

# *DRAGONFLY BUILDERS AND FLYERS NEWSLETTER*

*THE OFFICAL VOICE OF DRAGONFLYERS ALL OVER THE WORLD*

VOLUME 42

JULY - AUGUST 1992



Front cover:

The Gentlemen on the front cover are from left to right are ;  
Troy Burris, Stan Meleski, Guy and Gene, Nate Rambo,  
Jerry Scott and Julian Geiger

## CALIFORNIA SWARMING

By west coast reporter; Nate Rambo

We were approaching the target! Everything looked good. The pilot was one of the coolest combat Aces in the business, Captain Jerry Scott. I was the bombardier-navigator in the right seat. We scanned the hostile sky for enemy fighters but they were there.

Soon Jerry acquired the target. "Dragonfly turning final for bomb run" he radioed on Pritac. We checked the altitude for the required 400 AGL we rolled in. The wind screamed past our little fighter-bomber as we neared the target!

"Stand by..... drop!" yelled Jerry. My hands released the lanyard which held the deadly flour sack to the side of the ship. "Bomb away", I reported. It was our last bomb so we got outta there. Tapucka....tapucka.

Okay, it was really Porterville, California. And it was Saturday 12 June 1992, just a week after the Kansas canard fly-in. In reality Jerry and I were having a great time in the bomb drop and spot landing contest. Jerry "Aced" the landing.

Would you believe... we had six Dragonflys at Porterville? Farthest to come was Julian Geiger from Ogden, Utah. The Evans brothers were in from Visalia, Ca. Troy Burris, Stan Meleski, and Jerry Scott came up from Chino, Ca.. The writer flew in from Camarillo, Ca..

The Chino squadron pulled camping equipment from their airplanes and built a tent city between some of the flys. They know how to do it.

Gee it was a noble time.

Very Respectfully

Nathan Rambo

## We need a Loran manual

We are looking for operators manual for SRD Labs Loran Model # L-NAV25. If any can supply a photocopy please contact;

Doug Sawin

1711 Lemon Str. Alhambra, Ca 91803-1512

1-(818)281-8467

## A GIFT FROM VIKING

Back in the late 80's a couple of Dragonflys had a flutter problem. An analysis lead to loose elevator control linkage caused by a loose bolt. Rex Taylor of Viking designed a new improved elevator system that would eliminate the possibility of this happening in future DF's. He designed the system and then offered it as a upgrade for a modest \$10.00.

To the best of Viking's and DBFN's knowledge no one that has used this new system has had any problems what so ever.

Pat & Robin Taylor of Viking want all Dragonflyers to have safe & trouble free aircraft. They want everyone to be able to incorporate this new improved elevator mod into their Dragonflys. Please accept this as a "Gift from Viking". Also share it with anyone that has a Dragonfly that may not be aware it or take the newsletter. - Spud

### MODIFIED ELEVATOR TORQUE TUBE ASSEMBLY

The original elevator torque tube control assembly as shown in your Dragonfly plans is made up of several welded parts held together by AN-3 bolts to make up the total elevator torque tube assembly. By the very nature of this assembly requiring several bolted slip joints to transfer load it has an inherent design weakness that can allow slop to enter the control system because of poor workmanship and/or poor field maintenance.

We have had an incident of elevator flutter directly traceable to the slop in the control system. This new control system in the form presented here has been developed, flight tested and flutter tested in an effort to completely eliminate the cause of the flutter problem.

We believe that this new system here is not only easier to build than the original system and has some positive aspects that the original did not have. With this system the elevators can be removed from the airplane without requiring the canard be removed from the fuselage.

The control system being completely welded in nature is designed in such a way that it is virtually impossible for slop to enter the system except through the ball joints which are open and easily serviceable from the cockpit.

We also increased the torque tube size from 1/2"X.058 tubing to 3/4"X.058 tubing, increasing the strength of the whole assembly by approx. 200% !

We are no longer dependent on transmitting torque loads through sliding bolted assemblies as the DF was originally designed. Torque is now applied by the elevator tube directly to the ends of the elevator through a new plywood rib installed in the end of the elevator.

**CONSTRUCTION SEQUENCE:** Please note, if you follow this sequence as we give it to you here, you will minimize the construction time.

1. Cut off two inches from the inboard end of the elevator next to the fuselage and recess the foam 1/2" deep, measured from the newly cut end.

2. Make a cardboard template of the 1/4" plywood rib that will set recessed in this 1/2" cavity so that the face of the rib is 1/4" inside of the end of the elevator.

3. Make two plywood ribs. Determine where the 2 3/16" bolts will be in the elevator torque arm and attach two AN3 wing nuts (available from Alexander, Wicks & Aircraft Spruce), P/N AN366F-1032. If you are using military hardware, the part number is MS21073-3. You will need four of them.

4. Now make the four bearing blocks out of either 3/4" mechanical grade Micarta or close grained gum wood, such as Bass will be perfectly adequate. Make up the blocks first an note that it is actually two blocks split at the split line. Put the one 1" block on top of the 1 1/2" wide blocks and secure it there while you drill the 3/16" through holes for the capture bolts. Counter bore the bottom block to take the head of the AN3 bolt. Secure bolts in bearing block by embedding them in the blocks with epoxy/flox.

5. After the epoxy has dried and the bolts are solid, bolt the bearing blocks together and drill the 3/4" through bearing hole right exactly on the split line between the blocks as shown.

6. Make two interface out of 7/8" OD steel tubing, 3/4" ID, and put them over the end of your 3/4" elevator torque tube. We spot welded ours in place but it can also be held on the end of the 3/4" torque tube with structural epoxy between the 3/4 ID and 3/4" OD tubes.

7. When the torque tube has the interface reducer in place, put the elevators on the canard with the canard on the airplane. Line everything up. Working from the inside of the fuselage, stick the elevator torque tube into the end of the elevator. Position it properly and drill the hole for the through vertical bolt just like it is made up on the original plans.

8. After you have gotten the elevator torque tube installed, mark the position of the elevator torque arm on the torque tube. Remove and weld the torque arm to the torque tube.

