

DRAGONFLY BUILDERS AND FLYERS NEWSLETTER

THE OFFICIAL VOICE OF DRAGONFLYERS ALL OVER THE WORLD

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John Mason of Orange Cove, California

doing some formation flying with his buddies!

Hello all,

On the way to Ottawa and back! Some highlights and pitfalls. Off Visalia, Calif. to Tuscon. Was picked up at Avra Valley Apt. by none other than our friend Justin Mace. We were to join with Dave Carlson, a

Q-2 / Revmaster driver, on Friday morning. Direct El Paso, fuel, then to Carlsbad and pick up Mark Snow. Dave is hangered at Ryan apt. (about 20 miles south) and fly to us, calling about 2 miles out. well he did--we took off and didn't see him until El Paso. It went like this--I am at

9500 where are you?--So am I, Have you passed the saddle yet? Yep...I am abeam the two peaks to the north. Man I sure can't see you--This is the pits. This went on for an hour , then I made a large 360 over a defined landmark that we both identified in order to try to make myself

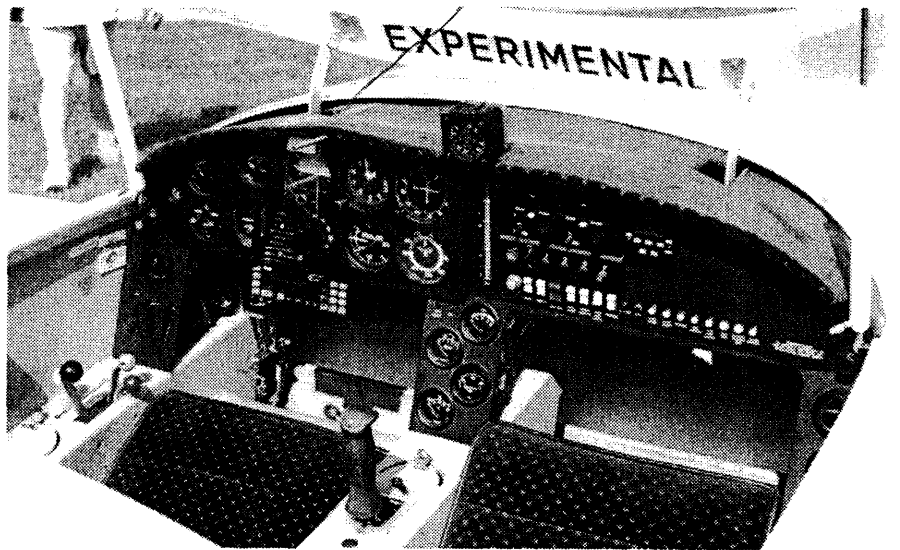
visible. No luck--you guessed it--Dave located Justin--now I can't find them. With the help of the G P S Justin reported 40 miles out of West Texas and I was out 30--He and Dave slowed to 110 I went to 150. (You see, Dave has a hiking GPS, that needs to have the Lat. and Long. entered in order to establish a waypoint. This is very difficult, if not impossible to do while flying, looking, and look up the fixes in a book. These types are OK if flying where you know where you are going and can pre-program all of the waypoints. An aero data base is essential.) Finally we were together. Justin landed for fuel at West Texas, Dave and

I were going on to Carlsbad. Knowing people are in the air at your altitude and on the same heading, looking, all the time, not daring to put your head in the cockpit to look at a map, or do any navigation or anything but look really gets very upsetting so Dave says, John lets land and get our ____ together--I said great idea--where--He said here. OK, landed, fueled, and noticed that there was some oil on the belly of

his plane. We looked, decowled and really looked. We found no source of the leak. The oil stick showed very little oil was used so off we headed to Roswell then Hereford, OK. By the way, If any of you are near El

Paso, please treat yourself to a visit to the warbird museum at Donna County Airport, at Santa Teresa, It is the most beautiful, well kept, I have seen. Anyway, back to the story. Twenty miles past Roswell, Dave keys up and says "John--MY OIL PRESSURE IS ZERO, I am going to try and make it back to the airport. He throttled back, contacted the tower, and landed safely.

Revmaster, in someone's infinite wisdom decided somehow, to block off the oil by-pass resulting having oil pressures in the ninety psi range upon starting the engine while cold. This is OK, I guess, but when



Wanzor Progress Report

coupled with a paper thin oil cooler and in a high vibration environment, and large hoses that are creating stress on the fittings you have a real potential for disaster. Dave was very fortunate. I personally have blown out three of this exact cooler in a Formula Russell--Mazda powered race car. Dave said he was running a little behind and took off while the oil pressure was still a little high. The cooler is an after market item that is available from Whitneys catalog, hotrod, and off-road, shops and is marketed but a number of distributors. They all are mfg. in Canada and this one was stamped Borg Warner. They are all 1 1/2 inches thick and 8 inches wide. Some are 3 inches deep, 6 inches, and Dave's was 11 1/2. After that it was "cocktail time with the Aliens of Roswell"

NOW WHAT YOU ASK !! CG CG CG CG Dave at 185, Me at 170 or so, gear, after eliminating as much as possible(yeah right) at about 35 lbs. We took off and had to use quite a bit of nose down reflexor. Anyone know why? Well the plane fly's very twitchy, as a matter of fact very unstable. The DF is a very forgiving airplane, our next landing was no problem at all, it did stall faster but all it took was a blurb on the throttle and she settled right down. After relocating cameras, tools, bottles, and other gear in the well just aft of the canard we were off to Ottawa and although not great we could relax while flying. We weighed and did a weight and balance and calculated our CG to be .3 behind the plans aft limit.

Return trip--here comes the rain--OK--get ready--well when does it happen? It doesn't. Actually, it does but the only way I knew that the plane pitched down was that when the rain dried off the DF wanted to lift up. ever so slightly. Again--a great little plane.

To sum it up.

1.) If you are a flight of more than

one, start off together and seeing each other.

