

Issue no. 71  
MAY  
1981



## KR NEWSLETTER

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

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.

The 1981 EAA Regional Fly-in at El Mirage is now history. Dedicated to the memory of Ken Rand, it attracted a crowd of KR-1s & 2s. N42CW owned and flown by Wes Evans was selected by the judges to receive the Ken Rand Memorial Award. An outstanding KR-2 that looks as good up close as it did in the air. My pictures aren't back from the lab yet so we'll have to wait till next month's Newsletter. Or, better yet, see it in person at the KR Fly-in at Pope Valley June 13 & 14. Rex Taylor of H.A.P.I. flew in N19FW and promptly took the cowling off to display one of his engines. Steve Bennett and his KR-1 N01123 flew all the way from Des Moines, Iowa and was in the running for a trophy for furthest distance flown. Dan Diehl and N40D are probably seen around more fly-ins than anyone. It was great to welcome them back this year. The other "out of state" KR was the super nice KR-2 N9028Q, flown from Idaho by Ed Nelson and his son Eric. Powered by an A-75 Continental, Ed's was the only non-VW KR at El Mirage. The other KR's were N12KR - the KR-3 prototype, trailered in. Flight tests are to begin this month with water operation starting at the KR Fly-in. N28KR - the long wing KR-1B flown by Jim Loudon. NSRU - turbo charged KR-2 built and flown by Ralph Upson..{very sharp aircraft. N54998 - Murray Rouse's KR-2, a regular at S. Cal. fly-ins. Murray recently switched from a Revmaster 2100 to a H.A.P.I. conversion and says it performs better in climb and cruise hasn't changed. All in all he is very pleased. N5570R - a fixed gear KR-1 owned and flown by Richard Shirley, powered by a 36 hp VW cruise is reported to be about 90 mph. A new 1835 engine will be installed soon tho and I expect a dramatic increase in performance. N8020B - turbocharged KR-1. Jim Evans will compete in the "500" at Oshkosh again this year. A new wing design is expected to improve his already good showing of last year. N24TC - KR-2 built and flown by Tom Criss. One of the first KR's to install Ken Rand's flaps, Tom plans on flying to Oshkosh this summer and wants to make it a group effort. Brad Hummel intends to join him with his KR-2. If you want to go along drop a note to the KR Shop, 1424 A $\frac{1}{2}$  N. Harper, Santa Ana, CA 92703. N88GH - a highly modified KR-2 built and flown by Garth Hess. See the article in this Newsletter. N36119 - KR-2. I was never able to find the pilot of this KR-2 so I don't know who he is. The aircraft is one of the first plans built KR-2s and has been flying since '75-'76. Static display KR-2 project by Lanny Creason and David Cook. It attracted more attention than the Dragonfly parked next to it and the Q-2 parked across the taxi-way. Lanny had the new design fiberglass parts from Rand/Robinson on display.

All in all, there were 15 KR's at El Mirage, 4 KR-1s, 10 KR-2s and the KR-3 prototype. A "first for me was the chance to see six KR's flying formation to open the Sunday airshow. It was an emotional scene as they flew over in a "missing man" formation in tribute to Ken Rand.

There were a couple of "almost KR's" at El Mirage also. Gary Boyd brought his GB-1 and Brad Hummel and Rocky Webster astounded everyone when they showed up with their 20 day old project. Registered as a GB-1 it really was a mixture of KR, GB and various other ideas and it was almost ready to fly! They used the old style pre-molded KR-2 parts (now produced by Gary Boyd as GB-1 parts) on a GB-1 fiberglass fuselage, their own ingenuity, and came up with an aircraft in 3 weeks! See Brad's article in this Newsletter.

## HAPPENINGS

May 16...Enid, OK EAA Chapter 455 Fly-in.

May 22-24...Watsonville, CA Antiques & Homebuilts

JUNE 13 & 14...1ST NATIONAL KR FLY-IN at POPE VALLEY AIRPORT, Santa Rosa, CA area.

June 19 & 20...C.A.F.E. 250 Santa Rosa, CA the real efficiency race!