9. Reinstall the elevator torque tube and torque arm. You will be able to get the torque arm through the side of the fuselage first and into position and then plug it into the elevator. At this point, you'll trial fit the bearing blocks in place. Put the lower bearing blocks in, then install the bearing caps on all the blocks. Put blocks in position on the tube, tighten down the nuts on the bearing caps. Bearings should rotate freely on the torque tube but should not have any excess slop between the bearing and the torque tube. Use high density polyurethane foam, 3/4" thick, between the bottom bearing block and the drag bulkhead, and

between the bottom bearing block and the front of the gas tank. You also fit a piece underneath the bearing block. In other words, support the bottom half of the bearing blocks on three sides with this polyurethane foam. CAUTION: At this point just use five minute epoxy to temporarily place the bearing blocks.

10. After you have the bearing blocks in place, take the caps off the bearing blocks and again remove the torque tubes. Weld on the trim plate and control arms to the end of the torque tube near the centerline of the aircraft. NOTE: Leave an 1 1/2" of space between the ends of the right and left torque tube on the centerline of the aircraft. This is to allow for either end of the elevator to be slid inboard enough to disengage the hinges and be removed from the aircraft without removing the canard.

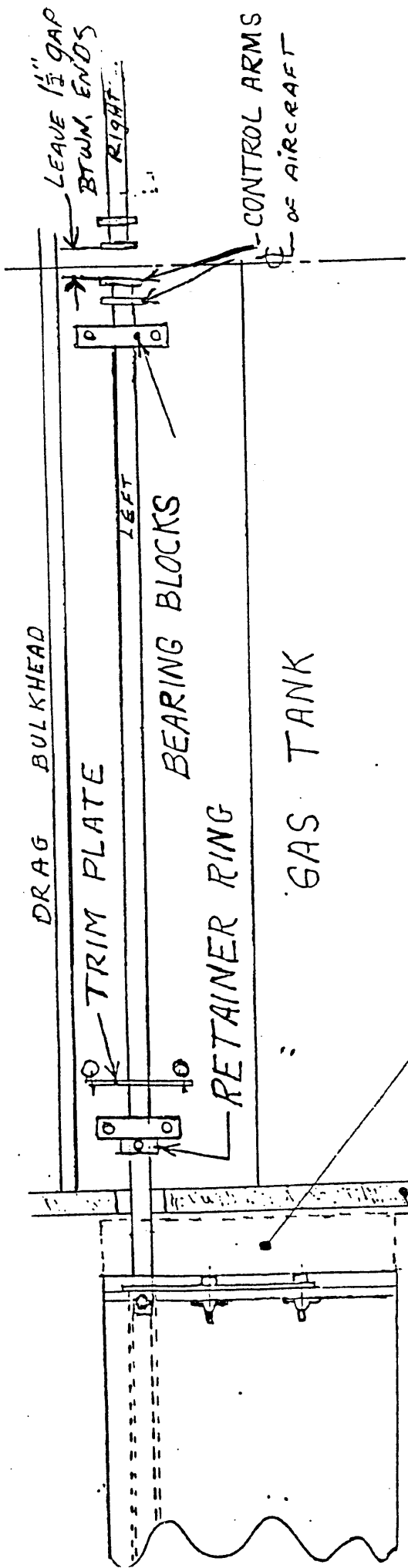
11. Determine the position for the control arms on the inboard end of the elevator torque tube and weld the two arms on there, leaving 7/16" space between the two arms for the ball rod end. PLEASE NOTE: If you are building the right hand elevator torque tube, you will have two extra control arms on it for the right stick. Determine the proper position for them and put them there.

12. CAUTION: Notice the position of the retainer ring just on the outside of the bearing block nearest the outside of the airplane. The retainer ring is drilled through the ring and through the tube and secured in place by an AN3 bolt. To allow the torque tube assembly to slide inboard, it is necessary to remove the bolt from the retainer ring freeing it on the shaft. IMPORTANT: Be sure that this retainer ring is on the torque tube between the trim plate and the elevator torque arm on the left side and between the control arms and the elevator torque arm on the right side before you start welding everything in place. The control arms and elevator torque arms are at 90 degrees to each other. In other words the torque arm is laying flat in relation to the torque tube and the control arms are vertical in relationship to the torque tube.

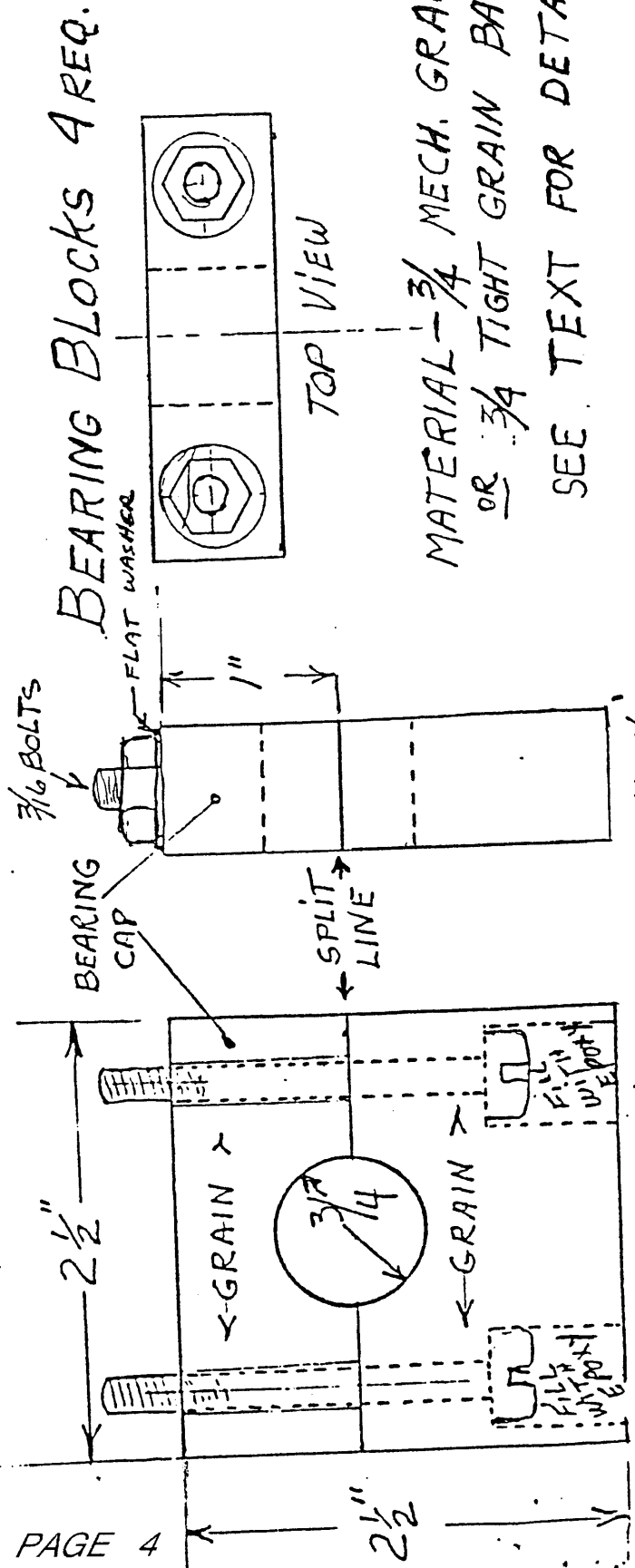
13. After you have the assembly completely welded up, put it in the airplane, put the caps back on the bearing blocks, secure everything in place and operate the elevators by hand with the control arms. Throughout the full range of travel on the elevators there should be absolutely no binding in the system. If a bind occurs you have to break the temporary positioning of the bearing blocks and reposition the bearing blocks so that there is absolutely no binding present in the system in operation.