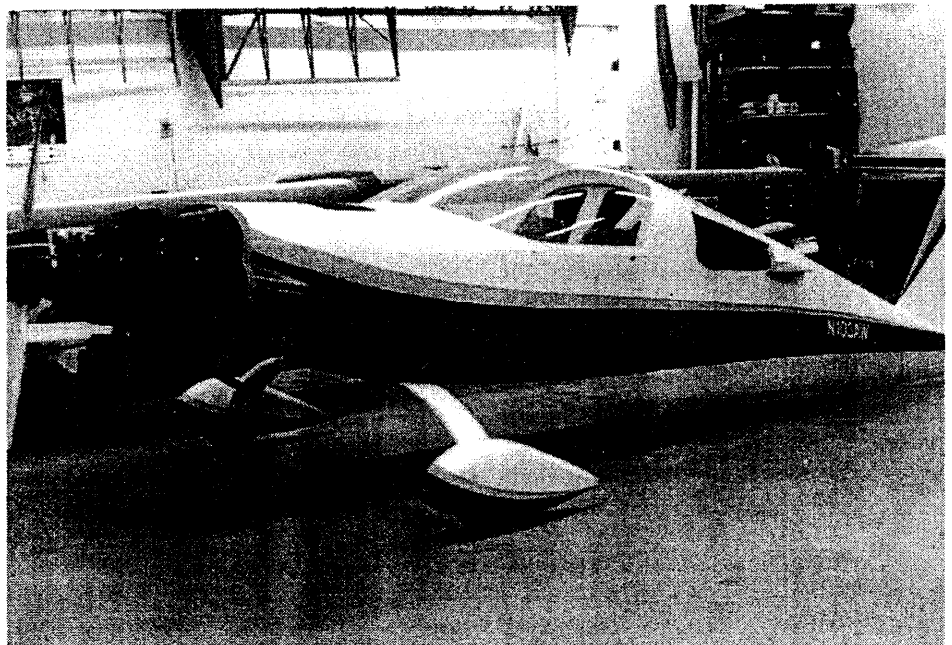
2.) Oil coolers of this type should be suspect.

3.) Reflexors, required for the coordinated balance between the elevators and the angle of attack. (Just a laymans observation--He thinks) You can trim for speed, adjust for being dumb and not thinking CG CG CG!! I do have a Garmin 195 that has a CG page. It keeps your gross wt., the arms for fuel oil, pilot pass, baggage, and in memory and all you do is put in the numbers and if OK go fly. I do hope you all find this stuff interesting.

The Ottawa thing was a very good experience, I thank everyone involved as they did a remarkable job. Very smooth.

John Mason
Orange Cove, California

Aubrey Wanzor Sharp Looking Dragonfly Below



Hello Spud and fellow builders,

Progress continues, but not much lately. The D'Fly was ready to bring to the airport early winter. So, naturally I decided to put the project on hold until spring.

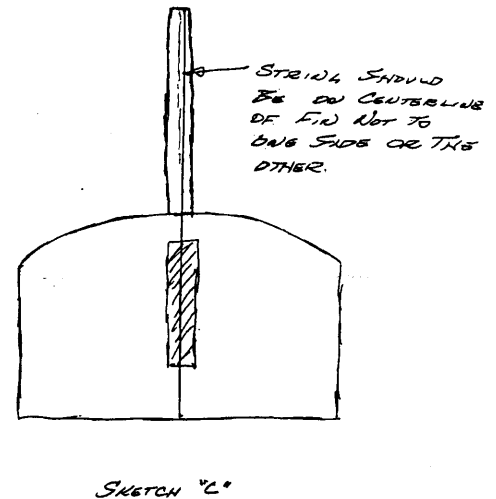
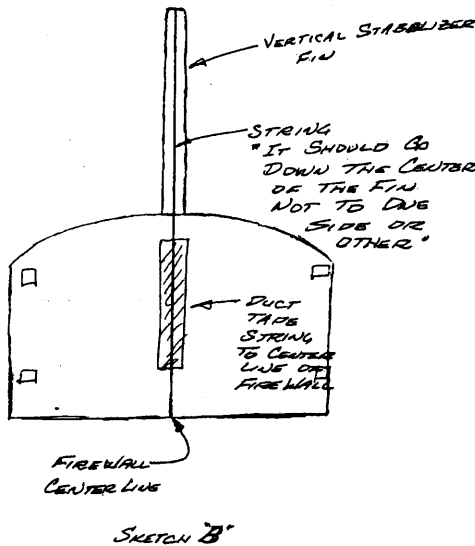
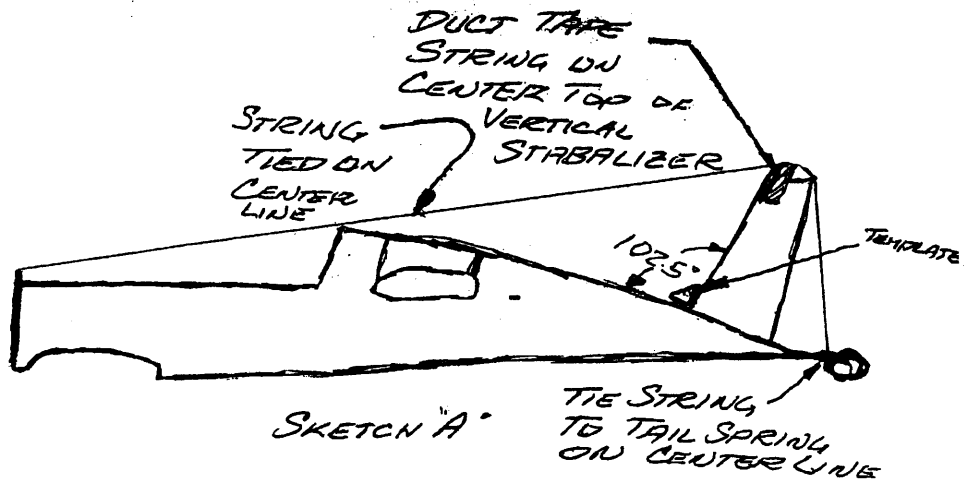
I might have told you that I decided to abandon the Mark II landing gear and change over to the bow type gear. That modification took over a month. However, I am glad I did it. It looks much better and gives me more propellor clearance.

I have run the engine and it satisfied all the temperature and pressures on the check list. It started on the third blade and sounded great, (It's a Great Plains 2180). With a little luck it will be airworthy this summer.

Aubrey Wanzor
Southold, NY

Vertical Fin Alignment

Spud, I just recently put in my vertical stabilizer. The plans do not really give good instructions on how to line up the center line of the vertical stabilizer to the center line of the fuselage. All the plans discuss is getting the perpendicularity of the vertical stabilizer to the water line of the fuselage, by hanging a string and washer "plum bob" from the upper fin hinge. This does good in establishing the vertical position, but in yaw all it did says is to use your eyeball. By using a string, very tight, I could see the vertical stabilizer position to the centerline much better, see reference sketch "A". You should stand about four feet in front of the fuselage and sight down the centerline of the fuselage and down the string. You then looked at the fin and assure the fin centerline and leading-edge are lined up with the string. See your reference sketch "B". The fin centerline and leading-edge, shouldn't be to one side or the other of the string. See reference sketch "C" and "E". After I got the front right I went to the tail and stood back about four feet and looked down the centerline and the plum bob was lined up to the centerline string and perfectly in plumb.

