

MARCH 1978  
ISSUE #33

# KR

# Newsletter

TELEPHONE  
714-897-2677

## SUBSCRIPTION RATES

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I've been getting many requests for info on VW engine operation lately, so I started looking to see what was readily available. I found the following figures in a booklet on the Barker VW conversion. CHT -450° max...Oil temp-250° max...Oil pressure-30 lbs at 70° C min. (?)...Recommended rpm cruise-3300 max 3800.

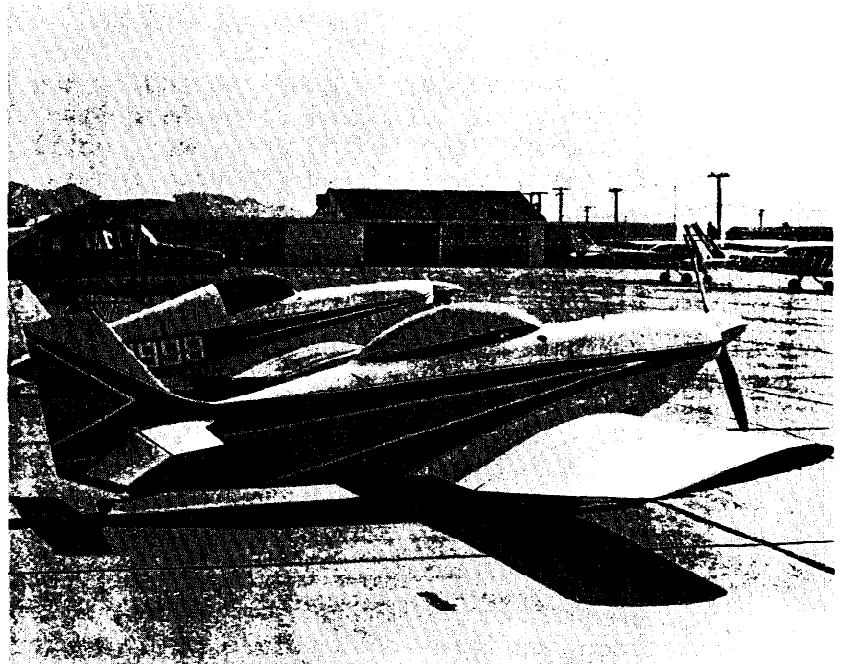
The CHT is with the thermocouple under the spark plug and is the most accurate of the methods used to measure CHT. Oil temp sensor is located at the oil screen cover plate on the bottom of the engine. These figures do come close to what I've experienced on my KR-2 since the first engine run-ups. Normal operating range appears to be as follows... CHT-395° to 415° F (with VW type gauge)... Oil temp-180° to 200°...Oil pressure-35 to 40 lbs cold, 20 lbs hot...rpm-3200 cruise 3800 max.

Your airspeed will vary with size of engine and/or prop. For the larger VWs (1700cc to 2100cc) the following applies...climb props have 40" to 45" of pitch, cruise props 55" to 60" of pitch. Length of the props are generally 50" to 54". The majority of VWs use the middle range 45" to 55" of pitch on the non-adjustable type prop. There are exceptions of course but this has pretty well proved out over the years. You can readily see the advantages of the adjustable prop!!

There are still many things to learn about the VW as an aircraft engine but generally it has proven highly successful. That about covers it, hope your VW performs as well as expected. I'm sure it will give you much pleasure.

The KR-1 pictured here belongs to Butch Grafton, 1605 Eucalyptus Dr., El Cajon, CA 92021. The trim little craft is the nicest looking KR-1 I've seen since Fred Kellars beauty at Oshkosh. The KR-2 in the background belongs to Murray Rouse and has previously been pictured in an earlier Newsletter.

Butch actually sent the picture to Rand/Robinson (from whom I lifted it) so at present I have no performance figures to pass along. I do expect to see Butch & Murray at the Fla-Bob Airport open house this coming week-end. Maybe more info next month.



## TIPS FROM OTHER BUILDERS

I misplaced the name of the builder that phoned in these tips. I did get the information tho. The trouble with sanding epoxy has been the rapid way it loads up sandpaper. A grill brick of the type used in restaurants removes the sticky part and allows easier finishing with sandpaper. He ran into a problem painting his KR. A finish coat of Dupont Dulux over Dupont 100S primer peeled off. Dupont rep said it was because the interval between coats was too long (1 week).