There appears to be a good turn-out for the KR Fly-in shaping up. We have received several letters and calls from out of state KR builders who say they will be there. Most of the local KR group has told me they will attend as well. We still need volunteers to help with various jobs, ranging from forums on construction to litter patrol. Your time, even for an hour or two will be appreciated. Write or call Lisle Knight, 33 Farnum, San Francisco, CA 94131 phone (415)239-0536 and offer your your help.

There is space for camping on the airport for those who want to rough it. There are no hook-ups for R.V.s though. Motels and hotels are a few miles down the road for the more comfort conscious. In St. Helena there is: Chalet Bernensis Inn (707)963-4423, El Bonita Motel (707)963-3216, Valley Hotel (707)963-9982, St. Helena Hotel (707)963-4388, Wine Country Inn (707)963-7077 and the Ink House (707)963-3890. If you're flying in and want some creature comforts, the hotels/motels in Calistoga (11 miles distance) are more convenient to the airports. They are: Roman Spa Motel (707)942-4441, Wardway Motel (707)942-6829, Nances' Hot Springs Motel (707)942-6211, Golden Haven Spa Hot Springs Motel (707)942-6793, Calistoga Inn (707)942-4101, Larkmead Country Inn (707) 942-5360 and Mount View Hotel (707)942-6877.

Here is a photo of N9028Q, Ed Nelson's beautiful A-75 powered KR-2. Ed has one of the few KR's that look as good in person as they do in photographs.



The El Mirage Fly-in has provided a side benefit to KR builders. We now have two new KR Designees. Steve Bennett of Iowa accepted the responsibility as did Ed Nelson of Idaho. We welcome these two fine men to the Designee group and encourage you to contact them whenever the need arises.

