BUILDERS & FLYERS
GP4
NEWSLETTER

THE OFFICIAL VOICE OF GP-4 BUILDERS ALL OVER THE WORLD

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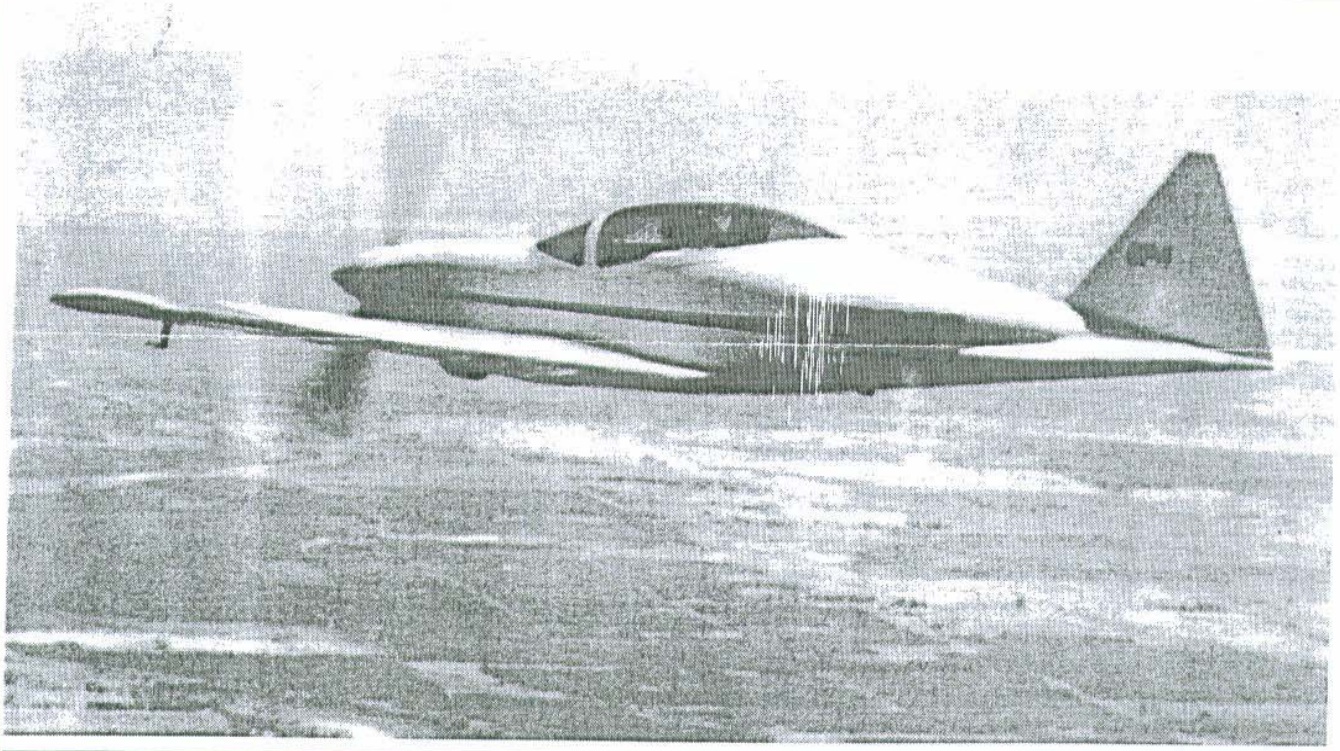


Jake Jackson of Rio Linda, CA out cruising in his GP-4

To follow is an excellent letter from one of our west coast GP-4 builders Mike Traud.

Greetings Spud and fellow GP-4 builders:

It appears that I am in the doghouse for not having contributed to this newsletter in a long time. It's true, I have been sadly remiss in contributing - career anomalies, family responsibilities, etc. have kept my mind away from the GP-4 community.

