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KR NEWSLETTER

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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 affliated with Rand/Robinson Engineering Inc.

This month we will continue the Test Guide we started in the last issue. The first installment met with approval from all that responded and I have been asked to offer it for sale to builders who have other types of homebuilt aircraft. Actually, this is only one instance where the methods and/or ideas we use are applicable to other aircraft. Several of the construction techniques developed by KR builders have found their way into other aircraft and vice versa.

About three issues back I asked for comments on expanding the KR Newsletter to include tips from builders of other experimental aircraft. All but one reply was all for the expansion as long as the tips or techniques could be applied to the KR aircraft. This one lone dissenter didn't want anything in the Newsletter that wasn't a part of, or referred to the KR plans. Most of you know that my concept of the Newsletter from the beginning was to exchange ideas with other builders and not simply be an extension of the plans.

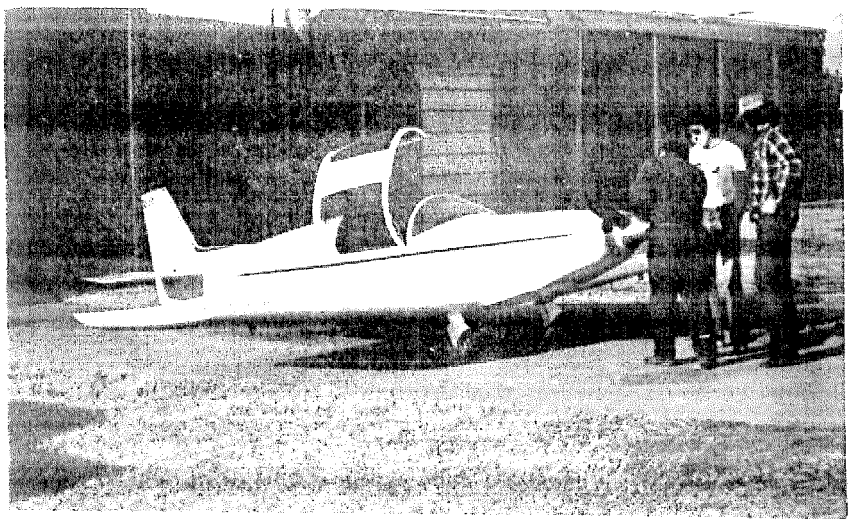
The KR-1 and KR-2 has been evolving from the original design of Ken Rand since the day each of them first took to the air. The fact that Ken is no longer around to guide the changes is not going to stop them, only slow them down a little.

If there is a better way of building a KR I want to know it. Unless I hear otherwise, I'm going to assume you do too.

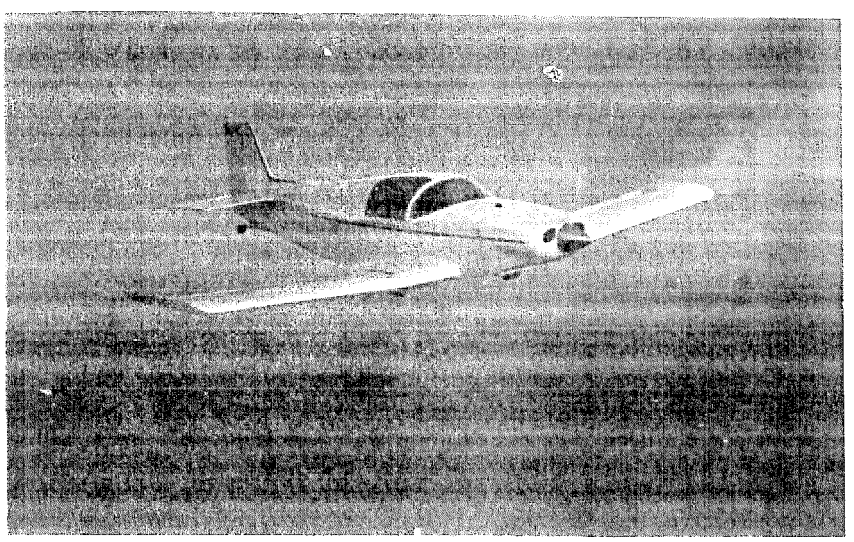
I met a fellow while I was in Tulsa last spring. He was building a KR-2 and was trying to complete it in time for Oshkosh '81. Well, he didn't quite make it to the '81 fly-in but he did get it flying and has put about 100 hrs. on it since. He plans on being at Oshkosh '82 so see him and his KR-2 there. Meanwhile in this issue there is a flight report from him that should peak the interest of any KR builder. The wing tips(see photo) Bob used are not difficult to make and I'm going to have a "how to" article soon. Next issue, I hope.

