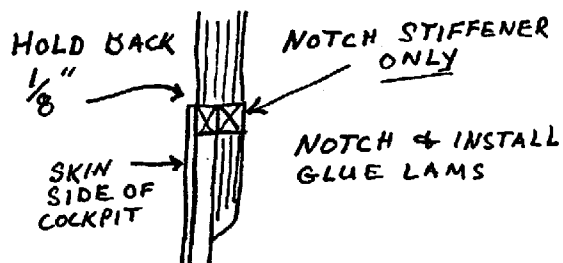
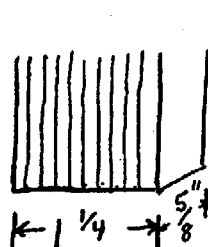
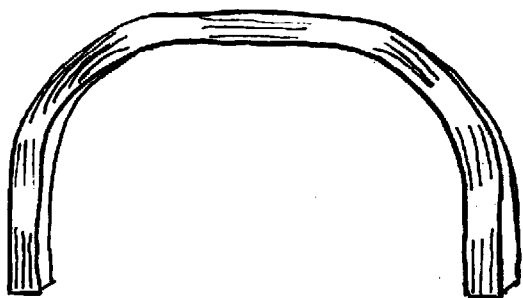
Do you buy parts & supplies from a business that the rest of the KR builders might benefit knowing about? Would it benefit that business to have the thousands of KR builders as potential customers?  
Of course it would!  
Talk to the owner or manager about taking out an ad in the Newsletter. Results are guaranteed. The business benefits, the builders benefit & you will get a free three month extension on your Newsletter subscription for every paid ad you send in! One year for full page ads! Advertising rates are listed in the Buy\*Sell\*Trade section.

## QUESTIONS & ANSWERS

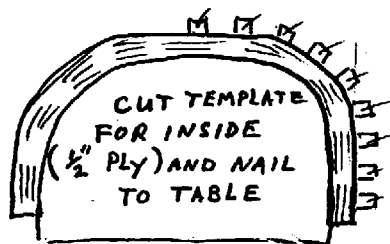
- Q. Can I use a fuel injected 72 VW engine in my KR? It is a type III.  
A. Yes, the type I, II, III VW engine share basically the same engine block.
- Q. Newsletter #56 Q & A mentioned an "Aug 79 revision of the KR-2 plans". What is this and how do I get it? I've never received any info from Rand/Robinson since I purchased my plans.  
A. The Aug. 79 revision of the KR-2 plans was more of a re-printing than a revision. Some plans errors were corrected (and some were introduced) and some building techniques. R/R does not update plans already purchased except thru the KR Newsletter or by exchanging current plans for old, plus difference in price.
- Q. I have wondered about the feasibility of a type IV VW engine for my KR-2. Is there weight or other problems with this engine?  
A. While some builders are using this engine, there is a definite weight penalty of 30 to 40 lbs. South African KR builders are using the type IV VW almost exclusively though because of the lack of the earlier type I, II, III engines.
- Q. I am ready to cut off the wings of my KR-1 but am not sure just where would be best. Could you help me out on this?  
A. The KR-1 and KR-2 wings should be cut off directly in line with the inboard ends of the outer wing spars. This will leave the attach fittings on the outer wing panel protruding while the attach fittings on the center section will be inset.
- Q. Is it a good idea to use a micro-slurry on the foam before the cloth goes on? Would you let it harden before you lay on the cloth?  
A. A 50-50 mix of micro-balloons and epoxy spread on before the cloth will save weight. The cloth should be put on while the slurry is still wet enough to soak in.
- Q. Could you tell me about the airworthiness of the R/R 3 blade prop?  
A. The Rand/Robinson 3 blade prop is no longer in production. This may or may not be a temporary condition depending on an examination of blade separation and/or hub cracks that have appeared in some props. If you are using the R/R 3 blade prop be sure you regularly inspect the center of the hub for cracks. DO NOT continue to use the prop if cracks appear. Blade separation is more readily visible and does not require removing the spinner. Attention to the blades during preflight inspection will expose blade defects.
- Q. What about the Vari-Prop from H.A.P.I.?  
A. The Vari-Prop has been under development for some years now. It is a cockpit controlled hydraulic actuated, variable pitch prop. It has only recently been adapted to the VW engines and is being put on a KR-2 by H.A.P.I. Soon as I can get some performance figures from Rex Taylor, I'll pass them on.
- Q. I notice that Dynel is no longer listed in R/R material lists. Is the reason structural or simply the unavailability of Dynel?  
A. Dynel is not longer being manufactured or Rand/Robinson would still be using it.
- Q. I want to replace my cast crankshaft with a forged one. Can you give me the address of SCAT?  
A. SCAT Enterprises, 1400 Kingsdale Ave., Redondo Beach, CA 90278.
- Q. I have started taxi test in my KR-2 and have trouble with directional control. Any suggestions?  
A. There are a couple of things you might check. First, make sure there is no toe-in of your main gear. Wheels should either track straight without weight on them or have a slight toe-out. One builder went as much as  $\frac{1}{2}$ " toe-out in each wheel, but I think that is a bit much. He no longer has directional problems though. The other thing you might check is the location of the rudder cable attach points at the rudder pedals. Many builders are making the mistake of attaching the cables all the way to the foot rest section of the pedals. This translates to maximum movement of the rudder to minimum movement of the pedal. Over control is usually the result. Best location for the cable attach point is approx.  $4\frac{1}{2}$ " from the hinge point. What you're looking for is maximum rudder movement for maximum pedal travel.