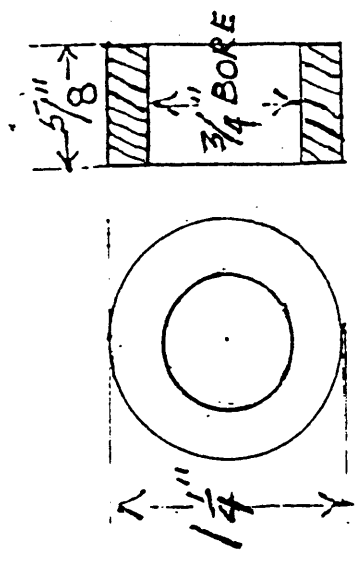
14. When the system is functioning without binding, again remove the bearing caps, the elevator torque tube assemblies and solidly attach the bearing blocks to the airframe by covering the bottom portion of the bearing blocks on both sides with three layers of 10 OZ. bi-directional cloth, securing the bearing block to the gas tank, fuselage bottom, and the canard drag bulkhead on both sides.

15. It will now be necessary to create a fillet on the side of the fuselage to cover the two inch gap between the inboard

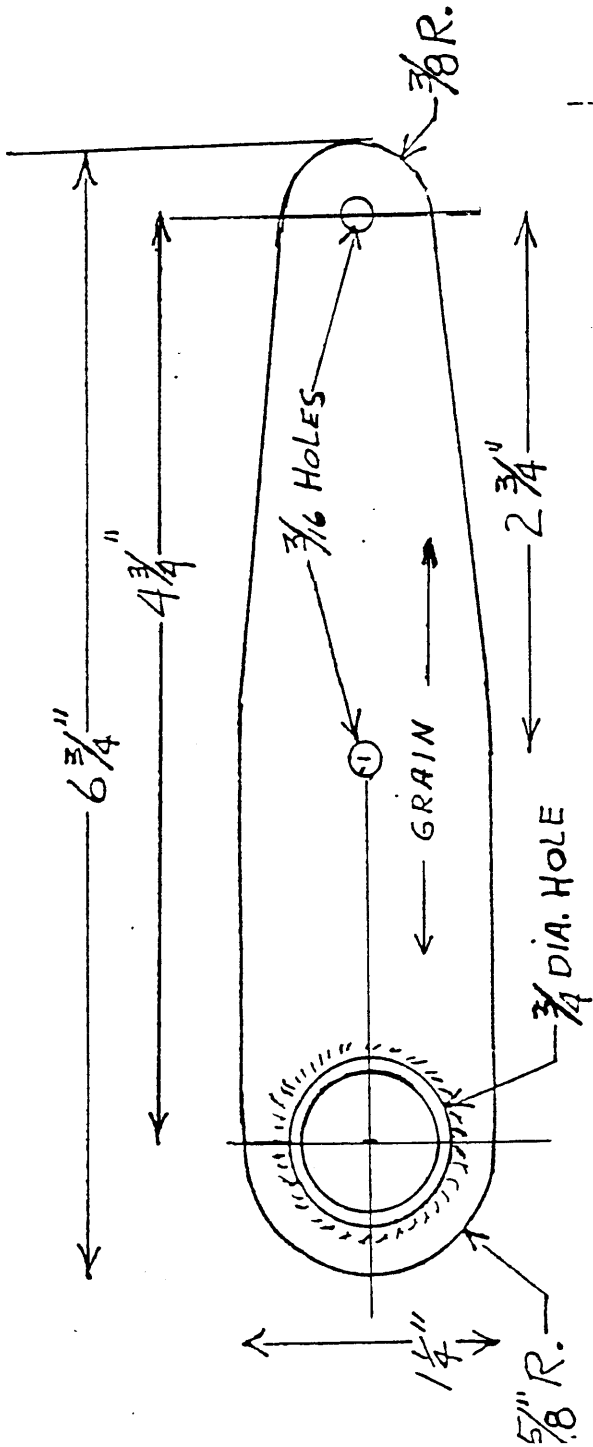


NOTE: REMOVE 2" FROM INBOARD END OF ELEVATOR. INSTALL 1/4" ALUMINUM RIB AND AN-3 NUT PLATES. CUTOFF SECTION CAN BE USED AS FAIRING GAP BLOCK. SEE ACCOMPANYING TEXT FOR DETAILS.

