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KR-1 KR-2

N E W S L E T T E R

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This last month's mail has really been interesting. The response to the survey was very good and provided some significant information...item #7 in particular. If the percentages can be applied to the total number of newsletter subscribers (600+) there will be 210 (35%) more KR's flying by the end of this year, an additional 300 (50%) by the end of next year. The other 15% either has not started construction yet, or had no definite completion date in mind. Now, to carry this a little further, apply the same percentages to the 8500 sets of KR plans delivered.....wishful thinking of course.

SURVEY RESULTS.....On the back page of issue #11 was a short questionnaire designed to get a better idea of what you guys are doing. The results are in and the figures below are based on a total of 87 replies. Some letters were from groups building more than one KR so the totals might not always add up but they do indicate what is happening.

- (1) 61 KR-2s and 24 KR-1s (2 Taylor Monoplanes)
- (2) Building time to date has been evenly divided thru the last 1½ yrs. with the exception of 3 KR-2s (2-2½ yrs) and 5 KR-1s (2-3 yrs).
- (3) The list of materials sources is as long as the list of builders. 90% of the builders listed Rand/Robinson as the major source of parts and supplies with scrounging bringing up a close second. Wicks Organ and Aircraft Spruce & Specialty were next, evenly divided at 15% of the total each.
- (4) Only 10% of the builders are planning on no modifications. 80% are making minor mods. These range from wing tanks to speed brakes and sliding canopies to dual controls. Another 10% is really making some changes...tricycle gear, extended fuselage, longer wings, different airfoil, shorter wings and the list goes on. (One item that some builders listed as a minor modification was the enlarging of the tail surfaces by 10% or more. This is not a minor modification. The horizontal and vertical tail is plenty effective as is. Changing it may not bring the expected results.)
- (5&6) The VW engine modified to 1834cc by the builders themselves accounted for 30% of the engines being used. 25% reported they had not decided yet. 10% went to the Revmaster engines, mostly the 2100. The remaining 35% are really varied....1200 to 1700 VW, Corvair, Porsche, Continentals 35-65-75-80, Lyc 0-145 (65 hp) Barker, Monnet, Limbach and at least one rotary engine.
- (7) Completion date...35% will be ready to fly this year, 50% next year and the remaining 15% aren't sure.
- (8&9) Almost all replies preferred the newsletter to continue the present format. I would like to include more photos but I don't get very many that will reproduce well enough to show good detail. Those builders that have sent drawings are really appreciated. I know the time and effort it takes to get your ideas down on paper. Several drawings sent in can't be printed as received. Not enough margin is the most troublesome factor. The printer says he needs a ½" margin on all 4 sides of an 8½ x 11 or 11 x 17 drawing, the drawing should be in black ink, pictures should be black and white. Many builders want an accident and safety column. I am willing to print any first hand accident reports and any thing that will relate to the safe operation of these fantastic foam aircraft.

Many builders have run into the problems establishing the dihedral, the angle of incidence and the washout to be built into the wings of their KR's. Below is a summarized and (hopefully) easy to understand method to arrive at the correct wind shape.

When you have reached the stage of construction where you are ready to build the outer wings, the center section should be complete. If you followed the directions in the plans, the center section spars are resting on the bottom fuselage longerons. This will give you an angle of incidence of approx. $4\frac{1}{2}^{\circ}$. Verify this angle by leveling the fuselage on all axis and then check the chord of the root rib with a level and protractor. You will get a reading of 4° to 5° depending on your fore and aft leveling points in the fuselage. Once you have the fuselage leveled and incidence of the root rib established you are ready to get wing dihedral. On the KR aircraft this is 5" measured from the bottom of the fwd spar...(KR-1 drawing #2, back side--KR-2 drawing #10). Clamp the outer fwd spar in place and using one nail, install the tip rib so it can rotate using the nail as an axis. Use the level and protractor to set the tip rib at an angle 3° less than the root rib. This will give you the washout required for good stall characteristics. Clamp the tip rib in place and install the aft outer spar. (The 4130 steel attach fittings for the rear spar will have to be bent on a slight angle. Bend them before installing on the spar.) Complete spar and tip rib installation by rechecking all measurements, then permanently install attach fitting bolts and epoxy tip rib in place. Install the foam ribs (see NEWSLETTER #12) and complete wings per plans.