GULL WING CANOPY BY BILL DEFREZE

After flying in Dan Diehl's KR-2 with the Gull wing canopy and feeling the extra headroom....I decided to change my canopy. I believe it is much easier to build. So...I set up my table saw, & ripped some scrap spruce 5/8" x 1/8" strips. Epoxy these strips together to make glue lams.

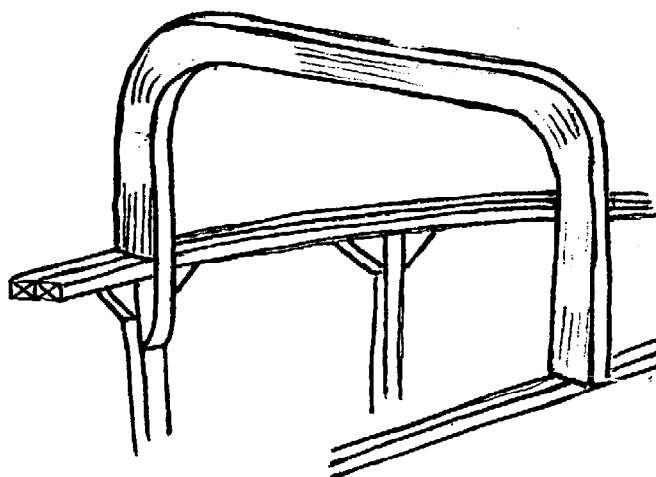


To lay up glue lam bows, determine location and size. Lay out on table.

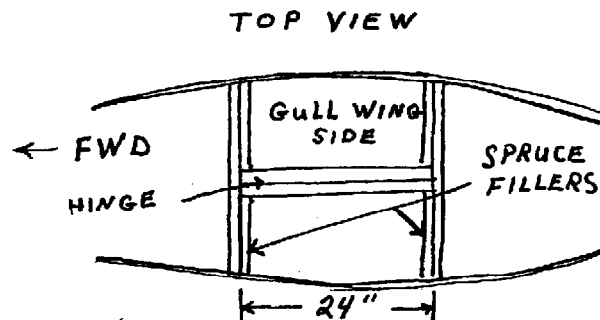


1. Lay down wax paper & epoxy together.
2. Use approx. 2"x 2" scraps of ply as holders.
3. Be sure to press out excess epoxy. Let cure.
4. Make rear bow first.

5. Take plywood inside template and cut thru the middle and widen out to front of cockpit size bow.
6. Repeat steps 1,2, & 3.
7. Next, lay-up the front bow again. This bow will make the front and back gull wing bows.
8. Make 2 lams 24" + with 1/2" crown. These are the 2 hinge holders at the top.
9. Make 1 lam to match the fuselage side or sill.
10. After epoxy is cured, belt sand all lams to 1/2" thick.
11. Fit fore and aft bows to fuselage ....I allowed a 24" opening on the right side sitting in cockpit.
- 12.

