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This newsletter is being sent as a special free-gratis-cheap notice that Mead Engineering still exists and is interested in what's going on out there. The builder feedback has been largely underwhelming and it seems like many have assumed that the Adventure is an idle product. Not true. Please let Sharon know how you're doing and ask questions if you have problems. I try to answer questions in detail and give reasons for my answers. My philosophy on changes and alterations to the Adventure is simple-it's your airplane and you can modify it as you wish. Mead Engineering can not enforce any adherence to the plans and I can only advise as to what I'd do if the plane were mine.

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WHAT'S GOING ON SECTION:

The Adventure is undergoing a major engine change program. In the last newsletter I said we were planning a 250 MPH mod for the Adventure. That's true-but it's hypothetical in that the engine will be the turbocharged Kibler-Honda and the 250 mph is 75% at 18,000 feet - and I don't cruise at 18,000 feet without oxygen. And I wouldn't dream of violating the FAR that says I must have an altitude encoded transponder above 12,500 feet. We should be able to get 228 mph at 75% (5.75 gph) at 12,500 feet.

The installation is going well. Jerry Kibler is setting up the engine and Sharon and I are doing the rest. The Honda will have about 1340 cc, high compression pistons and will be turbo-charged for a rated horsepower of about 100 BHP. We'll be able to adjust the timing, mixture, throttle, turbo boost and cooling airflow manually to achieve the best possible engine performance. The weight of all this will not be in excess of a 0-200 with a starter installed. The Honda will have starter and a full electrical system. The initial reduction system will give a 1.8:1 reduction via a toothed belt. The airframe is unmodified except for the new cowling. The cowl does not have any lumps or bumps like many of the automotive engine installations. There are two 70 in.² cooling radiators located between the firewall and the engine. These radiators are fed through a sealed high pressure duct from a 30 sq. in. inlet at the front of the cowl. The outlets will be on either side of the cowl.

I have designed and am carving a propellor for the Adventure. The airfoil is my own section. The planform is idealized for minimum induced losses but looks very much like the planform in Sport Aviation some years ago. The design point is 2750 rpm, 89 BHP, 220 mph, 2500 feet pressure altitude(std. day) and results in a 66" diameter, 86" pitch blade. If any of you think you have a better prop we'll be glad to try it. Just send us a left hand, Continental bolt pattern example and we'll try it out.

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We hope to place well in the Oshkosh 500 in 1983. I have no illusions about beating A.J. A single place airplane is at a severe disadvantage in the race. Current rules place extreme emphasis on side-by-side seating and more than justifiable emphasis on more than one seat, so the Adventure is not capable of winning all the marbles - unless A.J. doesn't finish, or cuts a pylon or etc., etc.

The appearance of the plane will be improved dramatically. In fact, if you would add a belly scoop to the plane it would look very much like a P-51. And that brings up the question - why isn't there some interest in cosmetically changing the Adventure into a P-51 or P-40 or ME109 or ...? We hope to be flying in ^{June} May so stay tuned.

HINTS-OR-A FUNNY THING HAPPENED ON THE WAY TO THE HONDA...

I've rediscovered toothpicks. They make excellent nails for holding things together. I used them to assemble a new auxiliary gas tank and they don't need to be removed after cure.

Polyurethane foam-in-place can be a good repair material in some places. I replaced the foam and outside skin in the belly just aft of the firewall to make the prototype the same as the plans. During this modification I unskinned an area where George had made a repair to a void caused by a gas tank leak. He made a hole and did the soda straw trick, where you suck the foam into a straw and then blow it into the area you want to fill with urethane. I use a syringe for the sucking and blowing ~~size~~ it would not be healthy to get polyurethane chemicals in your mouth or lungs. The foam really sticks well to the glass skin. I'd recommend 6 lb./cu. ft. foam for such repairs and it is absolutely essential that there is sufficient room for the foam to expand. If there isn't enough room, the foam will break the structure apart and you'll have a more extensive repair to make.

Since I've had more than one instance of gasoline induced voids I am going to recommend that builders use Clark urethane foam or PVC or Divinycel or Rohacell in the bottom skin of the fuselage and as a replacement for the bottom 4" of any styrofoam bulkhead. Use the same size and density foam as the styrofoam it replaces. This material is not included in Aircraft Spruce's material kit for the Adventure so you'll need to buy it separately. A compromise is to use the fuel resistant foam only in the low spots of the fuselage. I do not recommend the 2 lb/cu. in. pour-in-place polyurethane or the green (brown) polyurethane "florists" foam anywhere as a primary building material. It has grossly inferior peel/fatigue strength and absorbs moisture which promotes further disbonding.

If you have trouble with BID cloth stretching out of shape use masking tape around the edges. One of the exasperating characteristics of BID is its tendency to change shape between the time you cut it and the time you get it in place on the airframe. The easiest way to solve this problem is to outline the shape (all four sides) on the cloth with 3/4" masking tape before you cut the cloth. Then you cut the tape down the middle. You cannot remove the tape once it touches the cloth. After you have the cloth in position and at least partially wetted out you cut off the remaining tape and surplus cloth with scissors. This same trick can be used on the edge of UNI to keep it from unraveling.

The best stipple rollers were a type of "adhesive cover" that I got years ago from the Standard Brands paint store. They ran out of them about 4 years ago. These rollers had a surface like a knobby rug. Well - I've finally found a suitable replacement quite by accident. I was in a store that had some old samples of carpet and found a piece that had a rather short knobby texture so I thought I'd try making my own stipple roller -- and it worked. I stripped the cover off a normal fuzzy roller, cut a piece of carpet to wrap around the core, glued it in place

with rubber cement and held it in place with tape until the rubber cement dried. And then I discovered that toilet paper cores have almost the same diameter cores. So I've found what I consider to be the ultimate stipple roller - darn near free.