#### THE KR DESIGNEES

Steve Bennett  
1135 58th St.  
Des Moines, IA 50311  
(515)255-5741

Leon Coetzee  
10 Lark Str.  
Meredale 2091  
Johannesburg  
Rep. of S. Africa

Bill DeFreze  
7530 Ironwood Dr.  
Dublin, CA 94566  
(415)828-2111

Dan Diehl  
1855 N. Elm  
Jenks, OK 74037  
(918)299-4444

Ray Ellis  
2416 E. Douglas  
Des Moines, IA 50317  
(515)265-3007

Ernest Koppe  
6141 Choctaw Drive  
Westminster CA 92683  
(714)897-2677

Ed Nelson  
Box 858  
Pinehurst, ID 83850  
(208)682-3375

Jere Rosser  
2305 Wilderness Way  
Marietta, GA 30066  
(404)977-0843

#### \*\*POTENTIAL PROBLEM\*\*

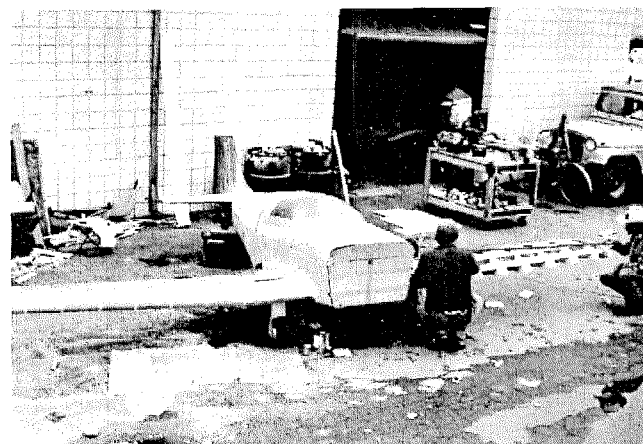
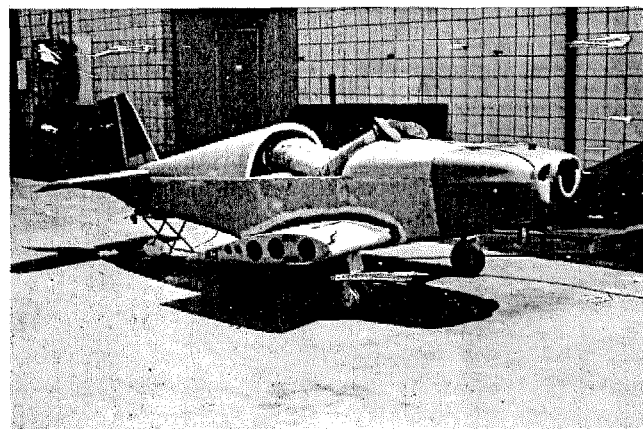
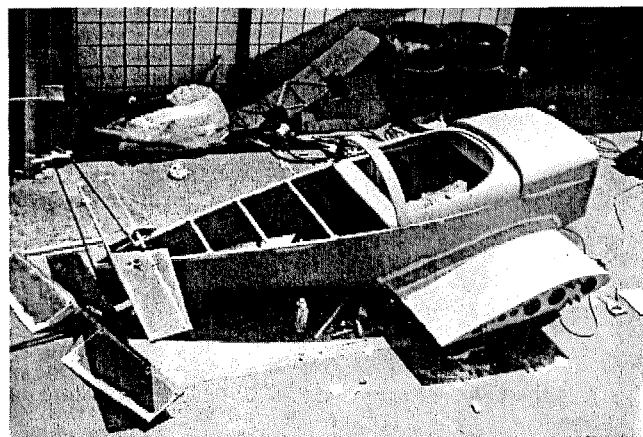
I was talking with Jim Wolter recently. Jim is the owner of a Revmaster 2100 and had this information to pass along. "I saw a friend's Revmaster 2100 torn down for repairs. One piston and cylinder had suffered major damage when welding slag inside the intake manifold broke loose and was ingested by the engine. I own a Revmaster and after seeing the damage I pulled the intake off my engine. Sure enough, inside the intake manifold were several little "weld berries", the same as broke loose in my friend's engine. I prodded a couple with a pencil and off they came. It was easy to see how engine vibration could cause them to fall free and into a cylinder. I notified another friend with a Revmaster of my findings but he had already found and cleaned out the slag. Evidently, this situation is commonplace with the Revmaster engines so I recommend anyone owning one to examine the interior of the intake manifold immediately." Jim Wolter, 14700 Mitchell Cr. Dr., Ft. Bragg, CA 95437.

BUILDING AN AIRPLANE IN 20 DAYS  
BY BRAD HUMMEL

Well, almost...it started 24 days ago on April 5 when Rocky Webster and I decided that we could build an all fiberglass KR-2 in 20 days and have it flying at the El Mirage fly-in April 25 & 26. We talked about it for hours and realized that between us we had everything we would need to build a plane in such a short time. Ernest Koppe gave us a complete set of spars and use of the KR workshop (there was no room inside for another project so we had to build it out in the back alley). Carey Anderson of Miniature Metrics supplied us with a set of pre-made hinges and bell cranks. Guy Hummel donated wing attach fittings, KR-1 landing gear & partially completed tail feathers. Rocky had a complete 1835 VW engine which he had built to be sold at the fly-in & the rest I had in boxes, saved up after years of KR projects.

We called Gary Boyd at his pre-molded Sport Aircraft Parts and arranged to have a complete GB-1 fiberglass fuselage and other pre-molded parts delivered the next morning. April 6th we began working 12 to 17 hours a day, 7 days a week. The FAA was very cooperative and inspections were handled quickly and without any delays. We even managed to get our "N" numbers in 5 days from Oklahoma. But smoothly as things went & using all the tricks I'd learned over the years on other projects, we just were not ready for our April 24 final inspection (two days of rain, working under a makeshift tent and no experience with pre-molded wing skins didn't help). We did trailer our almost complete airplane to El Mirage Sat. evening and displayed in Sunday. Not a bad showing for 18 days of work. All that remained to do was engine baffling, minor cowling fastener work and the final sanding. On Tues. April 28th we got our final inspection & celebrated with a trip to Disneyland with Steve Bennett and Ernest Koppe on Wednesday.

Back again to the real world of airplanes, we loaded up the plane and trailered it out to Corona Airport Thurs. for its first flight. Final preparations took most of the day. The sun was going down as our little GB-1 broke ground for the first time. With a crowd of loyal friends clapping, Rocky crying, and me screaming, we made it! As I flew our 24 day wonder plane for its first flight around the pattern, everything about the plane felt and handled like all the KR's I've test flown. There were no real surprises, only joy and elation. Final weight was 529 lbs. empty so that little 1835 was hardly working. She broke ground at 60, climbed at 80 & 800 fpm. Flew the pattern a little fast at 120 mph. Touchdown was about 45 mph in a three point with one small skip to remind me that I'd gotten a little rusty in the past few months. I really tried to act calm as I taxied back to the ramp but I just couldn't keep from smiling from the excitement. Rocky and I are going to try to put together a construction manual for assembling the pre-molded fiberglass parts that I hope will answer some of the problems of fitting these parts. It's really not hard to make the parts fit your plane if you just know how. Hopefully, this will be available soon through the Newsletter. We will probably be at coming fly-ins, so we'll see you there.