My project has been progressing, albeit somewhat slowly. The focus has been to get the hydraulic nose gear installed and working, along with the auxiliary fuel pump and associated plumbing for the fuel system.

Installation of the nose gear system has progressed smoothly; the most difficult aspect of this installation is finding a drill small enough to drill the various mounting holes perpendicular to the nose wheel tunnel walls. This gets to be a challenge because by the time you get the drill block in there, along with the drill,

there isn't much room left. (Keep in mind that the inside width of the nose wheel tunnel is only six (6) inches - not much room.)

George has designed a robust hydraulic retraction / extension system which works very well while allowing some flexibility in installation. Certain bearing blocks are designed to be moved for and aft as well as threaded rod ends on the retraction/extension fork so that proper alignment can be obtained. Once all the components are installed, adjustments can be made to ensure the system works properly. If you have decided to install the hydraulic gear in your GP-4, be sure to order the cylinder assembly ahead of time. It takes about four weeks to get a cylinder because each one is custom made for the GP- 4 application. Cylinders for the GP-4 hydraulic gear system are ordered from:

Mr. Don Austin
206 West College Avenue
Hartsville, SC 29550
(803) 332 0379

My auxiliary fuel pump and bypass design is exactly as described in the last newsletter (May/June 1997). I decided to use the Holley vane type pump (#12-802) with the Moroso spring (#65770) to bring the pressure up to approximately 19 psi. My decision to use the Holley pump was based on several conversations with Darry Capps (GP-4 serial #1) and George (the Prototype). The Holley pump is very similar to the Dukes pump in design, but significantly less expensive to procure and maintain. Also, the Holley pump has a much longer mean time between failure. Darry has had a Holley pump installed in his GP-4 since day one and it has worked beautifully. Keep in mind that if you decide to use the Dukes pump, there is an AD out on this unit which is very expensive to comply with. If you decide to go with the Holley system as described in the last newsletter, then you will have to design a mounting bracket/assembly in order to install the pump in such a manner so it can be easily removed for servicing and/or maintenance. Particular attention must be paid on this mounting bracket/assembly because you will need clearance for the bottom skin (1/16" mahogany ply). George and I came up with a design that involves a spruce "saddle" that the Holley pump sits in and a .050 4130 steel strap to secure the assembly. The strap will bolt to the saddle using two AN-3 bolts flexed into the saddle from the bottom and two MS20365 self locking nuts with AN-960-10 washers. Refer to the drawing for specific details on this mounting design.

Recently, I have received several telephone calls regarding the resin system I am using for my fuel tanks. This is an area of some controversy because the future composition of Avgas is unknown specifically the alcohol content. As you know, alcohol can deteriorate certain resin systems over time, which can result in unwanted leaks. And, in the GP-4, repairing a fuel tank leak can be a real pain in the butt. Given all this, I decided to conduct some research on resin systems and their compatibility with alcohol. What I found was that there are not many resin systems out there that are impervious to the effects of alcohol. I spoke with several technical reps at various resin manufactures and determined that the West Systems (Gougeon Bros..) Pro Set resin system was the way to go. Pro Set is a two stage cure system which is very similar to regular West Systems (105 resin/205, 206 hardner), but requires a second stage cure at elevated temperatures. The second stage cure is easily accomplished by putting the fuel tank in a black bag and putting the whole thing on your roof on a hot summer day. You can also second stage cure your tank in a hot garage or hangar. Anything over 100 degrees Fahrenheit should do the trick - the lower the temperature, the longer it takes to second stage cure. Give me a call if you want to discuss resin systems - as with most everything in a home built project, it largely boils down to personal preference....

I have enclosed some photos of Jake Jackson's (serial #2) beautiful GP-4. Jake recently upgraded his instrument panel to include the VMS-1000 graphic engine monitor. The VMS1000 really cleans up the panel and works very well, although it is not cheap (approximately $3000.00). VMS also makes a compatible capacitance type fuel monitoring system which works in conjunction with the graphic engine monitor.