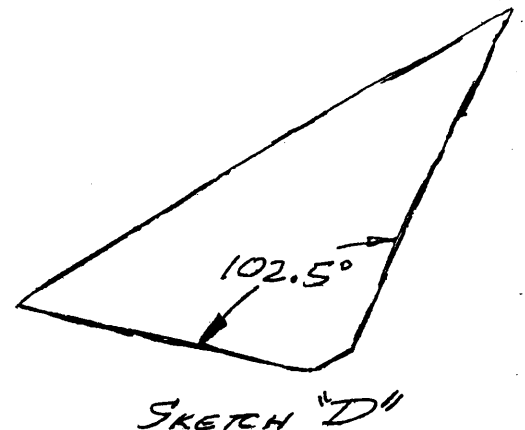


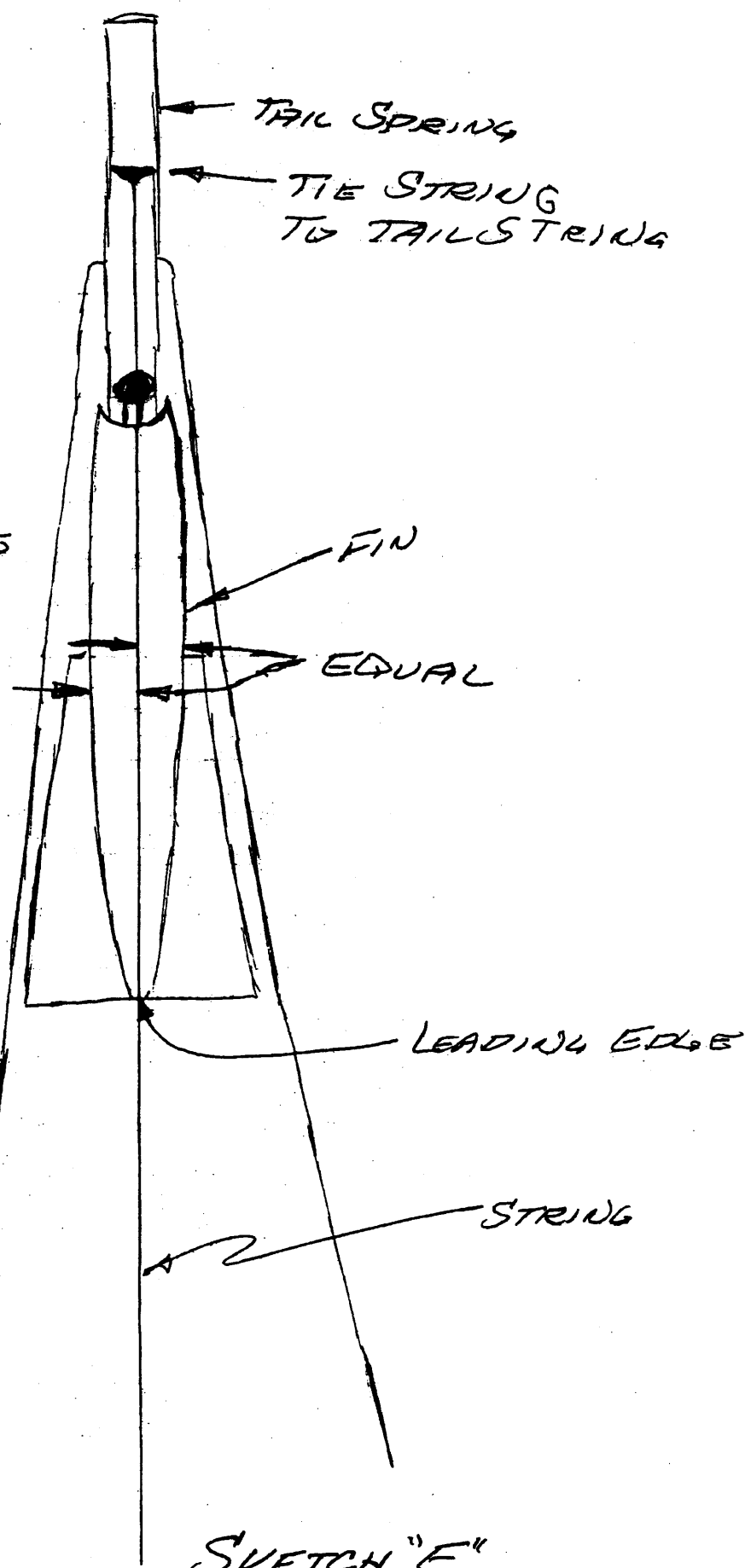
When I checked to the 102.5 degree angle it checked a hundred 106.5! I made at template (see reference sketch "D") I placed it on the fuselage top to verify the angle was bad and sure enough it was. (See sketch "A") After all the work in getting it straight I remove the fin and sanded the bottom of the fin and fit it several times until I got it to the 102.5 degrees. Once I had that right, I went back to setting the centerline and the perpendicularity of the fin. It only to me about if the 30 minutes to get it rigged this time. It sure work better than trying to eyeball let with nothing

to align it with. I hope this explains the process well enough. It sure worked better than trying to eyeball it with nothing to align it with. I also hold this will help fellow builders.

Well... I'll see you at Ottawa for the fly in this year. Take care and have fun building.

Paul Zimmerman
Garland, Texas





WHEN YOU ARE SIGHTING DOWN THE CENTERLINE FROM THE FRONT YOU ARE TRYING TO GET THE LEADING EDGE CENTERED ON THE STRING AND THE MIDDLE OF THE FIN EQUAL ON EACH SIDE NOT SHIFTED TO ONE SIDE OR THE OTHER.

FUSELAGE SIDE
 FROM THE BACK YOU ARE TRYING TO VERIFY IT IS CENTERED & EQUAL & THE PUMP BOB SHOULD BE ALIGNED TO THE CENTERLINE STRING.

SKETCH "E"

Canard - Wing Turning Jig!

Dear Spud,

I'm sorry to have missed Ottawa 97, but maybe next year in N22BB.

In the DBFN #73 which was another good issue of yours, and a couple of things in that issue prompted this letter!