## QUESTIONS & ANSWERS

- Q. How do I get the adhesive off the stainless steel firewall sheet that Rand/Robinson sends rolled up and taped? Whatever that tape is, acetone doesn't take it off.
- A. Automotive brake fluid is very good for most adhesives including the one on the older paper covered canopies.
- Q. Has anyone used the GAW-1 airfoil on a KR-2? I've read the NASA reports but need "CG" info.
- A. Warren Aiken of 2323 Farleigh Rd., Columbus, OH 43221 built and flew a KR-2 with the GAW-1 airfoil. I haven't heard from him in two years tho' so he may have moved.
- Q. What weight fiberglass cloth is used instead of Dynel?
- A. Rand/Robinson is using a 5.8 oz. bi-directional weave fiberglass cloth.
- Q. What is the width of the tailwheel fork?
- A. 1½" I.D.
- Q. What is the height of the instrument panel at the highest point above the longerons?
- A. 8"
- Q. Can you tell me where I can buy the extruded piano hinge?
- A. Most aircraft parts supply houses will sell this item. I buy it at Aircraft Spruce and Specialty in Fullerton, CA.
- Q. I glassed my stabilizer and, after peeling off the wax paper, the surface is all wavy. Am I using too much resin?
- A. First of all, don't use wax paper. Use peel ply or nothing at all. You probably are using too much resin, most builders do. If the resin covers the weave of the cloth, it is too much. You should only use enough resin to wet the cloth. The weave should still be very evident.
- Q. What is the appropriate solvent to use for diluting R/R epoxy for use as varnish?
- A. "Cupon" has been recommended by some, but I used the epoxy straight and used a squeegee to spread it.
- Q. What should be the approximate weight of the rudder, horiz. stab., and the elevator?
- A. Mine were 3.4 lbs, 7.3 lbs, and 5.5 lbs respectively, each weighed without hinges.
- Q. I have never weighed the items you mention but the weights you list seem reasonable. Now would be a good time to survey all the builders that did weigh the various parts of their KR's. If you weighed any part of your KR and kept a record of those weights, drop a note to the KR Newsletter and we'll run the results in a future Newsletter.
- Q. Has anyone built shoulder harness attach points in a KR-2?
- A. Most builders have not installed shoulder harness and, as you are aware, there is nothing in the KR plans. The builders that have used shoulder straps usually built in support behind the seat shelf.