That's it for now. Next issue I am hoping to have some detailed information on the new EXP electronic buss system for home built aircraft. This interesting device eliminates virtually all the circuit breakers in the aircraft and makes the task of designing and wiring the electrical system significantly easier, or so the manufacturer says.

Regards,
Mike Traud

Mike's second follow-up letter

Hello Spud and fellow GP-4 builders:

After I had sent Spud the original drawing for the Holley auxiliary fuel pump mounting saddle, I modified the design based on a suggestion from George. The saddle is essentially the same except that it is widened length wise to provide a larger footing for better weight distribution. Included in this letter is a full scale drawing showing the widened saddle for the aux pump. All of the details regarding the saddle are the same as in the first drawing, except for the larger footing. I have installed this saddle in my GP-4 and it works very well. Speaking of fuel have chosen to

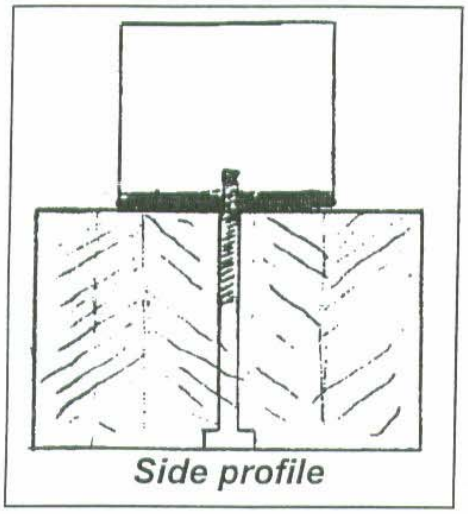
install the Fram FPG- 1 high performance fuel filter in my fuel system. (Actually,George told me to install it, so I am.) I had to make a special aluminum bracket (out of 6061 T6 extrusion which is 1 1/2" by 2 1/4" on the flanges) to install the filter because the one that came in the box was very heavy (chromed steel) and not quite large enough. The bracket is very easy to make and installs on the left side of the firewall below the upper hard point for the engine mount. I have enclosed a drawing from George which depicts the location of the fuel filter and related equipment. Given this location, the fuel line emerges form the firewall from the aux pump on the lower right side of the engine compartment, passes through the engine driven fuel pump, the fuel filter and then to the fuel servo.

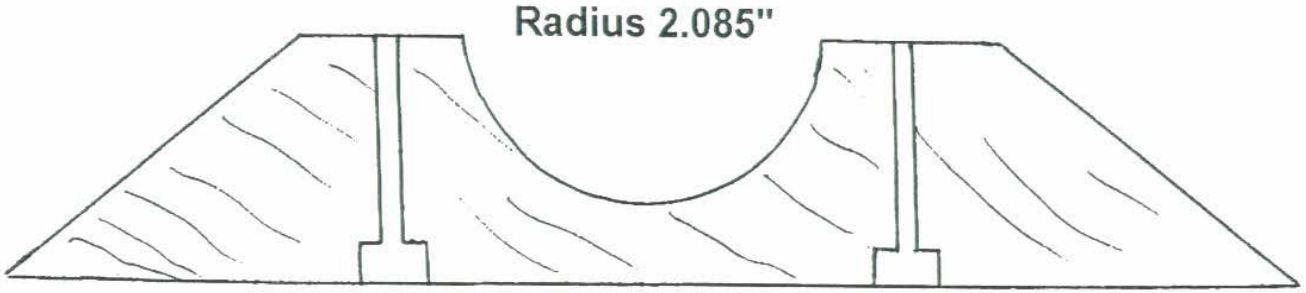
At the moment, I am nearing completion of the electric/hydraulic nose gear retraction/extension system installation in the nose wheel tunnel (that was a mouth full). It works very well and is a most ingenuous design. If you are installing this system in your aircraft, pay particular attention to the location of the hard points for all the various components involved. (These hard points are the 3/4" spruce uprights in the nose wheel tunnel walls which facilitate the AN hardware and bushings for the nose gear mechanism.) George has incorporated adjustable bearing blocks and threaded rod ends so that the system can be "tuned" for optimum operation. I have incorporated a small aluminum ramp on the hydraulic cylinder/cam juncture so that the 7/8" roller bearing can smoothly transition from the cylinder shaft to the cam. Please feel free to call me at (916) 6351147 (West Coast) to discuss the details of this system; I'd be happy to answer your questions.