Ted Givin's the story about the HAPI alternator

(others have found it hardly to be a generator!), is the very reason I decided several months ago not to wait until I was flying, then have to replace it, but to install a "Real" alternator now. Bob Roe one of our Arizona gang did this several years ago, by reusing the HAPI accessory case/unit, and put and a Japanese 50-

60 amp alternator, directly driven off the fly we'll using a Love-Joy coupling. My installation uses a Nippendenso 60 amp, supposedly most Japanese cars use these and are considered high-quality and very reliable. Bob had been running his for several year with no problems. I am anxious to read further their about Ted's installation in the next DBFN. I would be very willing to fill anyone in on my project.

Also in DBFN 73 I was surprised to read Rene De Lauthawers old write up on making navigation light lenses. I made

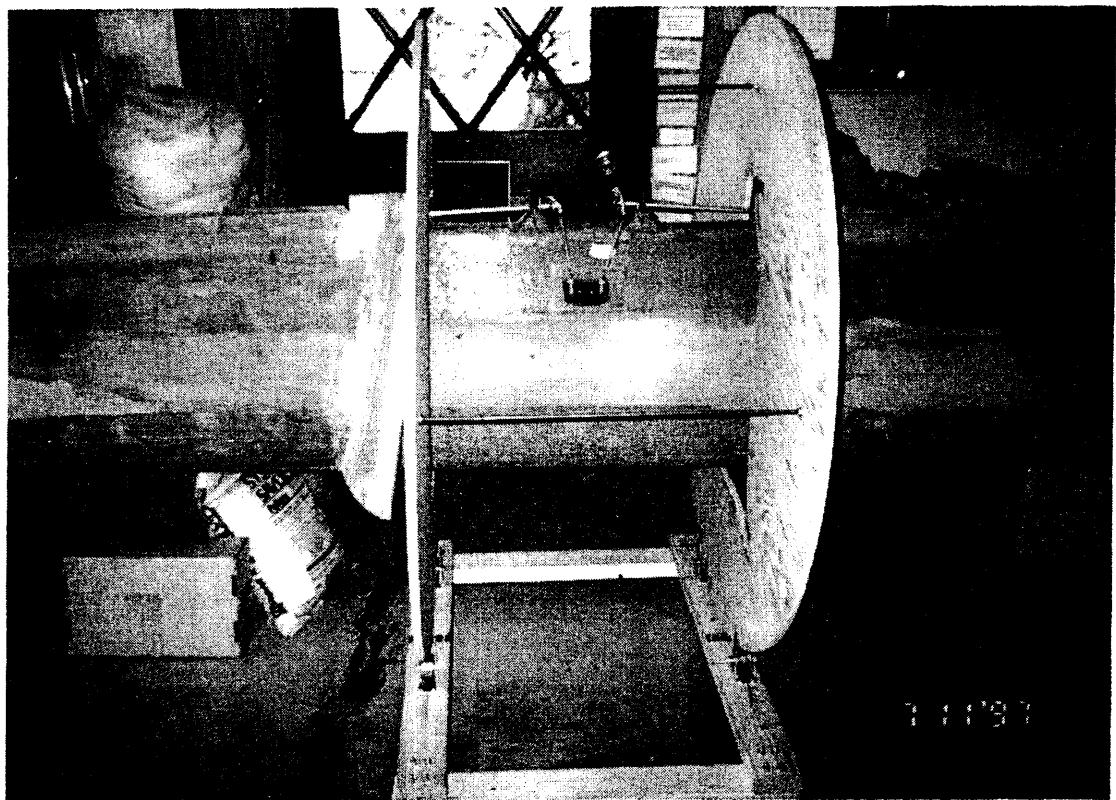
Rene's rig long ago, and easily made clear lenses of 1/8" Plexiglas. Also red Plexiglas was no problem. However, the green available needed a higher forming temperature and could not be heated enough in my wife's oven! The joke around here is about my many trials with various size of Plexiglas. I even had searching lower temperature Plexiglas

is pretty much self-explanatory. I made to circles out of plywood with openings that would slide up from the wing tips. The disk spacing is kept with three pieces of threaded Redi-rod, washers and nuts. There is four casters with some metal extended guide tabs to keep the plywood on the casters. Caster spacing is just far enough apart to eliminate the circular part of the disk not

to touch the 2" X 4' framing. This handy tool has made the job of filling and shaping a lot easier to deal with.

You didn't mention in DBFN 73 whether or not if Bruce Dixon had flowed his Dragonfly yet! I assume not - or there would of been a celebration.

I'm glad to hear Rob



product - to no avail. Long ago too, I called Aircraft Windshield Company to ask for some scraps of green they used for nav lights lenses, also to no avail. The colored lenses they made were about sixty dollars! That's why I wanted to make my own. Rene's temperature of 250 degrees was to low. 320 degrees worked better in my own oven. If anyone knows of a workable green Plexiglas I'd appreciate knowing.

Also I have enclosed a copy of a jig that I use to turn my wing. The photo

Nuckolls attendance at Ottawa was a success at Ottawa, and will come again this year.

Bob Boydston
156 Lynx Drive
Sedona, Arizona 86336
(520)282-6468

Tom Larson's MK II Subaru DF

On the next two pages you'll find six photos of a "refreshingly" basic Dragonfly.

Tom has put together a Subaru powered Mark II Dragonfly that only weighs in at 705 lbs. !!!!

There is many, many, Dragonflies that weigh more than this one with a VW powerplant.