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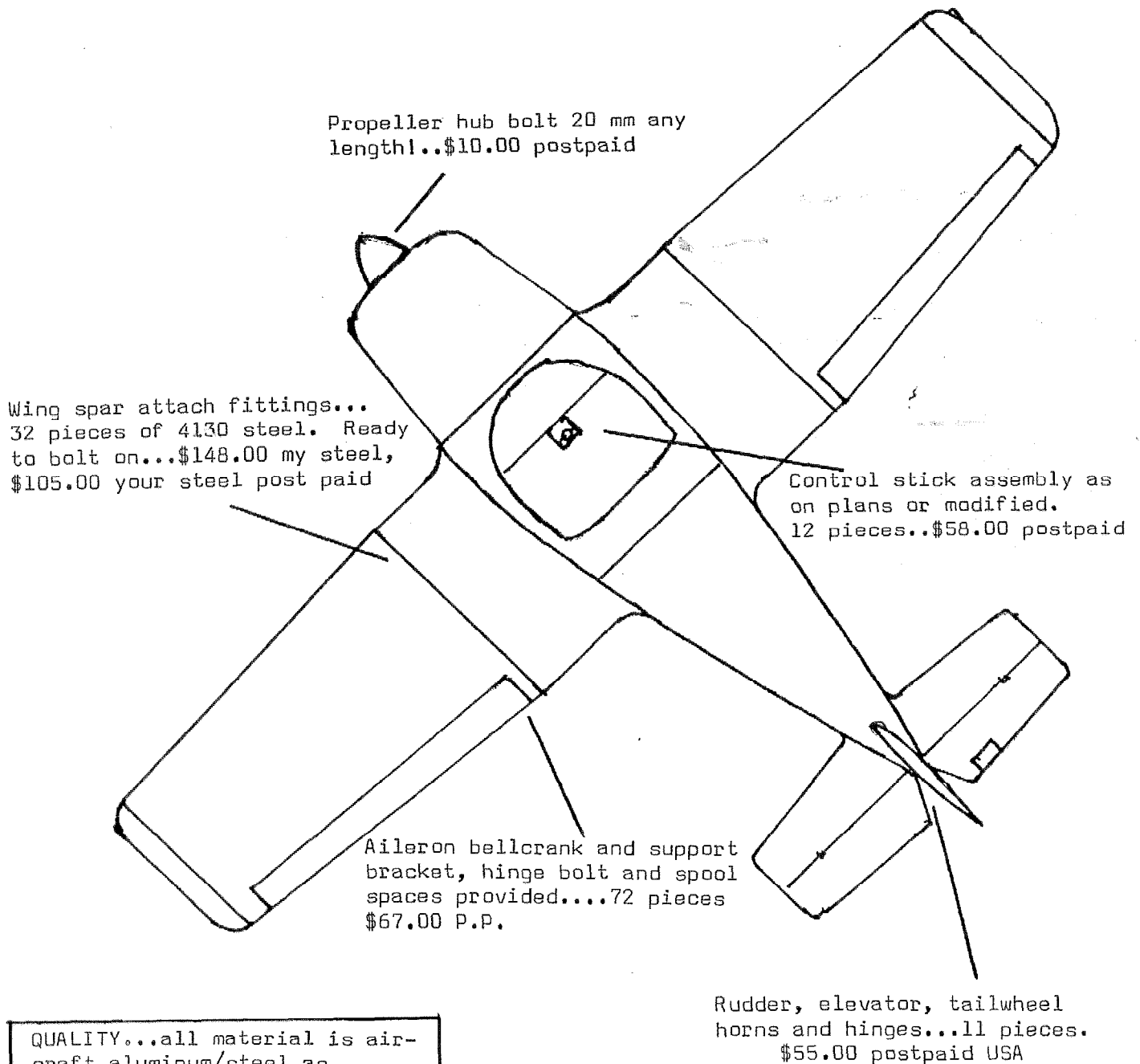
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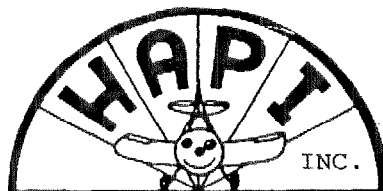


QUALITY...all material is aircraft aluminum/steel as specified in your plans. Milled with precision then deburred, bead blasted, final finish reamed by standard aircraft production procedures all in the interest of safety.