Unless you have more room than most builders you will be building one wing at a time. Just be sure one wing is the same as the other.

BITS & PIECES.....Elo Zinke of Lubbock, Texas reports his KR-1, N76EZ (eat your heart out, Burt) will be ready for FAA pre-flight this month... Tom Speakman of Portland, Oregon sent in pictures of his off-set seat. Says if there is enough interest he will send us a drawing. Expecting a flight report on Tom's KR-2 shortly..will get it in the newsletter first opportunity.....Ray Ellis has a very nice sliding canopy on his KR-1, look for pictures and construction tips next issue.....Daryl Rogers 1856 W. Kentucky Ave. Denver, Colo. 80223 has nearly finished a turbo KR-2. Daryl has made the entire fuselage turtle deck see-thru. No visibility problems here.....One of the builders reportes he purchased some pre-formed foam leading edge for his KR-2. He says it was OK but more work fitting them than building from scratch.....Next month's newsletter should be early. Going to leave for Oshkosh on the 24th and will try to have the newsletter in the mail before leaving.

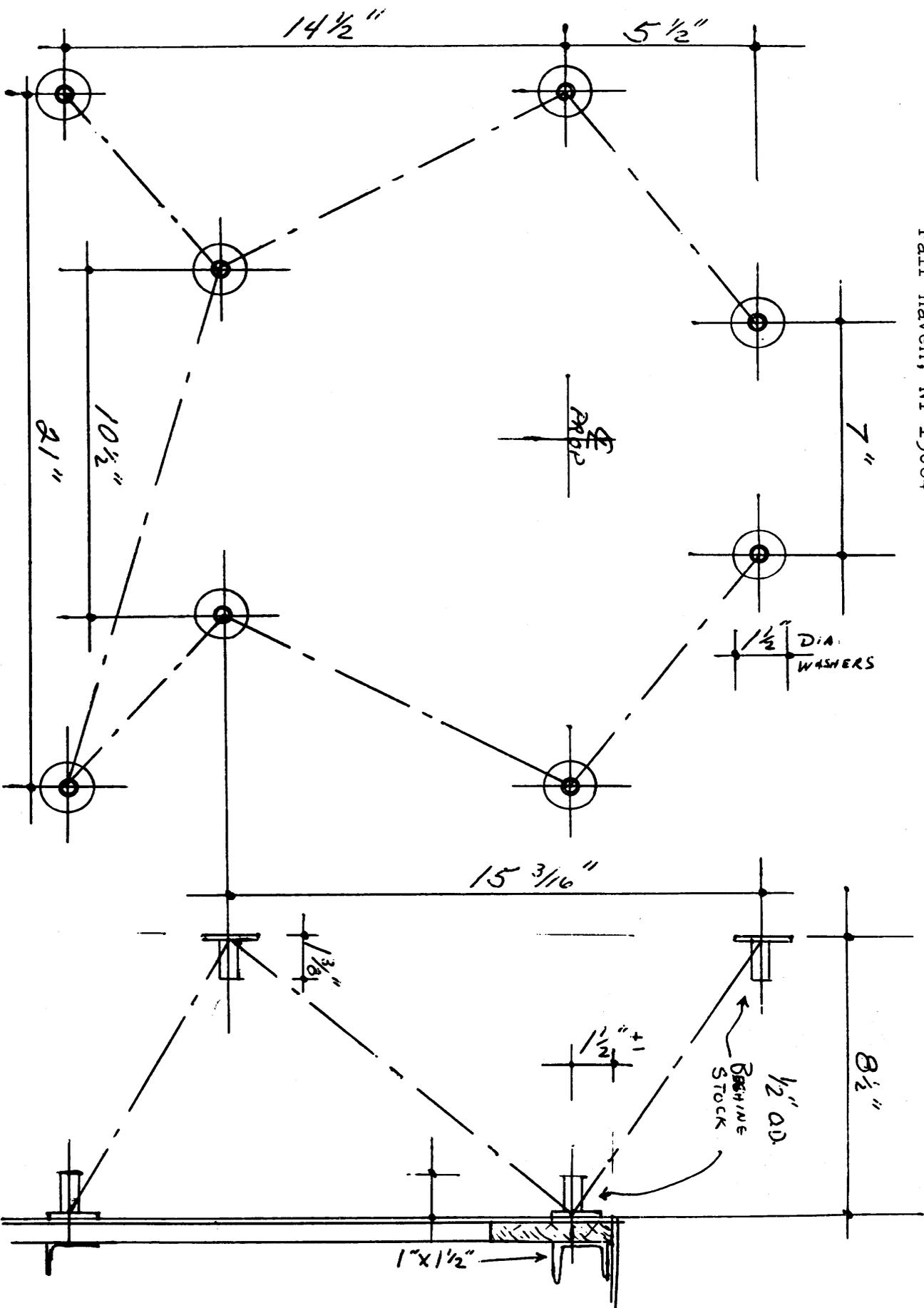
FOR SALE: 36 hp VW converted. * * *
Crank tapered 3° , all new parts. STEVE
BENNETT 2819 $\frac{1}{2}$ 48th Des Moines, IA 50310 or ph. 255-2544
* * *