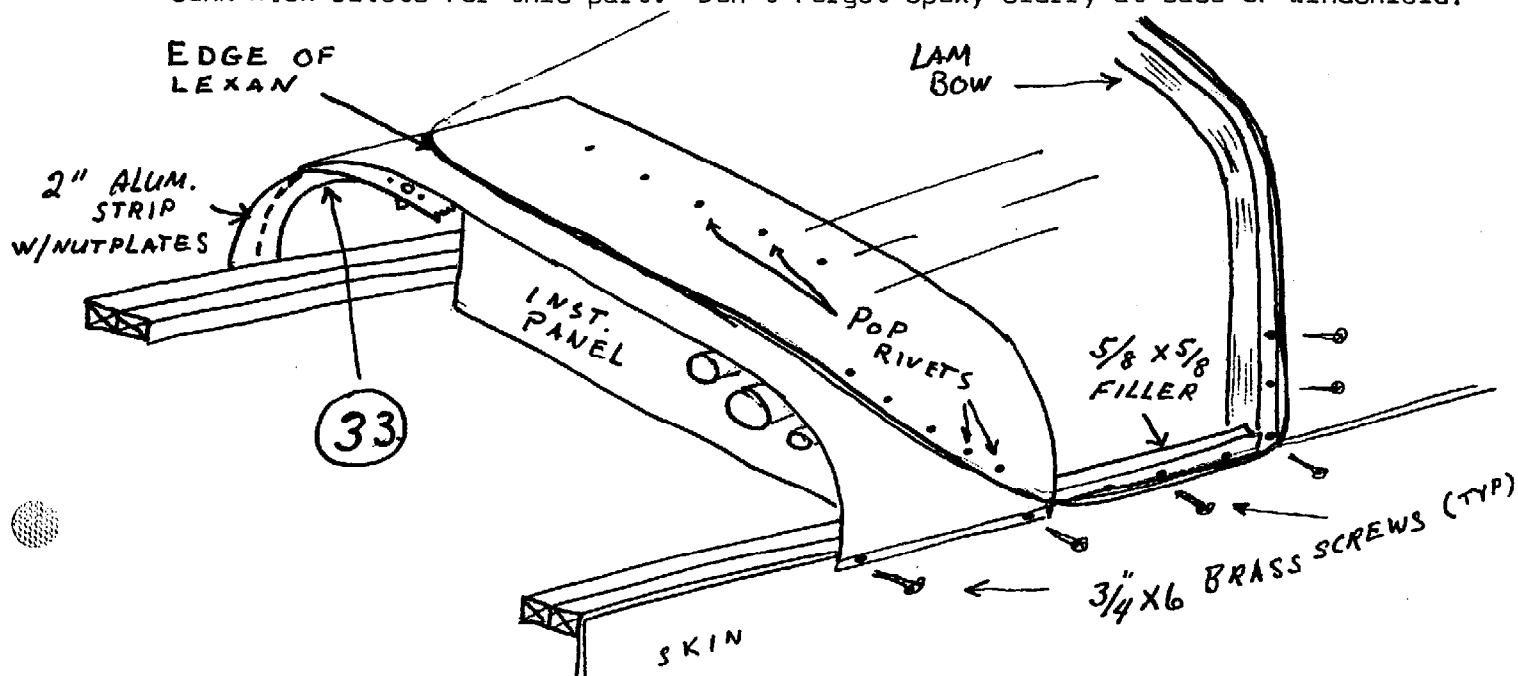


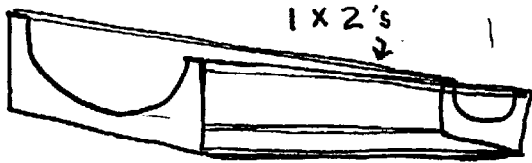
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13. Fill with 1/2" x 1 1/4" spruce to hold side window. Also at sill.