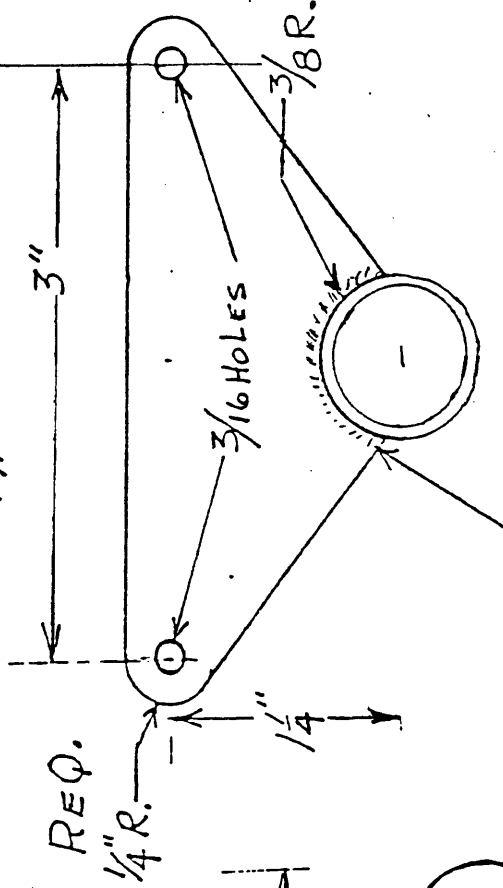




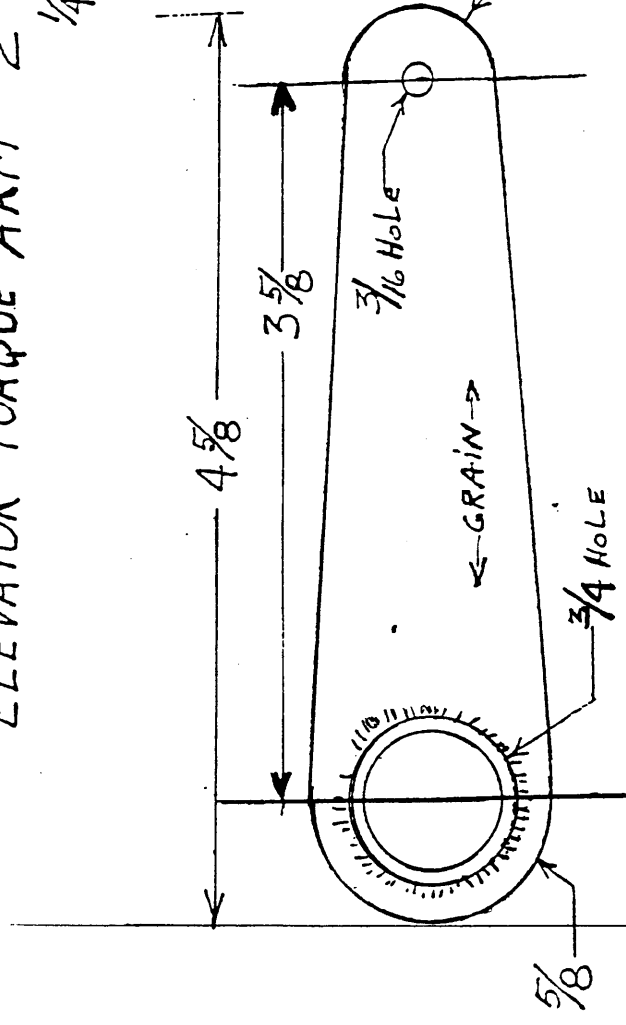
RETAINER RING  
2 REQ  
MAKE FROM ALUM.



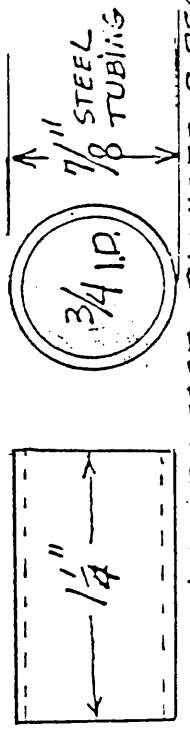
ELEVATOR TORQUE ARM 2 REQ.



WELD SYMBOL DENOTES "WELD" TYP.  
ELEVATOR TRIM PLATE 1 REQ.



ELEVATOR CONTROL ARM  
6 REQ. FOR DUAL CONTROLS

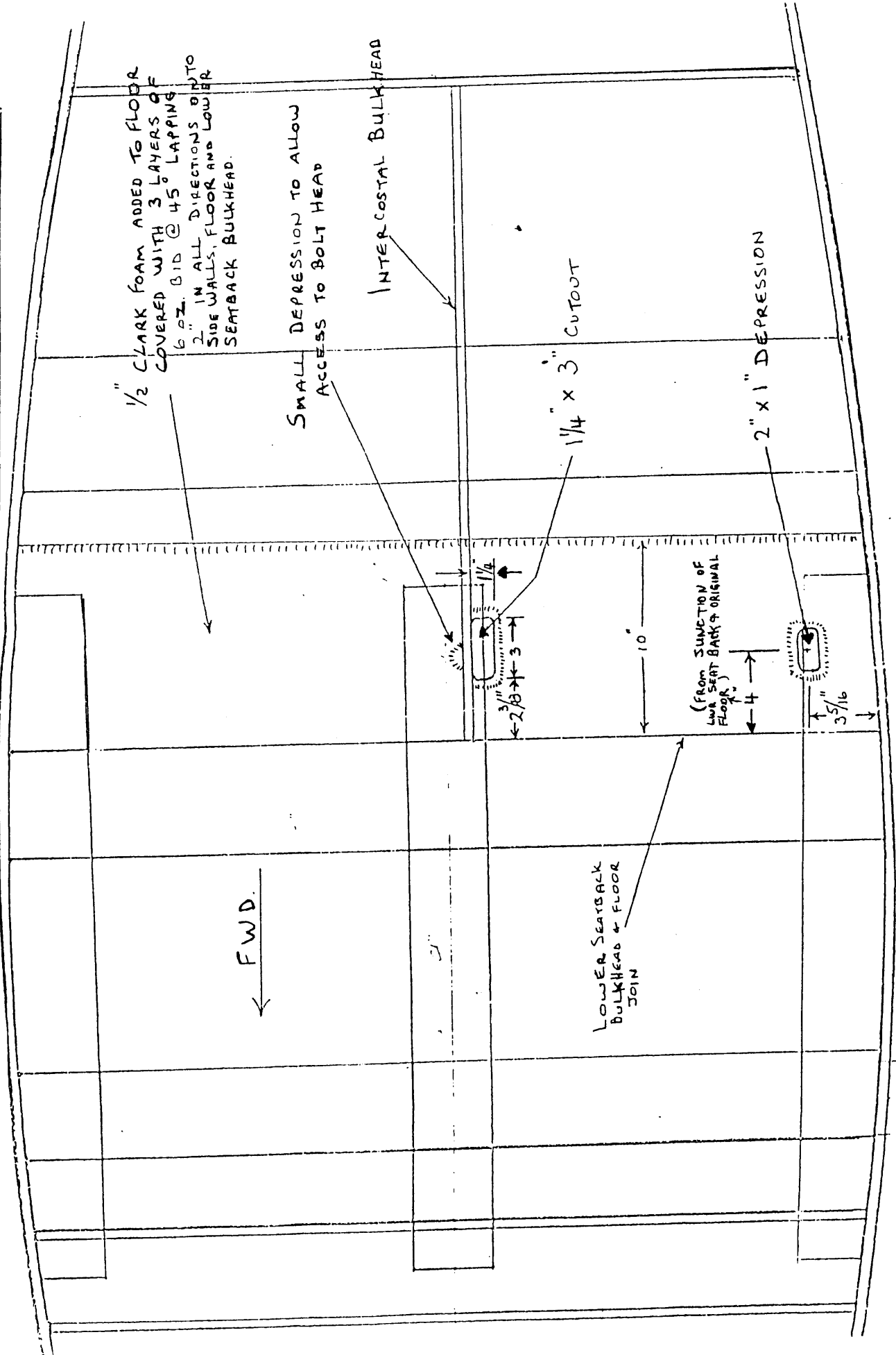


INTERFACE REDUCER 2 REQ.