PRODUCT RECOMMENDATIONS:

I've just finished building a Radio Systems Technology RST 571, 360 channel nav-com. I've made a new instrument panel for the Adventure and will install it when we get the Honda engine going. If the radio plays as well as it went together it should be a real nice unit. It appears to me to be capable of operating on a 12V battery with no alternator needed. The only complaint I have about the radio is that the delivery time and calibration time from RST is measured in months and months instead of weeks and days.

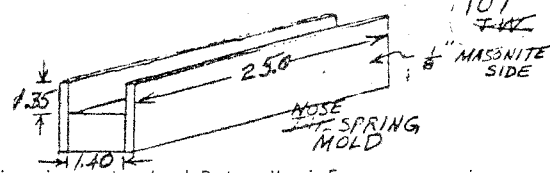
The prototype Adventure has used Ted's props exclusively. However I've measured the Adventure prop and find that the quality control is obviously variable. I recommended a Ted's prop to a friend who has a Cassutt and it averaged 7" pitch difference between the two blades over the outer 10" of the prop. The resultant vibration was more than noticeable. I tell this story so that you are aware that no two props are the same and that you may get less than you bargained for. Your only recourse depends on the integrity of the seller.

Several people have asked about main gear and nose gear legs for the Adventure. The best main gear is the original Varieze gear (remember the \$160 price?!!!!). These gears are not suitable for the Varieze now and if you can find one, you should be getting a real bargain. The other extreme as far as bargains go - is the current Varieze/Longeze gear. This gear is heavier and costs about \$310 but it will work on the Adventure. Task Research builds them and Rutan Aircraft sells them. The nose gear can be built on your own, using the same technique as the tailwheel spring.

I've been using a modified model airplane optical tachometer for some time now to get accurate engine rpm data. The tach is called the PRO TACH and it is able to read to 110 rpm in the most adverse environments. The original version measured from 0 to 25,000 rpm but I changed mine to read 0-5000rpm. There are now 6 scales, 0 to 1K, 1 to 2K, 2 to 3K, 3 to 4K, 4 to 5K, and 0 to 5K. The unit is self contained, has extensive voltage and temperature compensation and will read a prop up to at least 15 feet away. I would recommend this to anybody who needs to know their RPM. The last price that I had was about \$70 in kit form from Royal Electronics, Box 22424, Denver, Colorado 80222. If you need to know what change to make to change the scaling just send me a letter and I'll send you a description - no charge.

SEE YOU AT OSHKOSH!!!!

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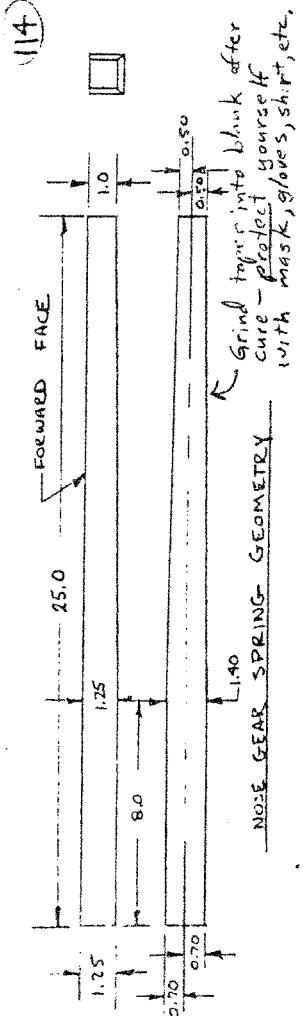
Landing Gear

The main landing gear spring is a standard Rutan Vari-Eze gear spring. A number of these units are available surplus from Eze builders who have been encouraged to install the heavier Long-Eze gear springs in their airplanes. If the gear spring was easily homegrown, I'd have you make it yourself. The main spring is best bought. The tail spring you can make yourself.

To lay up your own ^{NOSE} tail spring, first make the wooden mold shown in the sketch. Cover the inside surfaces of the mold with fine line paint striping tape or 3M "Mystic" tape. Use the tape to radius the bottom corners of the mold. Cut ~~five~~ ^{five} pieces of unidirectional cloth ~~26~~ inches long and the full roll width (37 1/2 inches). Lay masking tape along one 37 1/2 edge of each piece and mark the tape each 1.25 inch along the width. Tape a sheet of plastic or a garbage bag to your working surface. Wet out the 37 1/2 X 26 uni plies with RAES or safety poxy using your squeegee. Use your trim knife to cut the small crossfibers and masking tape along the 26 inch length at each mark. Lift the wet 1 1/4 wide strips of cloth off of the plastic and lay them into the mold. Lay about 10 strips into the mold and then squeegee them down with a masonite strip that is just narrow enough to fit inside the mold. When all of your material is in the mold (~~60 to 80~~ strips) it should be ~~5/8~~ ^{1.25} thick or slightly over. Add some extra strips if necessary.

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Cure at room temperature for 24 hours. Trim the ends flush with the mold. Remove the spring and discard the tape. Return the spring to the mold and bake in your household oven (NO MICROWAVES!) at 200°F for 2 hours.



NOTE: The best technique for this layup is to squeegee the epoxy onto the cloth and use a fair amount of force to make the layup as dry as possible before you cut the strips apart and put them in the mold. It is very difficult to make the layup drier after the glass is in the mold. The layup will probably start to gel on the bottom layers before you've completed the layup. That's OK - just make sure that each 10 layers are the best you can do before you lay in the next 10 layers.