## QUESTIONS & ANSWERS

- Q. I am thinking of using the existing VW fuel pump to transfer from the wings to the center tank. Will there be any problems due to the long periods of disuse of the pump?
- A. The fuel pump would constantly be in operation whether or not there was a fuel flow. This could cause a premature failure of the pump diaphragm. It would also be a constant horsepower loss.
- Q. Where are most of the people putting the battery in the aircraft equipped with an electrical system?
- A. Varies.....most are on the firewall, some are behind the seat.
- Q. I am building a 1971 VW engine to 1834 cc with a 3/4 race cam. I see where most of the engine gages go but where are builders hooking the oil temperature sensor into the engine?
- A. Most gauges are matched to a sender so location recommended by the manufacturer should be best. Generally a location below the oil level in the case is considered most accurate.
- Q. I understand that Rand doesn't use carb heat on Posa carb. Are builders taking air from inside the cowling or using ram air? How does this lack of carb heat work out in the colder climates?
- A. Ram or cowled air supply is a matter of choice. I used ram air in my KR-2. There is no venturi in a Posa so ice is not a problem (according to the experts).
- Q. Any recommendations on building a cabin heat muff and hooking it into the cabin?
- A. The only one I've seen was a section of stovepipe over an exhaust pipe with ducting to the cabin.
- Q. Did Rand get the bugs out of the plastic 3-blade props? Is this what he is now delivering or are they furnishing wood blades?
- A. The blades will continue to be wood indefinitely.
- Q. I'm having trouble finding out from the plans how they seal cabin from water and rain? Also how about the wings where they are cut off, are seals of any sort used at these junctions to keep water out?
- A. The cabin can be sealed using foam rubber weather stripping available at a hardware store. The end of the wings should be sealed off with foam/Dynel. Also the center section stubs except around the aileron control.
- Q. I am interested in the Subaru 1600 cc water cooled engine...do you have any info?
- A. There was a Subaru engine mounted on the Taylor-Bird at Oshkosh last year. To my knowledge, this is the only aircraft using a Subaru so information is sketchy.
- Q. What is the best way to mount or modify the tail wheel spring? I built mine according to plans and the tailwheel hits the bottom of the rudder with weight on the aircraft.
- A. Rand recommends shortening the spring until a satisfactory condition is achieved. Usually the removal of two or three inches is required

\*Ed. Note...The circulation of the Newsletter has increased to the point that answering questions by mail is consuming an increasingly large amount of time each week. In the future I will have to limit the answering service to the Newsletter Q & A column. I realize some questions are too pressing to wait until the next Newsletter so I will be happy to answer this type by phone. My phone number is 714-897-2677 (no collect). Overseas readers will still be able to have questions answered by mail since a phone call is impractical.

## TIPS FROM OTHER BUILDERS

As more builders have reached the Dynel/epoxy stage in their KR's, more ideas surface on getting a smooth skin on a KR. Jim Snyder, a longtime subscriber and contributor to the Newsletter sent in this idea. Jim's method: Lay down Dynel and epoxy as usual but without using wax paper or Mylar. Leave it rough, tacky. A day later lay down a slurry of resin (1 part) and microballoons (3 parts). A piece of Mylar was laid down on the slurry to get a smooth finish. Jim has tried various tests to check for separation of materials using this method and found no problems at all. He would like comments from the rest of the builders so if you have questions or criticisms, drop him a line. Address is: Box 696, Hesston, KS 67062.

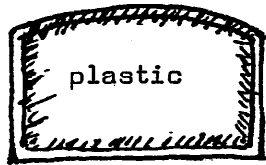
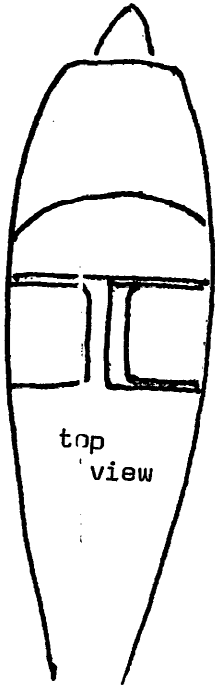
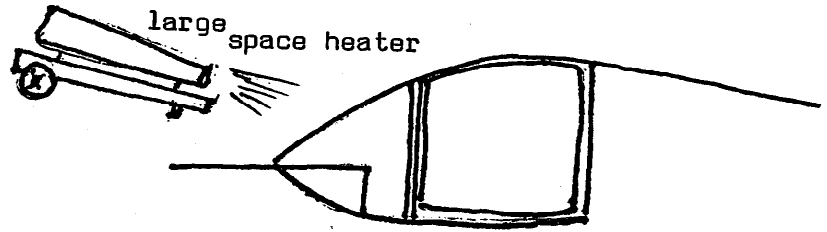
TIPS FROM OTHER BUILDERS

From Dan Diehl....Many people have written to me about my canopy. Here is a quick sketch you may want to put in your letter.

Make front windshield bows of wood. Bend aluminum around bows and cut to fit just as plastic will fit. Place

cotton flannel over aluminum & then lay on plexiglass. Use a large space heater to heat plastic.