NOTE: MATERIAL FOR ALL FLAT PARTS-.062 4130 STL. SHEET



DESCRIPTION	DRAWN BY	AIRCRAFT	ORIGINATOR
LANDING BRAKE INSTALLATION	3	DRAGONFLY	LSD-32
	4	UH-LSD	
	5		Sheet 5 of 8



# ELECTRIC AIR BRAKE ACTUATOR

I have been following the Long-EZ boys via their newsletters; The Canard Pusher and the Central States Association newsletters. This is basically where the air brake came from and then Len Dyson of Australia refined it and test flew it for the Dragonfly. The Long-EZ builders have tried several electric linear actuators and have had excellent results with the following unit. Mike Melvill of RAF has been watching the air brake series in DBFN and sent me this information on this unit with the results that they are getting on several of their birds (Thanks Mike, we really appreciate the exchange of information).

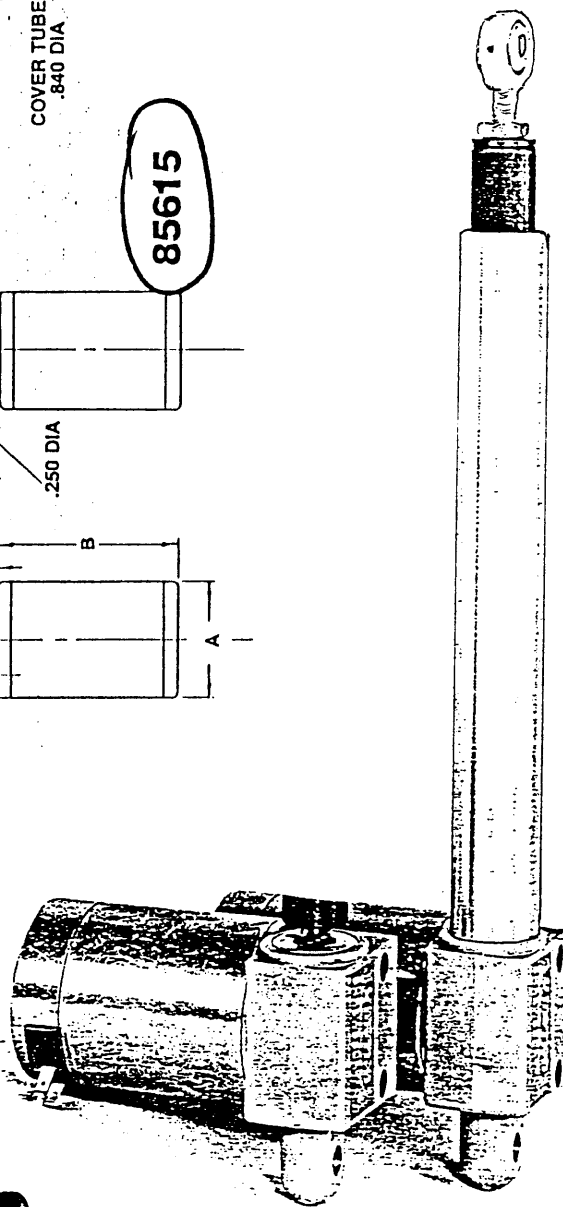
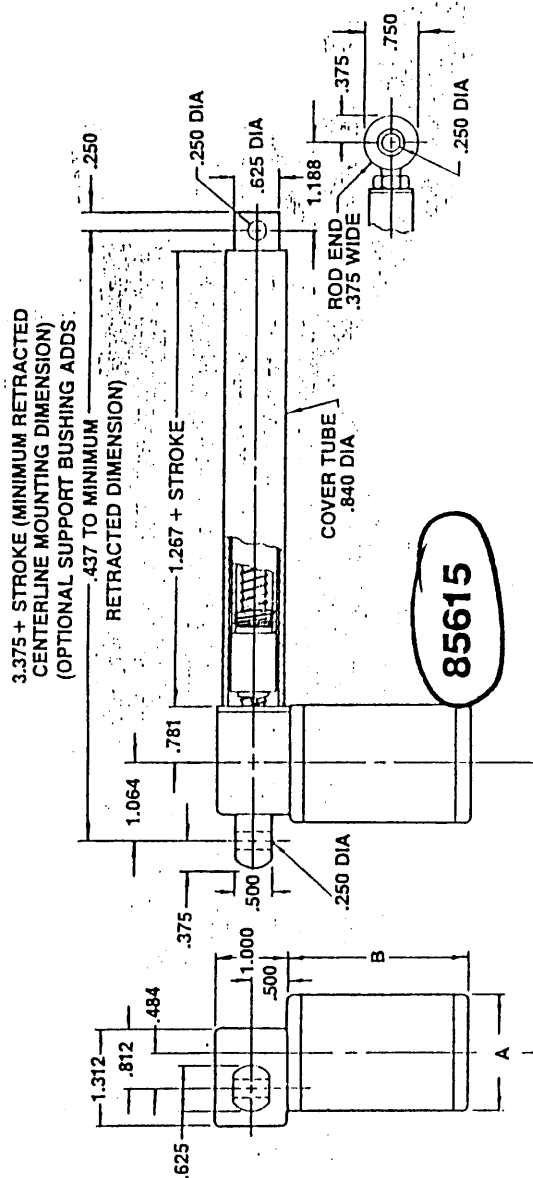
The unit is supplied by Motion Systems Corporation, Box 11 Shrewsbury, New Jersey 07702 (201) 222-1800 Contact name: Bill Tyrell. The part/model number for their "Ball Drive Actuator" is 85615. Confirm that this for a 12 volt application.