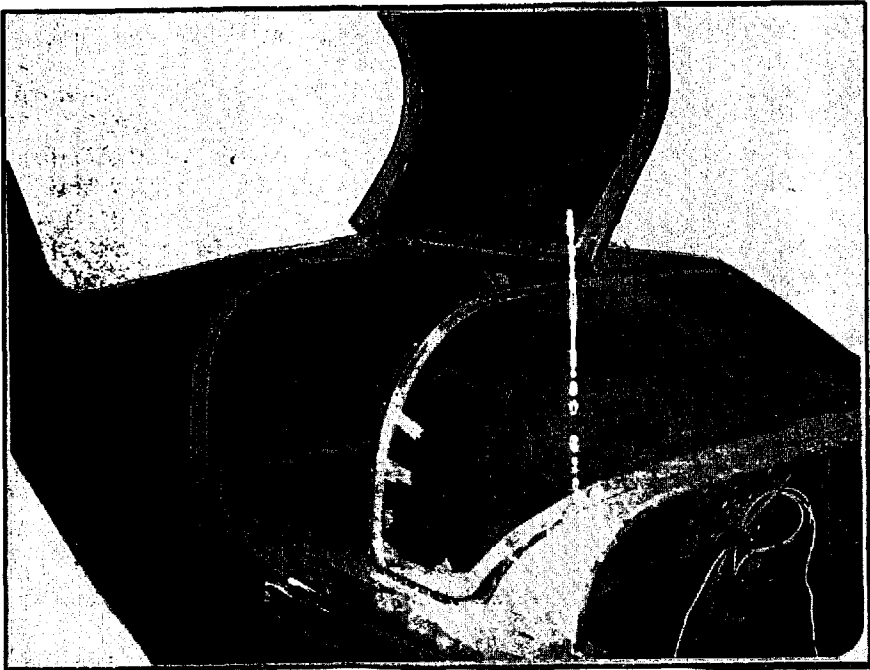
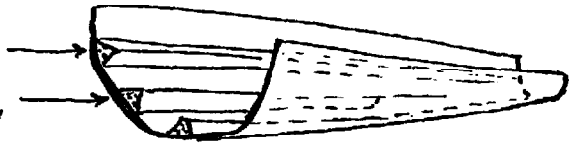
14. I bought 1/8" bronze Lexan as it can be cold bent. The canopy I am describing was all done with no heat or pre-blown plastics.
15. After you have installed and fitted all the bows and fillers and door, mix a slurry of epoxy and micro balloons for your Lexan.
16. Take cardboard and make patterns of the glass areas first.
17. Cut Lexan to shape and size. Leave protective paper on.
18. Using a razor knife, cut paper back 5/8" from all edges and sand glue side. Lexan is very mar resistant, so use coarse sanding.
19. Lay out across top and bottom in center of sanded area's in the middle, 2" on center, and drill for 3/4" x #6 countersunk brass screws. On the sides you only need 4" on centers. Countersink holes for countersunk screws.
20. Spread epoxy on bows and screw to hinge member. Have friend help you roll Lexan as you insert screws.
21. After you set the side window and canopy (use wax paper between canopy and fixed areas to prevent trouble later) the front bow will have to be sanded to fit the windshield angle.
22. The front turtle deck of my plane is four layers of 8 ounce glass laid up on a piece of formica, and using my alum. instrument panel as a former, it is epoxied to the sides of the fuselage.
23. The turtle back is the same as the above process. Both front and back turtle deck are laid up with polyesters....not epoxy. Both were made and installed in one week-end.
24. To make the turtleback, I laid up the 1st layer of glass, the approx size, and thinned the resin about 20% with laquer thinner. You cannot believe how smooth a finish results. Lay up each of the next layers without thinning.
25. To strengthen the now formed "sheet", I took a piece of scrap plywood and made 2 "horseshoe" patterns the exact shape of the rear canopy bow and just forward of the vertical stabilizer. Join with 1 x 2s to hold shape, staple skin to formers.
26. Then using polyurethane wedge shapes, 1" x 1" x 1", I attached them to the skin inside. When I decided to make this change, I cut off the rear deck, made to plan and weighed it.....13 1/2 lbs! New deck...3 1/4 lbs. As you remove skin, you will notice it kind of holds its' shape.
27. To attach to fuselage, cut raw edges to fit-1/2" down sides and fore and aft. Sand area to be epoxied. Use Rand staple method for attaching, only difference is make epoxy and micro balloon paste. As you staple to canopy bow, you will notice tight wrinkling. Don't worry...the epoxy slurry acts as bonding and filler, it will all sand out nicely.
28. The windshield worked out a lot easier than I expected. I bought some counter-sunk Avex rivets for this part. Don't forget epoxy slurry at base of windshield!





26

3 LONG  
2 HALF  
WAY



Bill's article will be continued next month. You can see by the photo there is indeed extra headroom. A self addressed, stamped envelope and \$6.00 will get you a full set of pictures from Bill. Photos show a lot of detail.

Bill DeFreze  
7530 Ironwood Drive  
Dublin, CA 94566

P.S. Lots of requests for more flight reports. So...next issue will have'm.

P.P.S. Open House at Fla-Bob on Feb. 22nd. (Hamburger Feed on the 21st.) See you there!!!

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