I did mine one half at a time. This will give shape for front. Side windows are made for an emeraude. Available from...Bouwens Aerospace, Twing Rd., LeRoy, NY 14482. They sell for \$75 a pair. Several colors available. They come too large so you will have to cut them down, mostly on the bottom. Left half is permanent. Right half opens as a gull wing door. Make frame for door out of wood and then use foam to fill in around glass. Dynel around wood, foam and glass.



wood frame  
foam enclosure



dynal around all



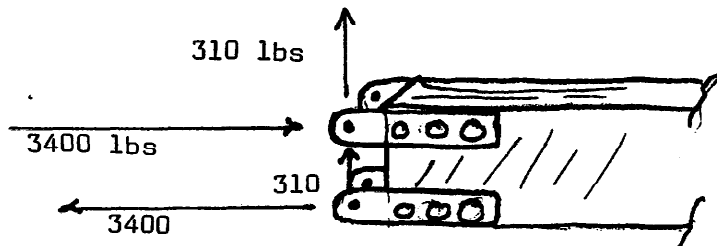
hinge down center

use wood dowel pins to locate bottom when door is closed

DAN DIEHL  
4132 E. 72nd  
TULSA, OK 74136

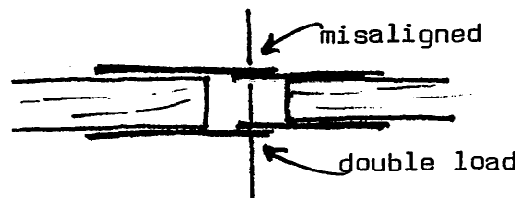
In my last letter (stresses on engine mounts/firewall) I promised to send you a summary of the landing gear stresses. I haven't finished them yet but I have done the wing fittings... another eye opener. I'm sure a number or two will keep those builders honest! An easily attainable +5 G loading (KR-1 gross 750 lbs) produces the following stresses on the main spar fittings.

Or 3415 lbs angled slightly upward at 5° on each of 16 fittings



If one of your two fitting pairs loosens or is misaligned, these figures double.

Similarly, if your bolts through the spar are misaligned they won't take their load.



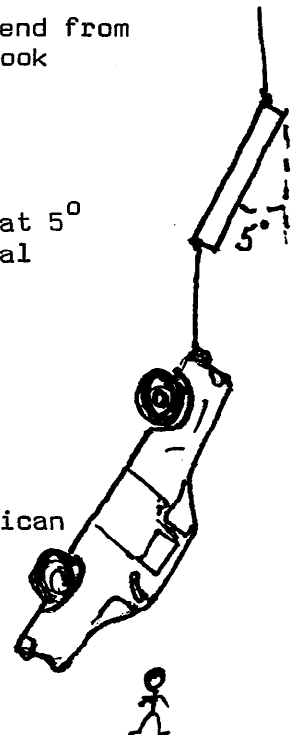
When you finish installing your wing fittings take a hard look at your car and your workmanship. Imagine the above experiment. Not ask yourself... "Would you stand under that car?" It is the same thing as trusting your wing spar

A static test would be easy.....

suspend from skyhook

your spar at 5° off vertical

large American car



by DALE WALKER  
11018 HEDWIG GREEN  
HOUSTON, TX 77024

BUY SELL TRADE

BUY....I am looking for a good used Revmaster 2100 VW engine. Please write and advise price and condition if you have one available. R.F. Creed, 39 Claymore Crescent, Surfers, Paradise 4217, Queensland, Australia.

SELL...Rand VW engine mount, never used, \$50.00. Tom Loftin, 3618 Noland Ct., Independence, MO 64055

SELL...Coot plans, never used. Cost \$150.00, sell for \$100.00. Also VW parts...name brand (ISS) new piston/cylinder sets, 92 x 69-\$82.00. New German made cases, 1600s, 8 or 10mm head studs plus case savers, less than \$100.00. Have all engine components. Can supply 914 or 411 cases, kits up to 2700 cc (horsepower to 125). Albert Epp, 4919 Nattis Rd. St. Louis, MO 63128.

SELL...Beautiful VW props, as displayed at Oshkosh. Send for free brochure. The Prop Shop, Box 237, St. Ansgar, IA 50472.

WANTED.Someone to make up the metal parts required for the KR-2. I will furnish the templates and aluminum extrusion kit if necessary. L.V. Farina DMD, 823 Troy-Schenectady Rd. Latham, NY 12110.

SELL...KR-1. Flying! Must see to appreciate, built just like the original prototype. Has extra 36 hp engine, picture on request. Herbert Dodd, Route 1, Morrison, TN 37359.

HAPPENINGS.....EAA 225 "Seacoast Region" and Associates are sponsoring a fly-in at Sky Haven airport, Rochester, NH on the 20th and 21st of May '78. Static displays and an airshow both days.

On June 4th there is the annual EAA and AAA Fly-in at Meadowlake Airport, 12 miles east of Colorado Springs, CO. Also on hand will be several antique cars.

ERNEST KOPPE  
6141 CHOCTAW DRIVE  
WESTMINSTER, CA 92683  
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