The unit has a 4" stroke, 15:1 reduction, unloaded travel is 1" per second, weight 1.45 lbs., 100 lbs of thrust. This actuator and its related hardware is as light as mechanical lever actuating system.

In Mike Mevill's Long-EZ N26MS, He's getting full 4" of travel in 6 seconds at 100 knots.

Mike also strongly recommends (read that as mandatory) the installation of a micro switch on the air brake and caution light mounted high & centered in the instrument panel to warn that the air brake is deployed.

I did contact Bill Tyrell with Motion by phone, I made the mistake of telling him that I intended to use this actuator for a airplane. Now that he has my name, if I purchase one he wants me to fill out a disclaimer saying that I'm going to use it on a lawnmower, street rod or whatever! They will not sell this for a aviation application. Even so there is probably quite a few other applications that this device could be used for if a person would just think about it (Grin!). - Spudley



 **motion**  
SYSTEMS CORPORATION



## OSHKOSH 1992

We had four Dragonflys attend this year. They were Stan Meleski of Chino, Ca., Bob Veriest out of Mi., Reg Clarke of Alberta, Canada, Roger & Robb Enns from Ontario, Canada.

The farthest distance flown to the event was 2100 miles one way by Reg Clarke which was via Helena, Montana where he picked up his brother and DF builder Bud Clarke. No short trip though was Stan Meleski's 1800 mile one way. Hi-Timer was Bob's very nice Mark 1 with right at 800 hours.

Here's their stats;

Owner	type	st.	N-nmbr	e.wt	eng.	cruz.	tt
Meleski	MK2	Ca.	N189sm	685	1835	145	401
Enns	MK2	Qu.	C-giiv	670	1835	135	80
Veriest	MK1	Mi.	N641d	680	1835	140	800
<b>Clarke</b>	<b>MK2</b>	<b>Ab.</b>	<b>C-frwc</b>	<b>738</b>	<b>1835</b>	<b>150</b>	<b>148</b>

Wow, we had a lot of fun and learned lot at this years Oshkosh. Let me see if I can recap some of the hi-lites (and the fun we had!). We arrived very early Thursday morning and set-up Camp Dragonfly, Spud's limo/taxi & car rental service and the Spudley Hilton's. We had 19 people stay at Camp DF this year. Friday was get reacquainted day and check out the all the DF'S and Q-birds. Friday evening we planned an informal dinner at the B to B downtown Oshkosh. I had some fun with the gal at the restaurant, you see we didn't have any reservation! It was about 8:30. I had the gang wait outside while I went in to see if they could handle us (this is where I had fun!). I asked her "Are you still serving?" she said "Sure no problem, how many it your party?" I grinned and told her "27". She said "Suuuuurrrre, really sir how many", I said "No really, 27". She says with a very serious look, "Seriously sir! how many!". I said just wait a minute. I stuck I my head out the door "Hey gang, everybody in"! She'll never doubt me again! She had us seated in 5 minutes. The dinner went very smoothly and everyone had a excellent time exchanging information.

On Saturday we had the "Back porch" of the Home Builders building scheduled from 10:00AM til Noon. That time was pretty well used up bringing each other up-to-date on everyone's projects and planes. We did it again at the B to B that night, except we beat our old record, we had 29 that evening. Just wait till next year!!!!

On Sunday we had the Front porch at the Home Builders

Building again where we reviewed videos on Justins Mace's Subaru powered DF and the Canard tufting on Ted Givens DF. Sunday evening was spent with our friends at their Quickie/Q-2/Q-200 forum, it was a good forum. I spent a few minutes telling them about our joint fly-in at Ottawa, Ks this year. I also asked the group to join me in thanking Jim Masal, He's their Sargent and editor of their newsletter. He's the guy that has given TEN PLUS years in keeping the Quickie group running smooth (I can't imagine hanging around you Outlaws that long!). He really deserves a GIANT ATTA-BOY, he's done a excellent job. Thanks a Million Jim!!!!!!

The Viking Dragonfly forum was on Tuesday at 10:00 to 11:15 AM. I didn't think we would have much of a turn-out being so late in the week. I was pleasantly surprised we, we had 80 people for the forum. The make up was about 50 current builders and/or flyers and 30 potential builders or people just interested in the design. We broke the forum down into two parts. The first half was devoted to the new builders and people that were looking at the Dragonfly as building project. The second half was devoted to the current builders and what was new. We started the 1st half out by introducing to the audience to the people that were there that had flying DF's and their vital statistics. We then spent the balance of the first half trying to answer the new potential builders questions, which in turn created quite a few questions. The last half was spent talking about powerplants, air-cooled and water, Van Fosters tri-gear, Evans brothers 170 mph "Hot-Rod" Dragonfly, Flying DF's off grass strips, Dysons air brake, Videos on Ted Givens canard tufting (very interesting) and Justins Mace's sleek Subaru powered DF. And a up-date on the status of Viking aircraft.

## FRENCH DRAGONFLYERS

Dear Spud

Thanks for the good job you do sharing worldwide information about Dragonfly tips and news.

Here are some French guys.

Finally I made it! I was in Moulins (That's their Oshkosh) this year with my Dragonfly MK3. As you can see by my serial number #101, I bought the plans set 10 years ago from Bob Walters, I'm not a hard worker and in France we don't give up the job to work full time on such a project. I flew my DF as a MK1 in 1989 during 22 hours and 70 landings, some of them not always "Kissy" so I decided to go to the tricycle formula which allows me to land almost everywhere in France on grass airfields which are common here.

Here are the stats on my MK3; empty weight 725lbs, stall

speed 60 mph IAS, cruise 130 mph, top speed at 3250 rpm 140, propeller GAP 52X42.

I am very pleased with my Dragonfly, but I tried some "wet" takeoffs & landings and sure you need more room, The positive aspect is that the plane always advises you by bobbling gently when ever problems arise.

I don't know if I wrote you already but the Autometer #2642 tachometer, it works perfectly but with a good signal, I used a proximity switch (Hall Effect) on 4 of my six propeller bolts. Just cut two shorter and you have the setting for a eight cylinder engine. Set the strap on the Tach for eight cylinders and you have a very accurate tach also at low rpm.

Here are some pictures of my #101 F-PFPS. The front wheel 3 X 4" with a special fairing, it is liked with the rudder, ground handling is amazing! I also made a luggage compartment behind the passengers heads. Greta to have some water on hand when temperature is 95 or so under the canopy.