I hope you can make the fly-in this year "in your" Dragonfly. - Spud

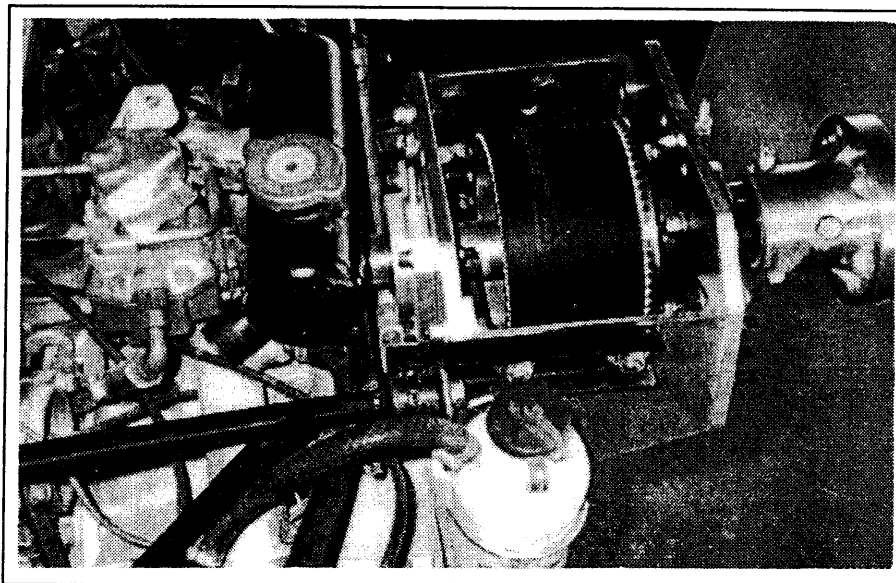
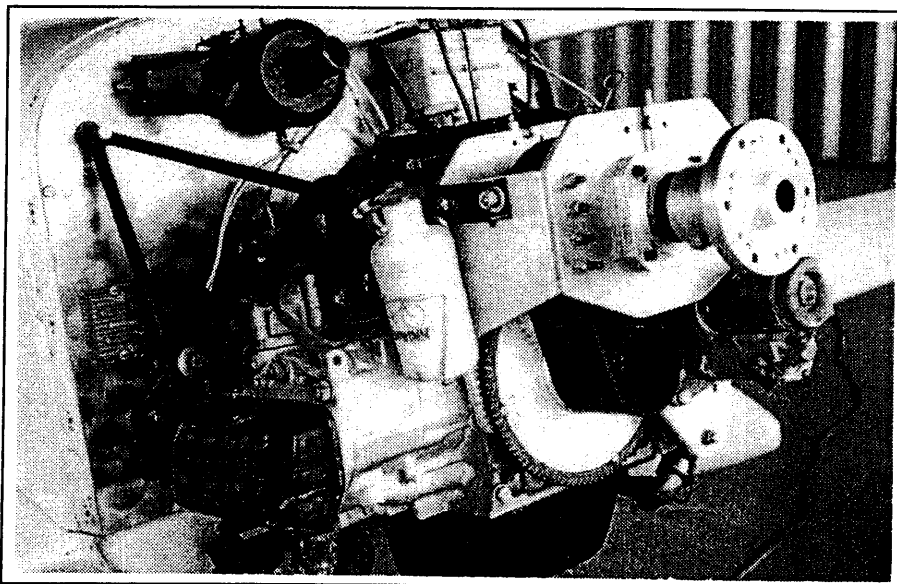
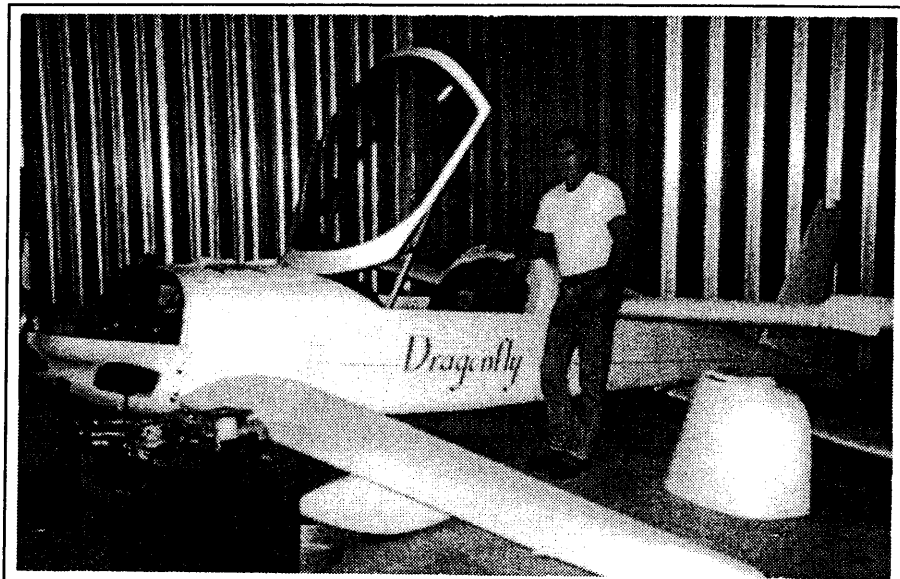
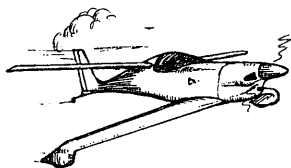
Hello Spud,

N340TD is flying with 19 more hours left in its flight test program.