Well that's it for now. I am going to try and get some photos to Spud showing the nose gear system installation for the next newsletter. A picture is defiantly worth a thousand words.

Regards,

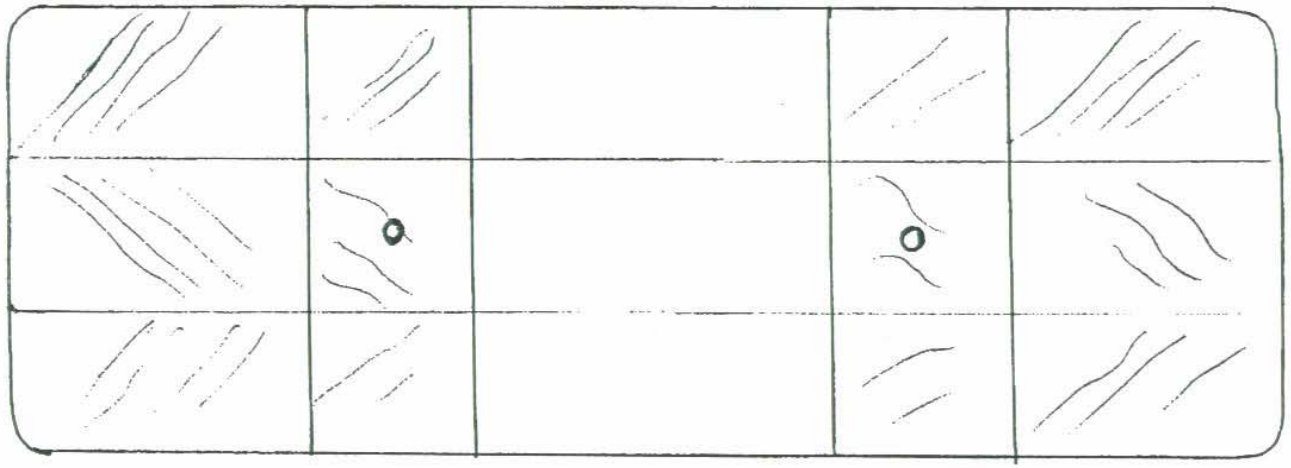
Mike Traud
Gold River Facility





Make a 4130 .050 steel strap with a 2.085 radius.

Flox AN-3 bolts floxed in from bottom and MS20365 self-locking nuts and AN 960-10 washers



Revised Aux. Fuel Pump mounting block, scale full

Multicom

Late, Late, Late....

I am really sorry gang for being so late with this issue. The last several month I've been on the road more than I have been home (This is tough on airplane building time too!). I think things will start to settle down here by the end of September and we can get back on track – Spud

Newsletter input reminder!

Come on guys lets have that information, short ones, long ones, just photo's whatever. Info can be on engines, wood, metal, etc., let's have it all. C. J. Reinhart of Texas who had an article in the last issue already has sent in another article and photos for the next issue. His articles are truly excellent, and your stories and article will be excellent also but we'll never know if you don't set down and put it together for the newsletter. Share with us what you've done and what you've learned.

Missed Oshkosh.....

This is the first Oshkosh that I have missed in 14 years and it was really tough to miss!!!! I'll be there next year for sure. I need some one to send in a summary on what they saw and heard at this years Oshkosh to share with the rest of the gang that couldn't make it either.