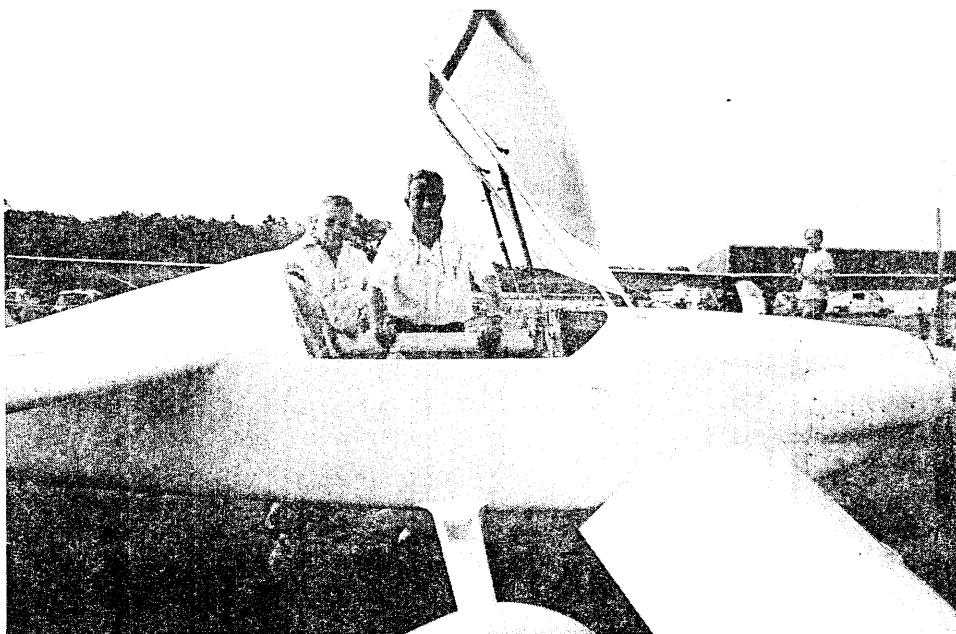
The MKII is owned by Marcel Bonamico, it has a very nice finish. Marcel was angry about his parking place, but he arrived late and there was 900 planes at Moulins this year. If someone is interested, I can send sketches of my tri-gear mod (Yes! send them to me and I'll put in the newsletter for everybody!). Thanks to Mike Quigley for his help!

Thanks again

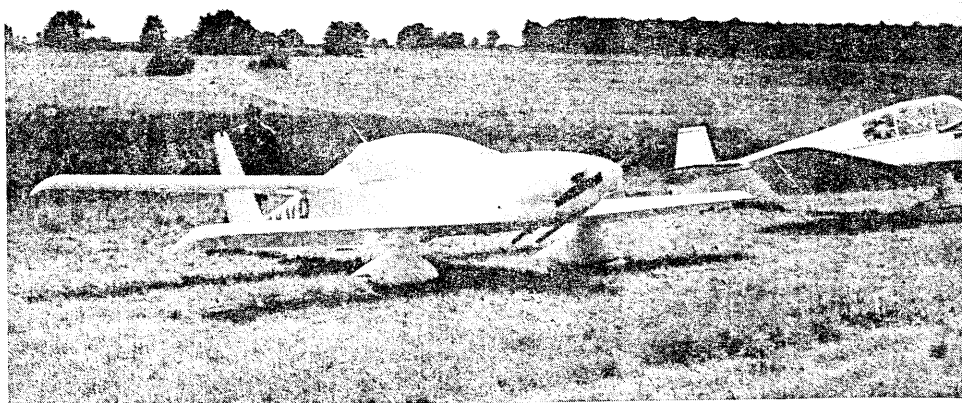
Philippe Soulas

85 Rue du Chateau d'eau

80100 Abbeville France



*Philippe Soulas's Tri-gear Dragonfly*



*Marcel Bonamico's MK2 Dragonfly*

continued from page 4

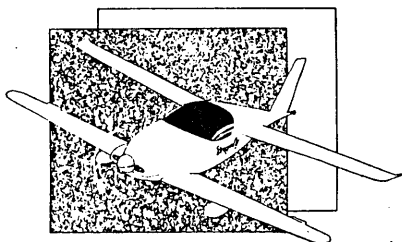
end of the elevator and fuselage. We suggest you leave a 1/4" wide space between the fillet and the inboard end of the the elevator. Shape up a block out of blue polystyrene foam. Glass it in place. On the prototype we made the top portion

of the fillet permanently attached to the fuselage. The bottom half of the fillet is a removable plate allowing access to the bolts on the elevator torque arm to disassemble the aircraft. The elevator can be put in the up position, which is actually down from the trailing edge of the wing and slid inboard and removed from the aircraft.

DESIGNER'S NOTE: READ THESE WRITTEN INSTRUCTION TWO OR THREE TIMES AND LOOK AT THE DRAWINGS CAREFULLY BEFORE YOU START. YOU WILL FIND IT IS A VERY EASY JOB TO MAKE UP THESE ASSEMBLIES.

We are sure that this new elevator control system will totally eliminate the possibility of flutter due to control system slop if built and installed in an airworthy manner. NO GUARANTEE can be made or is made that YOUR AIRCRAFT will be an exact duplicate of the aircraft used in our flutter testing programs. Therefore it is recommended that you perform your own flutter tests,

**DRAGONFLY**



## Classifieds

**For Sale:** Firewall forward for Dragonfly, 2167cc VW engine, prop. through and including motor mount, No carb. \$4400.00 invested in 1986 dollars, have receipts. \$3000.00 for everything. Call Chuck Kaplan - Walpole, Mass. (508) 668-4784

**For Sale:** Dragonfly project - Fuselage 65% completed, glassed inside & out, bulkheads, main & header tank installed. Wing completed less control surfaces & weave filling. Most foam for Canard. Get a head start & save 375 hours. First \$1500.00 firm. (913)234-9348 ask for Dana Watkins

**For Sale:** Quickie Q-1, completed, no airworthiness. Onan industrial eng. 18 hp, 24 hours logged. central U.S. Always hangared. Spec's and pictures available (402) 463-2588

**For Sale:** Hapi VW 1835 60-2D, I Mag, I Electronic, Hyd. lifters, Tillison carb, Heavy duty oil cooler, deep drilled crank. 400 TT. 80 SMOH. Firewall forward new style Hapi mount, new Sterba prop and spinner. \$2450.00 Ask for Stan, Days (310)941-9763. Eve(310)402-5023