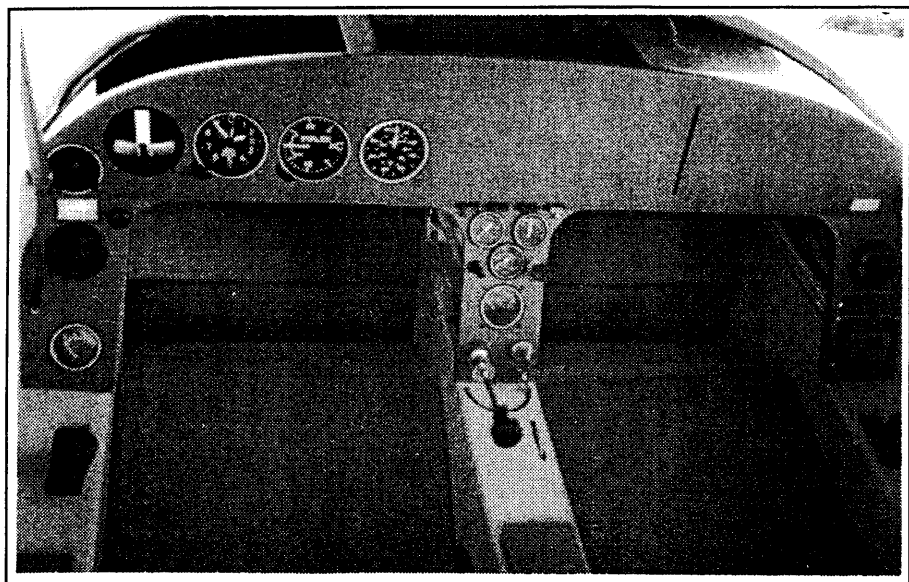
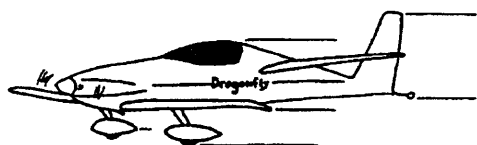
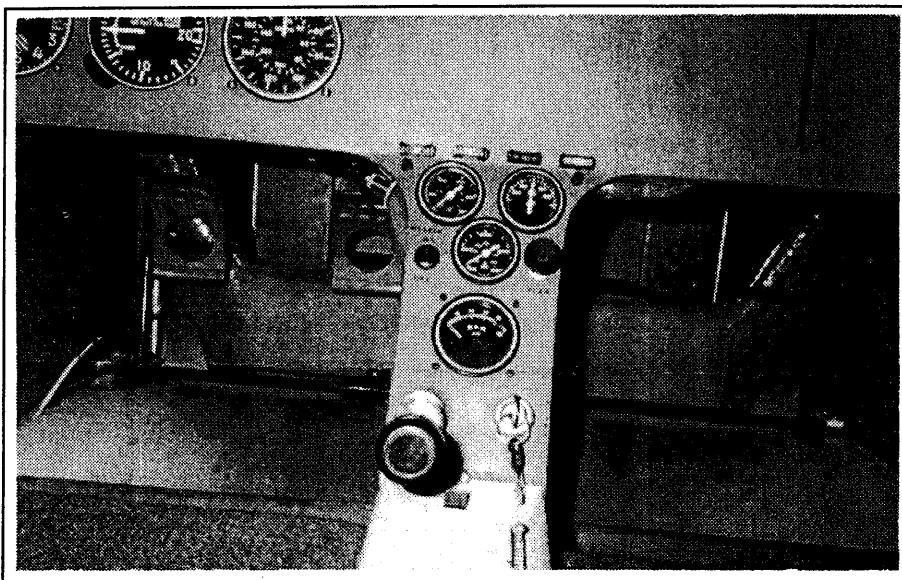
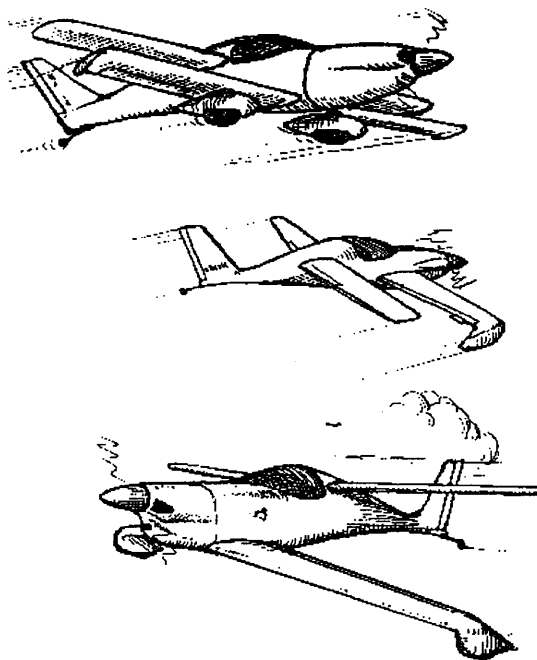
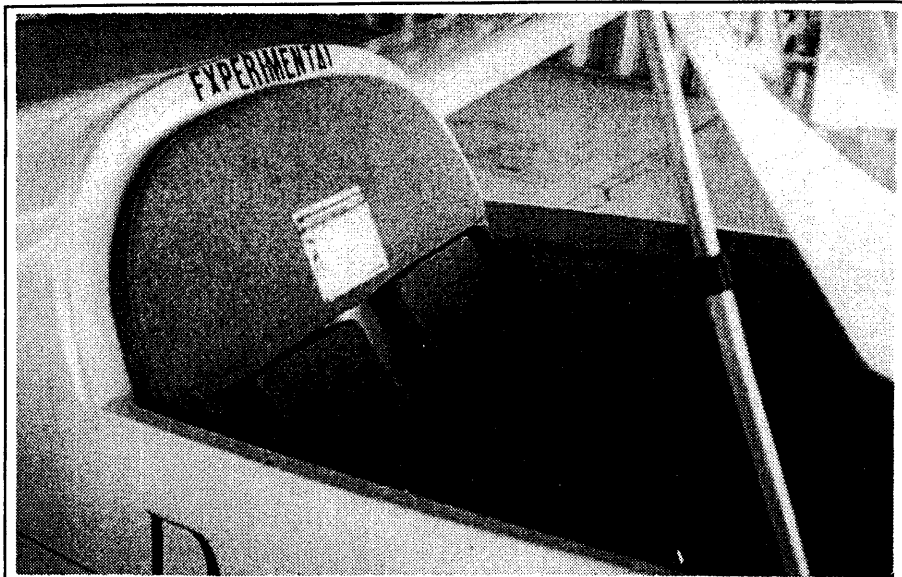
I am currently using a two blade Warp Drive prop set between 16 to 24 degrees. Performance is slow and climb is poor. I am planning on progress to a three blade Warp Drive which I feel will help me bring out the additional performance that I'm looking for.

The engine is a basic Subaru EA-81 with a 1.64 to 1 belted reduction unit. The current empty weight on the aircraft is 705 lbs. The alignment on the aircraft is very close also. Fuselage waterline "0", canard "0" and the wing is "1/2".