GEORGE'S CORNER

Fellow GP-4 builders:

By the time you read this Oshkosh will be over, but at this writing its August and convention time. When I can't attend I can only reflect on the 20 or 22 visits over the last 26 years. I miss the flight from California to Oshkosh. In the Osprey 2 it took 16 hours, always a challenge with a short range and lack of navigation instrumentation. The GP-4 opened up a whole new dimension. About half the time, 4 time's the range and Loran navigation. What a blast! I do miss not being there to see the new designs and old friends, but what I miss most of all is the opportunity to me with all you builders. Sharing your ideas and aspirations with some photo's of their progress. It's always a thrill for me to see my design being cloned in another workshop. Hopefully I will be able to do this Oshkosh trip again or at least get a representative to do it for me. I am working towards that end.

Fuselage formers: DWG. 4 & 5

Some have expressed problems fairing the fuselage formers. I suggest you glue the formers in place and run a temporary batten on the underside of the former to brace it for beveling. You can nail the battens to the underside of the formers. I used a 5 inch 80grit sanding disc in a variable speed drill motor to rough in the correct bevel. A full-length straight edge will give you the highs and lows. When you get close, use a long sanding board covered with 80-grit sandpaper. Most tool stores have rolls of sandpaper with adhesive back. The board should cover at least 3 formers in length or longer. Working your way fore and aft with very straight sanding board will fine-tune the bevel of each former. You can now remove the temporary brace battens and cut notches for the T and V battens. You should select a very straight 2" X 4" for a sanding board. If you're lucky enough to find aluminum I beam so much the better. The ends should have a slight radius for the sandpaper to roll up over the end. This allows the sanding board to bump over the formers should your fore and aft sanding stroke hit the next former.

