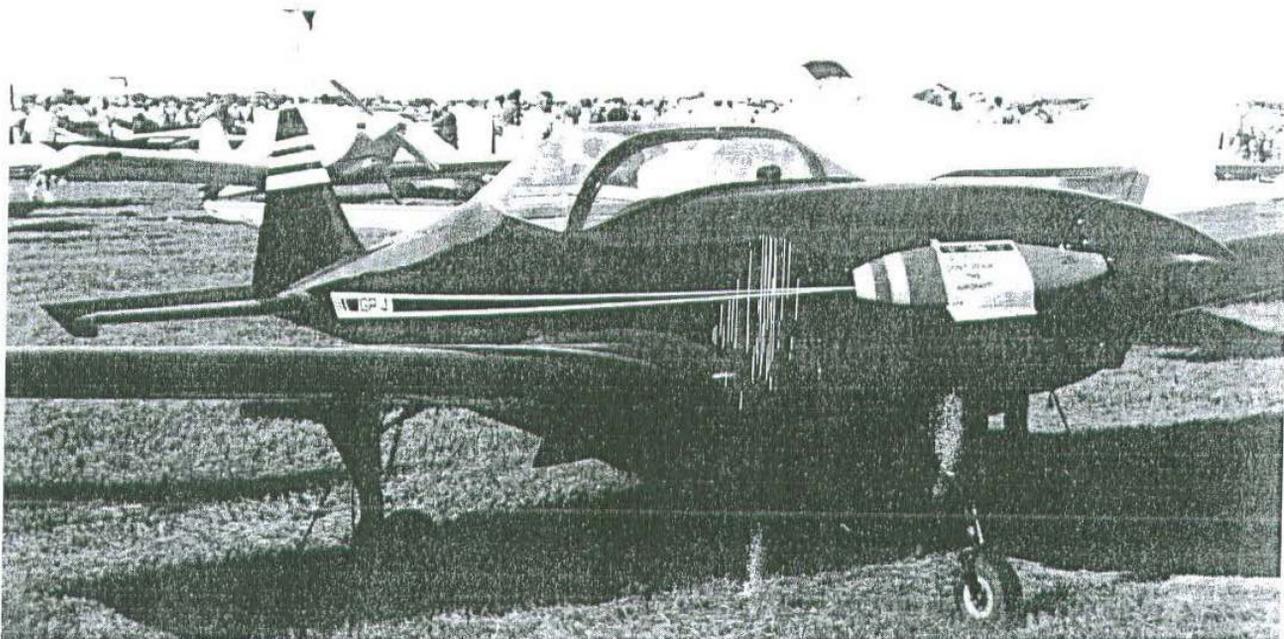




**THE OFFICAL VOICE OF GP-4 BUILDERS ALL OVER THE WORLD**

VOLUME 4

SEPTEMBER - OCTOBER 1995



## **GEORGE PEREIRA OF SACRAMENTO, CALIFORNIA ON THE FLIGHT LINE AT OSHKOSH 1995**

Fellow GP-4 Builders:

My wife Peggy said, "Why don't you make a list of builder problems when they call, then you can address them in the newsletter". Well I've been remiss with a list so must depend on my questionable memory for this issue.

I recently talked to a builder who was having a problem

fairing his wing ribs prior to covering.

First off our 63 series airfoil is a laminar flow wing section. Laminar wing sections are critical to shape and smoothness particularly in the first 30% to 35% of chord. Your painting expertise should take care of the smoothness part but preparing the ribs for shape so the ply will lay down properly is important to shape confirmation.

## Fairing the Ribs:

The wing should be braced when sanding pressure is applied to the ribs because the wing is somewhat flexible without the ply covering. Three or four blocks under the rear spar to your table will give the necessary support. A good sanding board is a 4" X 4" plank about 5 foot long. One side MUST be straight edged for gluing the 80 grit sandpaper to this edge. Four inch 80 grit sandpaper is available in rolls with an adhesive back at many tool stores.