**For Sale:** Dragonfly Mark I 95% complete. Primed, not painted. Always hangared. Hapi 602DM engine, New. Located in central US. Specs and pictures available. (402)463-2588 (2x)

**For Sale:** Limbach 2000DD engine with everything you need. Engine is ready to fly. Dual Mags, suction pump, fuel pump, electronic tach, engine mount for DF. All related wiring. O hours since new. Nearest to \$8500.00 US funds will get it. Hans Graesser, Marktstr. 56, 7057 Winnenden, Germany

**Wanted:** Dragonfly fuselage wanted. Only plans built accepted. With Fin and rudder. Fuselage needs to be as complete as possible. Hans Graesser, Marktstr. 56, 7057 Winnenden, Germany

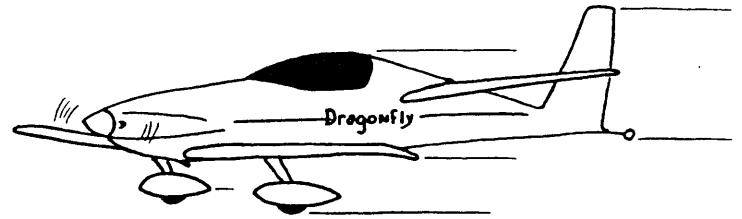
**For Sale:** Dragonfly Project, modified for tricycle gear. Can be fitted for Mark II gear easily. Fuselage, wing, rudder, canopy, cowling and control surfaces. No canard. Excellent workmanship can be inspected, not painted. \$1800.00 takes it home. for further info contact Chris Barber, Big Sky Ranch Airport 437 Will Raby Rd. Toney, Al 35773 or (205) 656-7133

**For Sale:** Hapi prop & spinner - 54/50 - \$200.00. Gasalator - \$15.00, Three lever throttle quadrant - \$15.00, Plane cover (blue) with solar charging system - \$100.00 Justin Mace- Tucson, AZ (602) 744-3532

**For Sale or Trade:** 1946 Aircoupe Model C, 1652TT 700 since Major, 250 since top. Bubble windshield, dual nose fork, extended baggage, beacon, all metal wings, Kenny nose bowl, new battery, new paint and polished prop. Would like to trade for flying or very near flying Dragonfly or

would sell for best offer. Ask for George Phillippy Syracuse, KS (316)384-7434

**For Sale:** Dragonfly fuselage, wing, canopy, engine mount, and cowling. This plane was flying prior to canard failure (landing). \$1000.00 Stan (619) 233-5214



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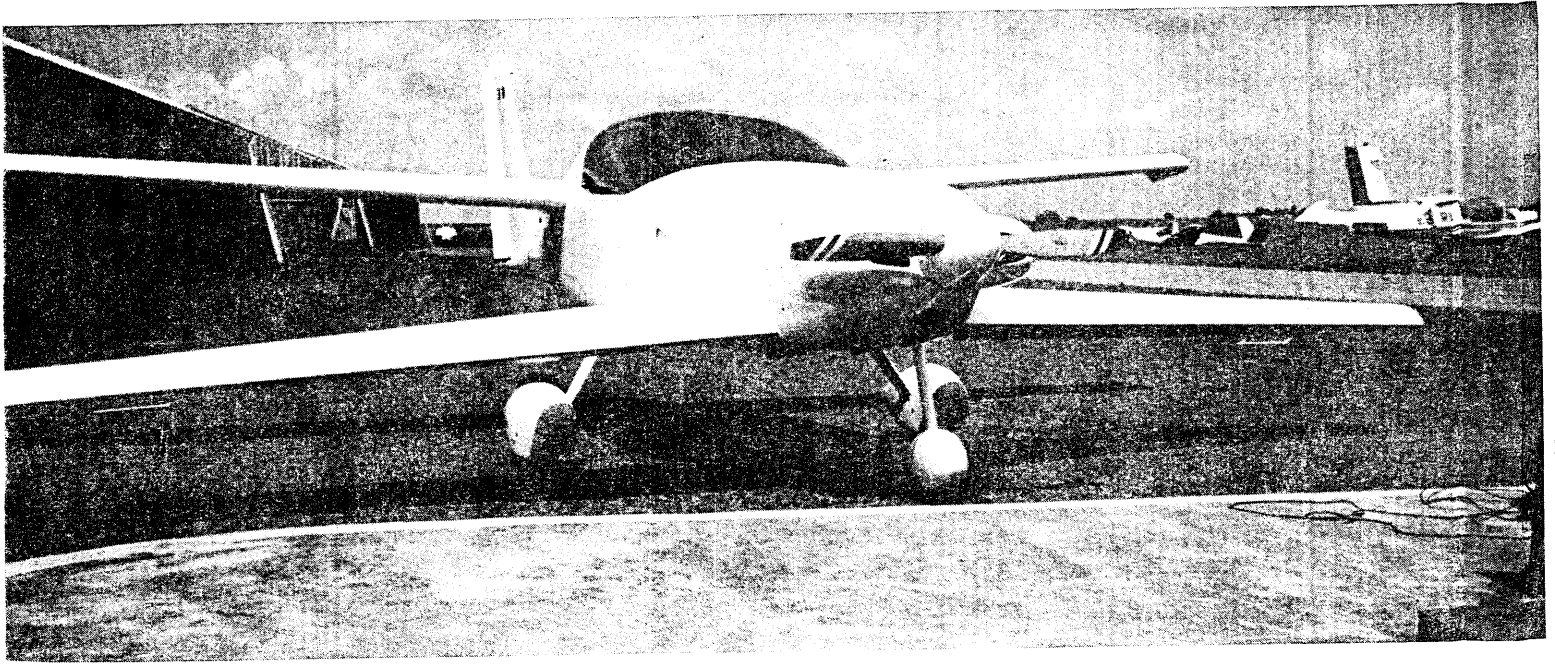
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*Philippe Soulas of France MK3 Tri-gear Dragonfly*

**DRAGONFLY**  
BUILDERS & FLYERS  
**NEWSLETTER**

1112 LAYTON DRIVE  
OLATHE, KANSAS 66061



FIRST CLASS MAIL

**1992 DRAGONFLY / Q-2 / Q-200 FLY-IN SEPTEMBER 18-20TH, REGISTRATION ENCLOSED, FILL OUT AND MAIL TODAY!!!!**