The engine mount drawing on page 3 was sent by Odran Benson. Included was the following notes.....

Materials: 12' x $\frac{5}{8}$ " x .049 4130 tubing, 8 washers $\frac{3}{8}$ " x $1\frac{1}{2}$ " O.D.
 18 " x $\frac{1}{2}$ " O.D. bushing stock (ream to $\frac{3}{8}$ " I.D.)
Construction: Make 2" x 2" x $\frac{3}{4}$ " plywood jig (two pieces) with $8\frac{1}{2}$ "
spacers. Mark and drill $\frac{3}{8}$ " bolt holes for fuselage mounting
on one piece and engine mounting holdes on the other. Bolt
washers and bushing stock in place, fit $\frac{5}{8}$ " tubing and weld.
Odran used the 1" x $1\frac{1}{2}$ " aluminum channel from the Rand aluminum kit
to reinforce the fire wall of his KR-2.

KR-2 ENGINE MOUNT for A-65/ A-75 Continental Engine

Drawn by Odian V. Benson
14602 Fancher Ave.
Fair Haven, NY 13064



QUESTIONS & ANSWERS

- Q. What is the "washout" mentioned on pg. 36 of the KR-2 plans book?
A. Washout is the difference in angle of incidence of the 48" root rib and the 36" tip rib. In the case of the KR-1 and KR-2 this difference is 3°.
- Q. What size bolts are used to attach the aileron hinge to the aileron spars and what is the spacing?
A. I used 10-32 machine screws on the KR-1. Spacing worked out best at every 4". KR-2 builders should be able to space theirs at 6".
- Q. What are the power-off (dead-stick) characteristics of the KR-2?
A. The KR-2 with poer off descends 350-400 fpm and 65 ind. All controls remain very responsive.
- Q. Is the center section finished (foam & dynel) before the outer wing or are they both covered together?
A. I found it easier to complete the center section and then do the outer wing.
- Q. What type of hose is used for the fuel gauge?
A. A ¼" clear vinyl available at most auto parts stores.
- Q. What is the angle of the seat back (wood) in relation to the rear spar?
A. Whatever is comfortable to the individual builder, usually 20° to 30°.

THREE BLADE PROP UPDATE from KEN RAND...testing of the prop ran into a snag last mont. The three KR-2s flight testing the props all had non-flying accidents. Bob Hancock's turbo 2100 powered KR jumped the chocks during a run-up at Long Beach. It went over on its' nose and wiped out the prop blades. Ken's own plane had a similar accident at Meadowlark while a cylinder compression check was being made. Again the **blades were** wiped out. The final incident concerned Lt. Nat Godley's KR at Oceanside, CA. The N36119 ran off the runway and wiped out the blades. All this in one week! A thorough examination of the broken blades was made and results show that an ideal proportion of components has been reached. A production run of 100 props is planned June 30th and after a few more tests, they will be released to the many builders who have already placed their orders. For more info or to place an order, check with Rand/Robinson.

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