I'm running out of room! 80 issues of the Newsletter have begun to be a problem in where to keep the back issues. So...I've decided to <u>not</u> keep back issues that are over a year old. What am I going to do with the first 5½ years you ask? I'll tell you. They are going to be condensed, year by year, until I arrive at something a little more manageable, roomwise. The individual copies of back issues I have on hand now are going up for sale on an "as available" basis. When I run out of a particular issue it will <u>not</u> be re-printed. Price for the back issues I have on hand are as follows: single issues over 1 yr old are 50¢ each, any six over 1 year are $2.50, any 12 over 1 year are $5.00. You can choose the issues you want as long as they're in stock. After that I can either send you what I have or your money back, whichever you choose. The condensed version won't be offered until sometime this summer, depending on how long I can keep my wife chained to the typewriter.

From Bob Passmore, 36 S. 119th E. Ave., Tulsa, OK 74128..."First let me say that if you can get a KR-2 test pilot, do so. I was lucky in two respects. I had Dan Diehl's help in building and test flying my KR-2 818P. He also rode with me until I could handle the aircraft myself. Basically 818P is built to plans but there are some modifications. We used two layers of glass on the wings and a single layer on the fuselage and the elevator is balanced. The canopy (see photo) is like Dan's except that it opens like a KR and it uses a KR-2 canopy cut in half. Butch Koppe came up with the canopy idea and it really turned out great. Wing span is 20" longer due to special tips we added. These tips sweep up and back, carrying the highest point of the tip rib airfoil straight back and to a point 3" behind the trailing edge of the wing.



The engine is a Diehl 1835cc with a special cam, 32MM posa, full electrics and a "Sting" tuned exhaust from Butch Koppe. Everything that moved in the engine was balanced and magnafluxed. Prop is a Warnke 52 x 46 "Almost Constant Speed" prop. The radio is an Escort 110, guages are T & B, R.C., alt., oil temp, oil press, cyl temp, tach, compass, fuel gauge and airspeed. Empty weight came to 567 lbs and 818P has been flown at a gross weight of 1050 lbs. Actual construction time was about 12 months and the first flight was in July of 1981.



Flying notes..On take-off the tail comes up at 30, I lift off at 60, and climb out at 110 (1100FPM) Cruise speed is 150-155 at 3400RPM top speed 170-175. The plane has been over 205 mph on a high speed pass with no tendency toward flutter. For slow flight I use 2000 RPM. 818P will hold altitude and have full control while indicating below 45 MPH. Stalls...the plane is hard to stall because of the special tips. With the flaps down and power back, you still have full control at 45-50 MPH at a 1200 FPM rate of descent. To stall the plane the nose has to be in an extremely high attitude and airspeed slowed to about 40. The stall is then straight ahead, with no fall off on either wing. For landing I enter the pattern and put the gear down at 100, turn base at 90, final at 80 and touchdown about 50. With flaps I touch down slower & descent is steeper. I tried one notch of flaps on take-off and the tail came up quicker and lift-off was sooner. The flaps should really help on short fields."

(ADDED)

More flight reports and/or photos. Tell us about your KR, whether it's flying or still being built. Pilots completing the test guide that appears in issue #79 and 80 of the KR Newsletter will get a free one year subscription.

Continued from last issue..
This Test Guide is designed as a"tool" for you to use in testing your aircraft. Use it properly.. Don't jump around from section to section, but follow the sequence of manuevers, step by step, until the Test Guide is completed.
Final installment will be in the March KR Newsletter.

E. Dive (smooth air only)
Open throttle to 1/3 power and dive the aircraft until either Vne_____IAS or engine redline_____RPM is reached. DO NOT EXCEED!

Record: IAS_____RPM_____MANIFOLD PRESSURE_____

Comment on:

EASE & RESPONSE OF CONTROLS_____

ANY TAIL BUFFETTING_____

ANY VIBRATIONS_____

ANY CONTROL SURFACE FLUTTER_____

ANY CONTROL REVERSAL_____

F. Longitudinal stability
You may want to use a small fish scale to measure control stick pressures in the following tests.

1. With full power on, gear and flaps up, trim the aircraft at 1.4 Vsi _____ If you do not have elevator trim, record the stick force required to hold this speed_____lb. Without changing throttle or trim, do the following: (engine may have to be throttled back in some instances to avoid exceeding redline) Jerk the stick back quickly and release it. Leave the elevator free for 10 seconds. Describe aircraft movement during this 10 sec._____

_____

2. Pull back to 1.2 Vsi_____IAS. Force required to hold this speed _____lb. Is this a pull force?...yes no
3. Push forward to 1.6 Vsi_____IAS. Force required to hold this speed _____lb. Is this a push force?...yes no

Repeat all of number 1 above for the following configurations.