Tom Larson
R.R. #1 Box 250
ST. Edwards, NE 68660
(402) 678-2456



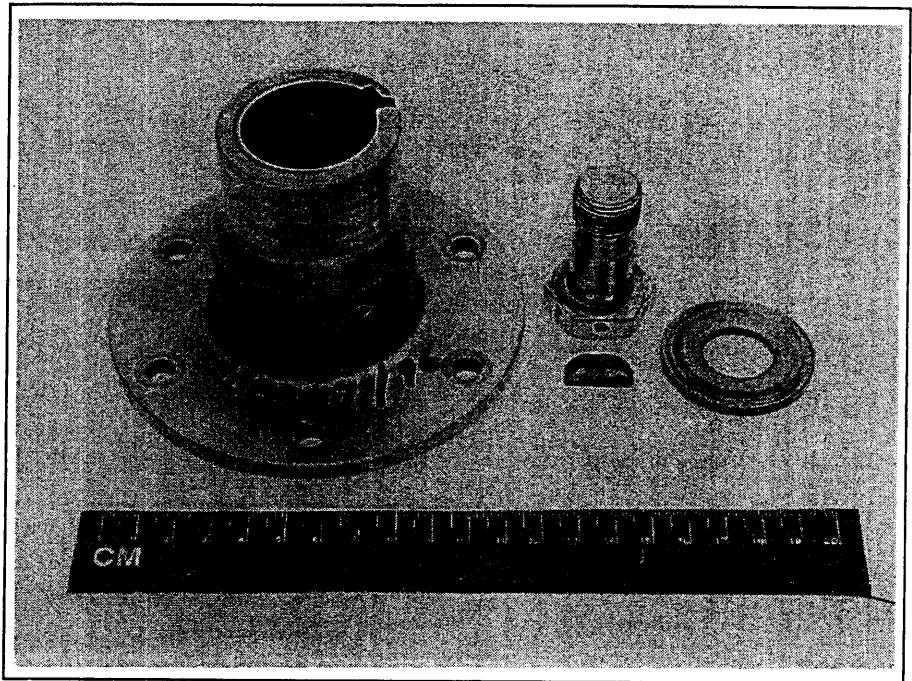
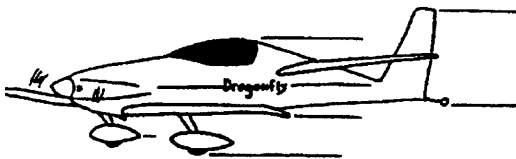
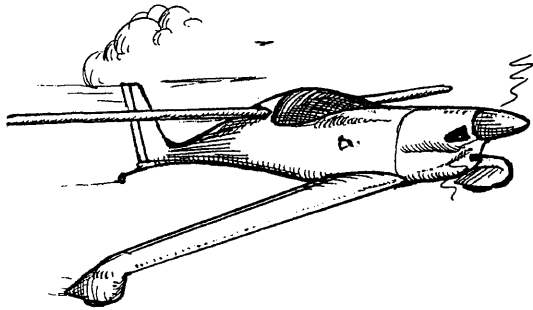
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Ted Givins Prop Hub Failure

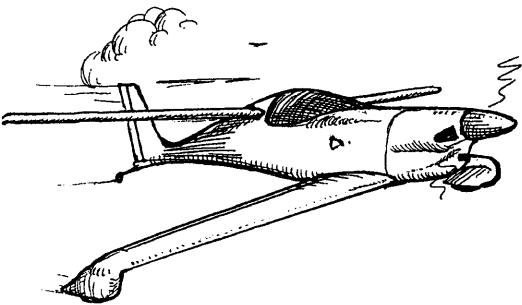
PROPELLER HUB FAILURE

seconds. Subsequent engine tear



C-GGEM experienced a catastrophic failure of the Hapi Propeller Hub. While taxiing to a refuelling point the aircraft developed severe engine vibrations. The engine was immediately shut down. The total time of the engine vibration was less than 10

down revealed a cracked propeller hub. Damage was not limited to the Propeller hub. In addition, the key-way in the crankshaft was badly deformed and both halves of the engine block were cracked in the oil sling ring area.



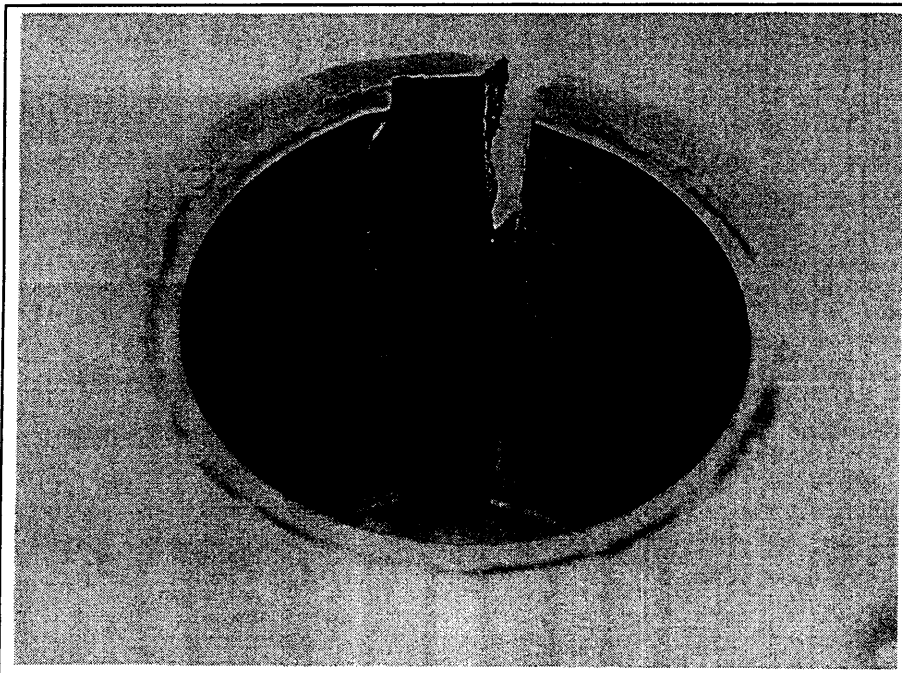
CLASSIFIEDS

The propeller hub was submitted the Canadian Transportation Safety Board for failure analysis. The analysis revealed the crack had developed from the corner of the keyway and weakened the assembly. The crack extend well beyond the split portion of the hub. The opposite corner of the keyway was also found cracked, but the crack had not propagated very deeply.

The crack had initiated in the inside corner of the keyway. The keyway had a very sharp radius, measured to be 0.003 in. Original manufacturer drawings were not available to deter-

It is recommended that anyone using the original Hapi Hub remove and inspect the keyway for signs of cracking. The preferred method would be Magnetic Particle Inspection (MPI) if you have access to a Non Destructive Testing facility. A good alternative is Liquid Penetrant Inspection (LPI). The crack initiates from the inside and by the time it is visible while installed its too late.

Ted Givins. PEng
C-GGEM



mine if the hub had been machined as specified. Examination by a scanning electron microscope confirmed that fatigue initiated along the corner of the keyway. Eventually, the advancing fatigue crack weakened the hub sufficiently to cause the split.

The hub material was found to be good quality steel containing 0.2% carbon and hardness was found to be uniform and equivalent to 81,000 psi ultimate tensile strength.

This propeller hub had approximately 350 hours at the time of the failure.

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Wanted: I'm looking for a new or used "new style" engine mount for the HAPI accessory case. Patrick Panzera. Phone number is: (209) 584-3306

For Sale: HAPI 1835 cc W/new float bowl carb (60 HP @3200 RPM), complete with motor mount & 56X28 wood prop w/flange.67 hrs recorded on engine log. Make an offer to Ron in Virginia 804 693 5186 or E-Mail phantom11@juno.com

For Sale: MKII D.F. airframe nearly compleat . Cleavland wheels and brakes, new HAPI 1835 with Tillison carb, HAPI triples Meleski wheel-pants, cowlings and canopy(not installed).some finishing done.aile-rons and elevators installed. Call for more info. Tom Sulas (714) 968-2094 \$8000 O.B.O.