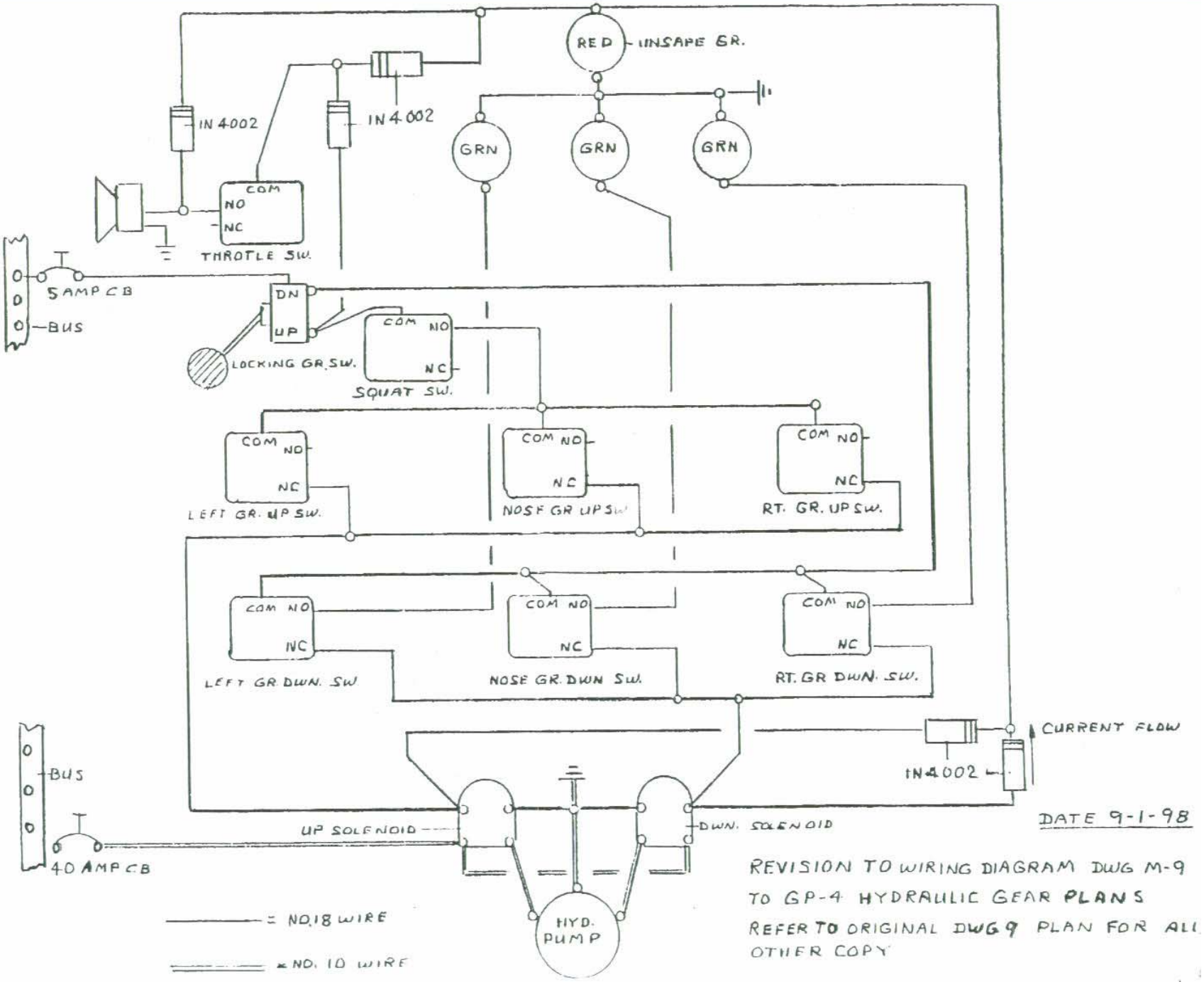
Dynafocal mounts: DWG. 54

The Lycoming IO-360 uses the large dynafocal biscuits. These help dampens out a lot of the vibrations of a large four banger, but unfortunately they will take a set and your engine sag after 25 to 50 hours. I suggest when you line up your cowl to the Hartzell spinner dome let the aft side of the spinner be about 1/8 inch higher than the cowl. After a few hours of operation the spinner will line up pretty close to the cowl. For future alignment problems, if you insert a 1/8" thick washer under the bottom engine mount between the engine flange and the dynafocal mount. This will raise the front of the engine about 3/16".

Wiring revision for hydraulic gear plans:

We have made some revisions to the electrical wiring that is used with the hydraulic gear system. You should find the diagram (on page 6)is self-explanatory.

Regards to all,
George Pereira



DATE 9-1-98

REVISION TO WIRING DIAGRAM DWG M-9 TO GP-4 HYDRAULIC GEAR PLANS

REFER TO ORIGINAL DWG 9 PLAN FOR ALL OTHER COPY

The Classifieds

For Sale: New Hydraulic Gear Plans Upgrade. Convert your GP-4 manual landing gear system to hydraulic - electric system. Complete with emergency back up system. (Note: System must be installed prior to wing skinning!, no retro-fits) Complete print package for $150.00 Mail your checks to: George Pereira 3741 El Ricon Way, Sacramento, California 95864 phone (916) 483-3004

For Sale: Pre-fabricated composite components for GP-4. Cowling , exhaust blisters, inlet ramps, tailcone . Complete four-piece package. Call or E-mail for current pricing. Shipment will be sent "Freight Collect" - Jake Jackson - Rio Linda, CA (916) 992-0608 E-mail J7200@aol.com

For Sale: Quality custom fabricated metal components for your GP-4. See GP4BFN issue #4 for complete component listings and pricing. Please allow generous time allowances for your orders. Darry Capps, 813 Hoyer Road, Newman, California (209) 862-2707

Back Issues: We have all of the GP-4 back issues (1996 and back) available for $3.00 each. Mail your checks to Bill Spornitz - 1112 East Layton Drive - Olathe, KS 6061-2936

Wanted: Looking for a GP-4 project that is "well under way" through "close to being finished". Will consider all projects. Contact me at (503) 646-5276 or by mail at Edward Mitchell, 13835 S.W. Devonshire, Beaverton, OR 97005