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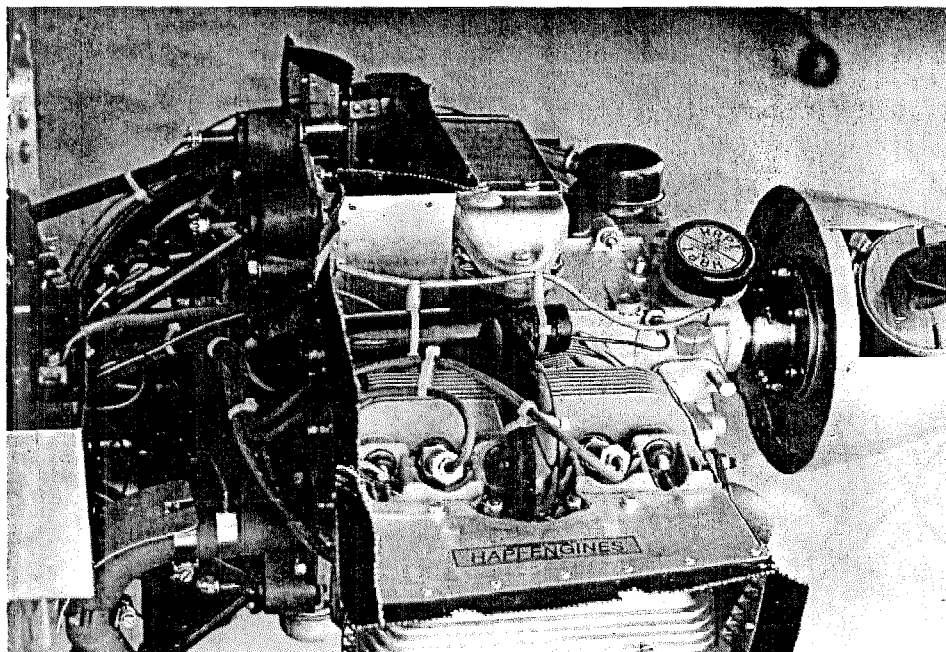
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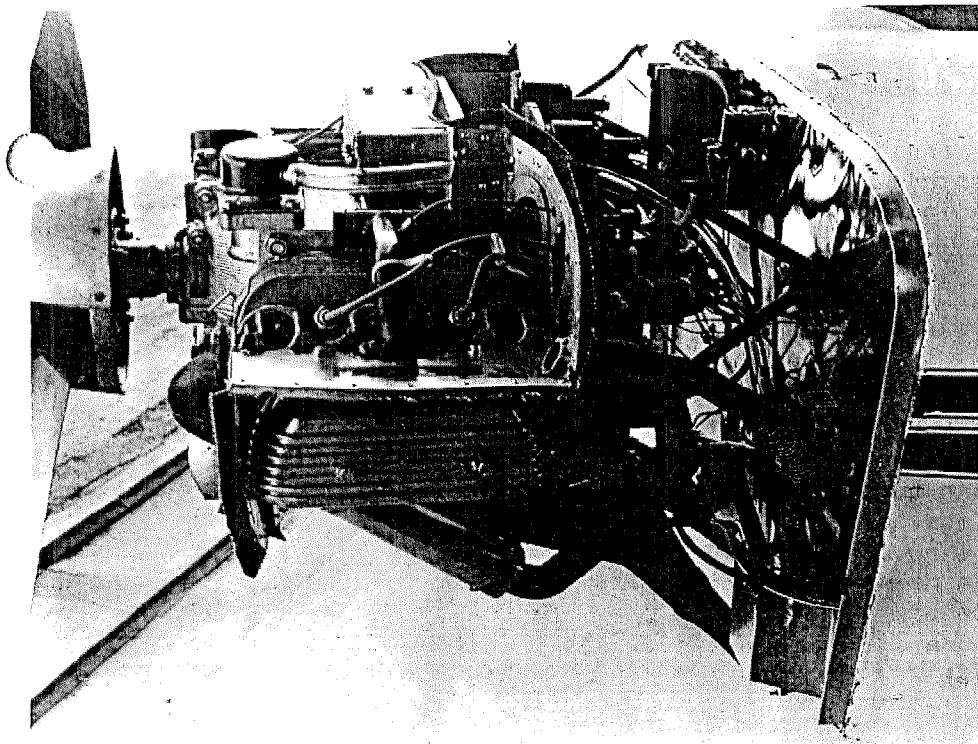
## HAPI'S PRIMARY IGNITION SYSTEM

HAPI's primary ignition system has the same features as the above system, but has added automatic spark advance system to allow starting on electronic system. An excellent choice for a low dollar conversion. Needs no other hardware except a very small 8 amp hour motor-cycle battery. Much easier starting than magnetos. PRICE \$239.50

## HAPI'S ENGINE INSTALLATION KIT

We have designed an engine fuel system and baffling kit to meet the demanding standards of the Australian Department of Transportation. It consists of every piece you need, all genuine aircraft parts, hose and fittings, firesleeve, gascolator, fuel valve, finger strainer, plus complete assembly drawings, 29 separate pieces of hardware. With kit you get full size baffling templates, step by step pictorial "how to" tips, drawings for carburetor heat box and muff, KR-2 electrical system, battery box, gascolator cooler box and holder bracket, plus pictures and text. This package has all the missing information you need to install the engine in your KR to meet certified aircraft standards in any country of the world. COMPLETE KIT AND DRAWINGS \$99.50