The ribs must be sanded span wise. The plank is moved percentage wise with the wing chord of each rib. To do this you should divide the tip rib chord into fourths, make a mark then measure the butt ribs into fourths. Now snap a chalk line at each 1/4th mark. This will then divide each rib into 1/4th chord widths. Go back to each rib and mark on both sides of each rib at the 1/4th mark. Now you have a mark to drag the sanding plank span wise back and forth to level each rib as you move the plank not only span wise but chord wise as well.

The main spar has a slight crown chord wise. You should try to pre-shape this crown prior to gluing the ribs in place. You can't use a smoothing hand plane once the ribs are in place as you will chip the cap strips when the spar gets close to the rib cap. If you get the spar crown close to each rib height the sanding plank will take care of a small fairing discrepancy. If you use chord lines on all ribs and a span chord line along the spars you should not have much sanding to do. If you find a rib quite low for some reason you can laminate a thin strip on top of the rib, 1/2" wide then fair the rib to the correct shape and height. This same procedure is used on the tail feathers as well except you don't use the 4" X 4" sanding plank. Use a lighter, smaller sanding board.

Some builders questioned if the wing would twist the 1.5 degrees wash out once the wing is assembled. First, 1.5 degrees is not much wash out and it will twist that amount quite easily. It is important to set the 1.5 degrees prior to gluing on the wing skins. You set the 1.5 degrees twist, then glue on one side, then turn the wing over and re-set the 1.5 degree twist and glue on the pre-varnished skin. Once top and bottom are stapled in place this wing is extremely torsionally stiff and the wash out is set for life! There is no way to change the wing twist once the skins are glued to the spars and ribs so whatever you do, make both sides the same amount of wash out!!!

Some may question why the twist the wing at all? We do this so that the outboard section of the wing stalls after the inboard section has stalled as its at a lesser angle of attack due to the twist. Your ailerons are on the outboard section so you still have some aileron when the inboard section stalls. There is a small drag penalty in twisting the wing but 1.5 degrees isn't much consequently neither is the increase

in drag.

Ernie Holmes recently ordered a prop and spinner, so he may be getting close. Perhaps he will send Spud a progress report to share with the group.

Regards to All

George Pereira



Thanks George, Super letter!!!!!! I learn something new every time I talk to you or read one of your letters. Thanks for the help and a great design. -- Spud

## AN UPDATE FROM DARRY CAPPS

### ● Fabrication of metal parts for the GP-4

Hi Spud, and all you potential GP-4 pilots,

I guess it's about time I said a few words about my GP-4 experiences and the manufacturing of metal parts I am doing for these great wooden aircraft's.

When Gary Childs asked me about taking over the parts fabrication I had just retired after 25 years as a tool and die machinist with a food processing plant. I had just added more machines to my home shop. I had the experience of building an Osprey 2 and a GP-4 designed by George Pereira. I have flown the Osprey 2 for quite a few years and I'm currently flying my GP-4. I knew as much as anyone could what the parts fabrication entails.

So.....I took several deep breathes, talked it over with my wife Sheran, my tax man, my former shop foreman and friend of 25 years and decided "I'll do it". The mix of taking a few orders for the airplane parts and doing machine work for my former employee in my own shop is keeping my SEMI-RETIRED days full.

Spud has included a current price sheet in this issue on pages 5 and 6. Those wanting a fabrication list for the Osprey 2 can write for that list. (Name, address, phone at the end of this article).

### ● Flying the GP-4 and the Osprey 2

The 1995 race to Oshkosh was my second attempt to

prove the GP-4 could match the competition. I was so sure after making several cross country trips that this fine craft was ready to meet the challenge. I was sure after making some calculations of fuel consumption, figuring winds a loft tactics, altitudes, etc, etc. Knowing my own GP-4 and its performance, my chance of winning was as good as anyone's to bring home the cash and trophy. Even with the unexpected complications - (in the air and on the ground). The results...., I did win the Corinthian Class race during this years Denver to Oshkosh race. Thanks to George you all read about my experiences in the last GP-4 newsletter. And hey, It was also great to get those kind words about my fabrication work from John Reinhardt (Texas GP-4 builder).