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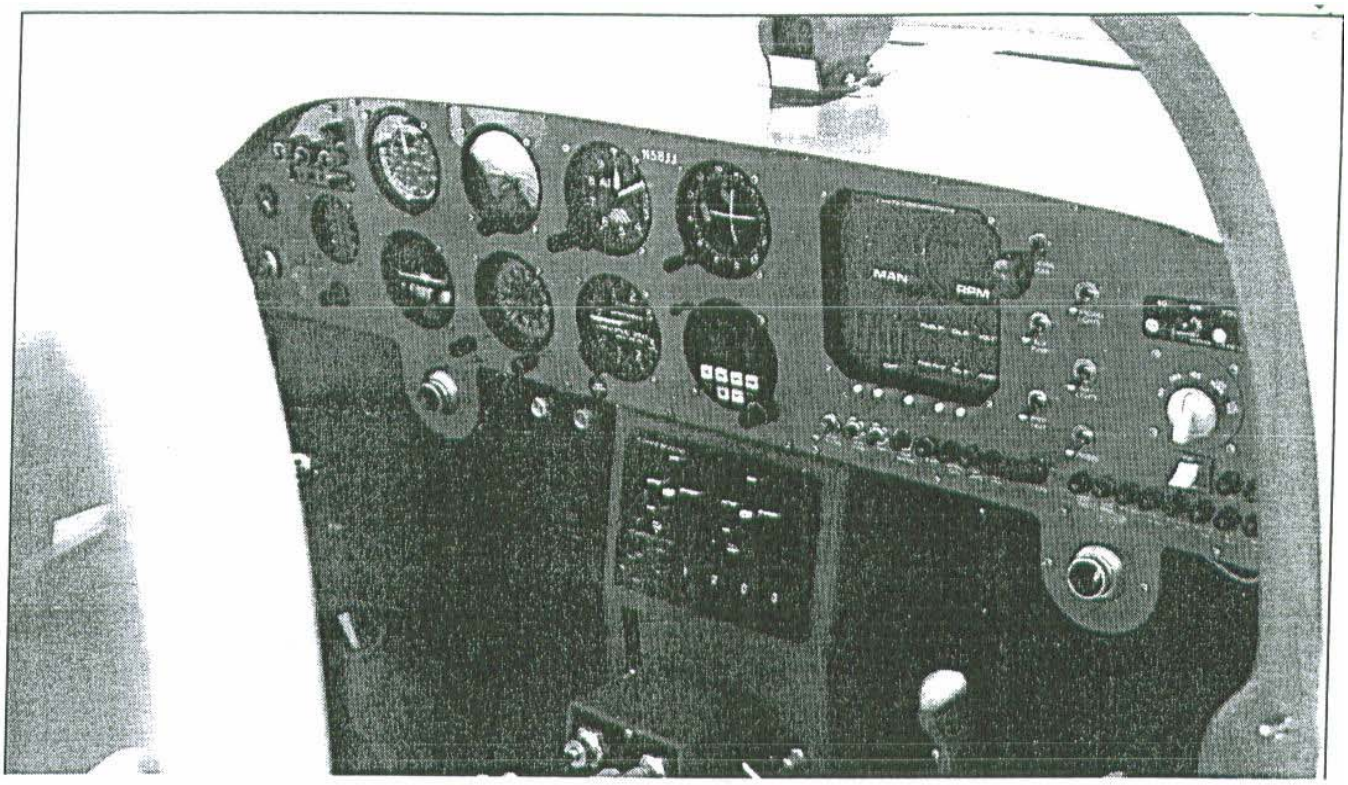

Jake Jackson's new instrument panel

1112 EAST LAYTON DRIVE
OLATHE, KANSAS 66061

NEWS FOR CRAFTSMEN OF FAST WOODEN AIRCRAFT!