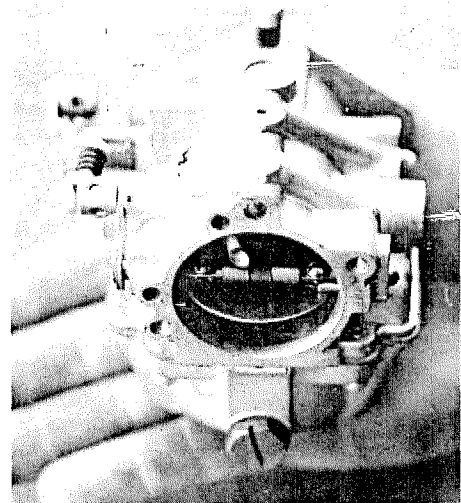
At left is another view of our installation kit fitted engine. Note the tuned exhaust system allows heat muff placement under left cylinder bank. Gascolator is enclosed in cooler box and supplied fresh air by aeroduct tubing. Cylinder head temps will not exceed 420° on prolonged full throttle climb and cruise at 310°F. Oil temp is maintained at 180° or less in any weather. Baffling templates can be used on other cowlings by simply adding to or trimming outside edges to fit. Will fit any V.W. conversion based on 1600cc. All drawings are available separately.

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NOTE: We will soon have mixture control option to bolt on the above carburetor, full mixture change capability and idle cutoff. PRICE \$29.50



## PRIMER FOR STARTING

Inject a measured amount of fuel directly into the manifold behind the carburetor to prime the engine for easy starts in the coldest weather. Kit contains primer pump, plastic line and "T" fitting, plus instructions. PRICE \$9.95 ea.

These are just a few of the many new items added to our catalog this year!

## HAPI MACHINE SHOP SERVICES

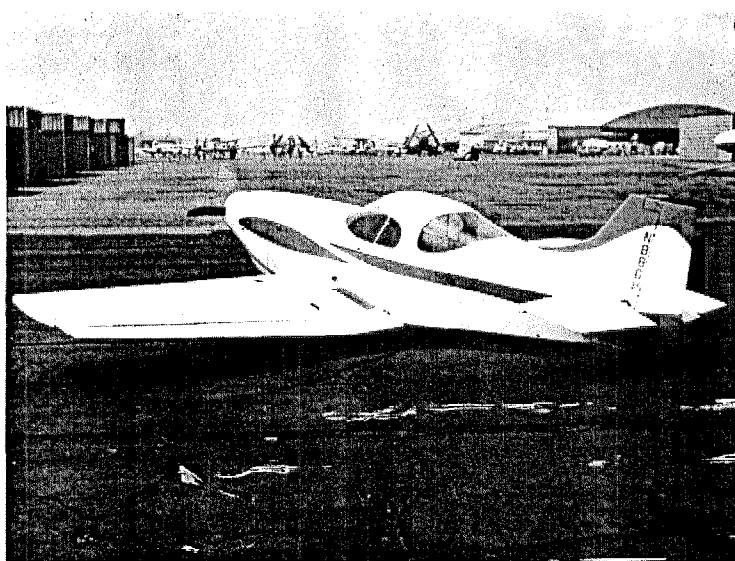
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This is Garth Hess's highly modified KR-2. I watched this aircraft take shape as it was displayed each year at the EAA fly-in at Chino. Garth has shared some of his modifications with the KR Newsletter readers, notably the balancing method on the control surfaces and the homemade venturi built into the wing fillet. Both have proved to work very well in flight. The canopy is self made and incorporates a roll over structure. Garth also carved his own prop. The greatest deviation from the plans tho' is in the control system and wings. Full span "flaperons" are used thru a control linkage mixer of his own design. I asked Garth what he would do differently if he had to do the project over again. The list was very small...use fiberglass instead of Dynel, put in wing tie down sockets, and install gear up warning lights.

The last item would have saved a prop. Garth noticed a drop in engine oil pressure while flying one day, so he headed directly back to the airport. The oil pressure continued to drop as he entered the pattern and in his concern over the engine, Garth forgot to put the gear down...scratch one prop. N88GH flies regularly out of Chino Airport and you can usually find Garth there.



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