For Sale: Prefab Dragonfly Kit - \$5,500.00. Fuselage assembled with tail fin, rudder, fire wall, motor mount angles, upper-lower seat back, inter-costal-tail bulkheads, fuel tank & consoles installed. Pre-cut canard and wing cores, fiberglass cloth,

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"THE CLASSIFIEDS" Continued

some carbon fiber, engine cowling, Mark I wheel pants, some hardware. Wayne Ulvestad, Volga, SD work (605) 627-9291 home (606) 627-5365

FOR SALE: Mark 11 Dragonfly, HAPI 82hp, Ellison Carb, Dual electronic, Steel legs, Cleveland's, Full Panel, Vacuum system, Engine driven fuel pump + Standby, Aux. fuel tank, King GPS + Radio + Transponder, Narco Nav/Com, CHT/ELT, Reflexors, and much more. A real <10>, Hangared East Coast, Foto cover newsletter 69, \$ 16,500, Phil Williams 2090 Joy Creek Lane, Henderson, Nevada 89012 (702) 269-5725

For Sale: Dragonfly Mark II, 128 TTSN, 20 STOH, 1835 HAPI engine, dual ignition, new carburetor, new tires, new brake and fuel lines, new automotive battery, micrometer throttle control, basic instruments plus portable nav/Com, no damage history, always Hangared. Rated a 9 in and out, \$12,500, (864) 458-1887 or (864) 942-0025 after 5:30 p.m. EST.

For Sale: Dragonfly Mark I, 68 HP Limbach engine with mechanical fuel pump, Sterba Prop, 4 gallon header tank, forward hinged canopy, Hurst/Airheart disk brakes, 5:00 X 6" tires, Whelan strobes, Escort Nav/Com, Loran, Elec. turn coordinator & R.O.C., True airspeed and chronometer. Will only sell to experienced DF pilot. Make reasonable offer and/or will consider for Ultralight, boat or travel trailer. Ron Price, Schaumburg, IL (847) 925-9251

For Sale 1991 Dragonfly Mark II, N64TM, VW 2165, 471 HRS TTAF, 014 HRS STOH, 3 blade Warp drive prop, Terra Com, Mode C, '94 Best Overall Dragonfly. Bill Masons' original DF \$16,500 OBO (or best offer) (512)-749-4230

Inboard Mark II "Hoop Style" Gear Plans - Full size hoop gear template drawings for making the mold and instructions on how to mount to the fuselage. \$14.00 (\$18.00 outside of U.S.) Mail your checks to: Bill Spornitz, 1112 East Layton Drive, Olathe, Kansas 66061-2936

Wanted: I'm looking for a pair of "un-used" Mark I wheel fairing halves from a Task Pre-fab kit. Also looking for a canard bottom fairing piece. Must be reasonably priced. Ask for Mark Carroll at (502) 759-3135 work or (502) 759-4740 home

Wanted: Your extra materials, looking for canopies, 5" carbon fiber (for spar caps), bi or uni cloth, blue foam, Instruments, etc. Spud (913) 764-5118

For Sale, Dragonfly Mark 1 kit w/HAPI 1835cc dual electronic ignition. many extras. Very close to completion. At least 85% More details available on-line at the Dragonfly web page. Call after 5:00 PM EST 207-324-6072 \$9,500.00

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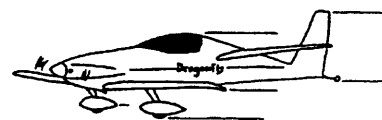
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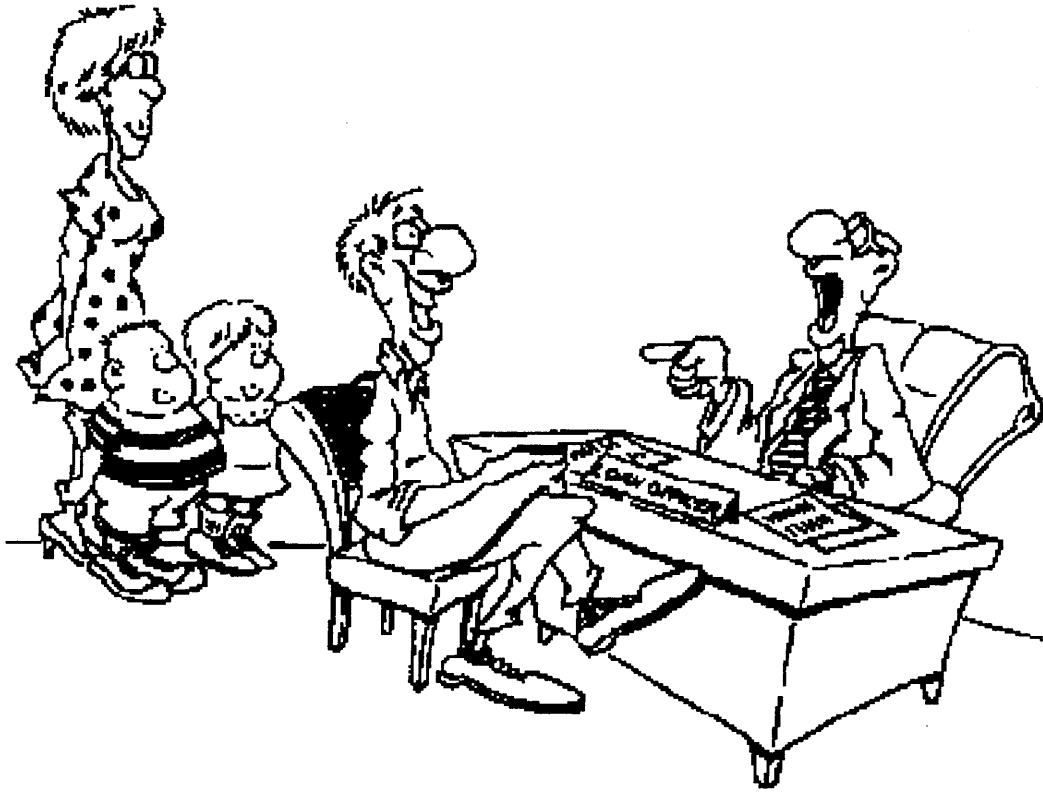
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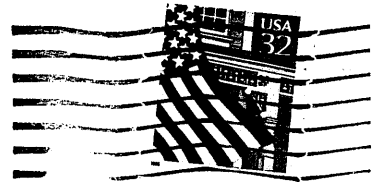
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