4. Set cruise power_____RPM and trim for level flight_____IAS Stick force_____lb. (write zero if trimmed) Describe behavior after stick jerk_____
5. Stick force at 1.3 Vsi_____IAS = _____lb. Pull?...yes no
6. Stick force at Vne_____IAS =_____lb. Push?...yes no
7. Trim at 1.4 Vso_____IAS, power off, gear and flaps down. (Or 1.4 Vso_____IAS if no flaps are fitted) Stick force _____lb.(write zero if trimmed) Describe behavior after stick jerk_____

_____

8. Stick force at 1.1 Vso_____IAS (or 1.1 Vsi _____IAS w/o flaps) _____lb. Pull?...yes no
9. Stick force at Vf_____IAS(or 1.8 Vsi_____IAS w/o flaps)_____lb. Push?...yes no

G. Directional and lateral stability

1. With full power on and flaps up, trim the aircraft at 1.2 Vsi _____ IAS Without changing throttle or trim, do the following: Place the aircraft into a wings level skid then release the rudder while holding wings level with aileron. Does the aircraft tend to recover from the skid?...yes no Remarks _____

2. Place the aircraft into a sideslip then release the stick while holding constant heading with rudder. Do the wings tend to level?...yes no Remarks _____

Repeat tests one and two for the following configurations:

	POWER	FLAP POSTION	TRIM SPEED	TEST 1	TEST 2
a.	Full	Up	Level flight _____ IAS	Yes No Remarks	Yes No Remarks

POWER	FLAP	TRIM SPEED	TEST 1	TEST 2
Full	Up	Level flight _____ IAS	Yes No Remarks	Yes No Remarks
Off	Up	1.2 Vsi _____ IAS	Yes No Remarks	Yes No Remarks
Off	Up	2.5 Vsi _____ IAS	Yes No Remarks	Yes No Remarks
Full	Down	1.2 Vso _____ IAS	Yes No Remarks	Yes No Remarks
Full	Down	Vf _____ IAS	Yes No Remarks	Yes No Remarks
Off	Down	1.2 Vso _____ IAS	Yes No Remarks	Yes No Remarks
Off	Down	Vf _____ IAS	Yes No Remarks	Yes No Remarks

Continued next issue:

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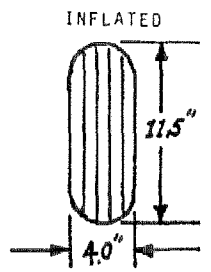

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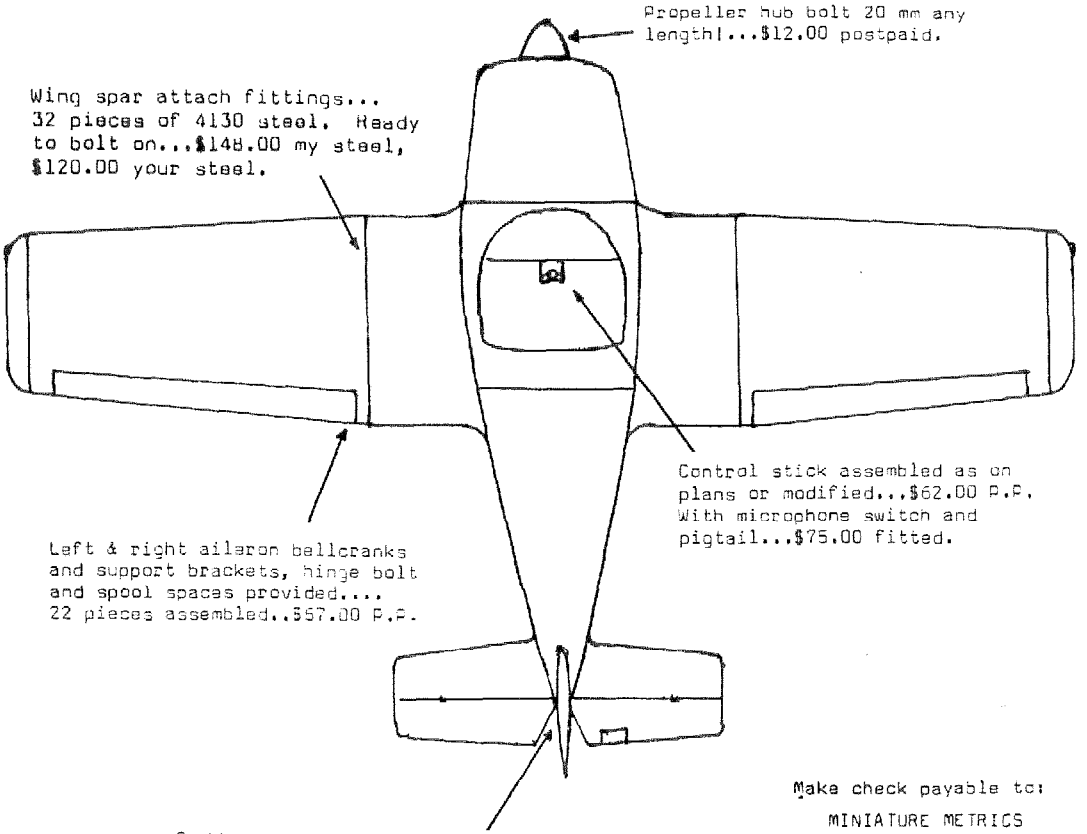

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