One last thing I should share with you GP-4 (and Osprey 2) builders is that my wife really enjoys flying everywhere and can verify to your wives and girlfriends the hours spent flying are worth the wait while you are spending all (her lonely hours) the time building.

We have been to Sun N' Fun - California to Florida in aprox. 11 1/2 hours flying time. Oshkosh, Evergreen, Washington. Copperstate in Arizona and many fly-ins in California. Best of all we stop over to visit friends and relatives along the way on these trips. Best of all is meeting the people at all of these events from all over the USA and many other countries from around the world.

Since we have started doing the steel fabrication for the GP-4 we have communicated with people from all parts of the world. The letters and phone calls keep on coming! The GP-4 "Family" is growing and builders all over the planet seem to be making very good progress on their planes.

I have my plane apart now at my home shop and have built a new instrument panel, did some re-arranging for ease of reading most used instruments. I'll keep everyone posted here on how it turns out and send in a photo or two. I'm also repairing and repainting after flying my red bird for over 6 years. After doing some minor cosmetic repairs and repainting we'll be back in the air. I'm already looking forward to meeting a lot of you at the flying events in 1996. Anxiously looking forward to new adventures and flying far and often in the fantastic GP-4!

Darry and Sheran Capps  
813 Hoyer Road  
Newman, California 95360  
(209) 862-2707

## ● Communicating with us..... Or just how to get your stuff in!

I've talked to a lot of you folks about getting your info into the newsletter. Most of you are concerned on how to get your info. Some of you say you don't have computers or typewriters, you don't need all that stuff! All you have to have is a pen and paper. Just jot down your ideas and thoughts and I'll take it from there. A lot of you are concerned about your hand writing and think I won't be able to read it. Don't worry, if I can't read it Kris (My wife) can. Kris is a nurse at one of the local hospitals and she's been reading Doctors handwriting for 15 years. She can read anything! Then some worry about grammar and punctuation again don't worry about. There is a possibility that I'd screw it up if you had it right. We're not trying to win the Pulitzer Prize in Literature, we're just trying to share information and build a bunch of airplanes.

Some of you have sent in stories and information on disk. This is great as it saves me the time of retyping. If you have those resources available it's great that you send in on 3.5" disk HD.

Also don't forget those pictures and lots of them!

## ● A New Builder Joins Us

Thanx for sending the last 3 issues of GP4BFN - you're doing a great job. Since you are requesting info on expertise worth noting, I thought I would respond with a few weird things in my past. I am a former owner and VP of a company that made autoclave dies for aircraft parts out of Portland cement (the stuff out there on the road). As example, we made a number of such dies for the B1B and other dies for Boeing. Other stuff of lesser importance is the 21 foot sailboat and 50 foot twin - masted yacht my wife and I built - shows how nuts people can get. Education includes graduate degrees in engineering and physics - mostly in the material sciences. GP4 is my first airplane project.

John Satkowski  
St. Petersburg, Florida

I just got my first 3 newsletters. I have my table built and my fuselage side plan laid out. I just got my first order of wood in from Wicks and I'm eager to get going. However...I'm certainly shy about making that first cut in the spruce. I only bought as much wood as I can afford, so one wrong cut may set me back. I wish I could have purchased all the plywood at once, but there just wasn't enough cash in the



piggy bank. I am a very much first time builder. Maybe this project is way more than I can handle, (*Come on now! Your attitude will control your Altitude! - Spud*) but hopefully with this network and George it may make it a little easier.

Something about me. I am a veterinarian at Louisiana State University. I do strictly reproduction in domestic animals (cows, horses, dogs, cats). Why am I building (trying to build, hoping to build, starting to build)? I have been flying for 10 years and the expense just gets worse. I have 2 children who I want to get involved in the building too. I have enjoyed even building the table and laying out the plans thus far (*This is a good sign!*)

**Tips from a rookie....**I did not have 24 feet for a proper table, so I made one 16 feet long and tapered one end down so I could get around it (I have limited space in a one car garage...boat port in the south). This may turn out to haunt me, but I needed to get going. I figure I should be able to complete the fuselage in the space I have. If so, I'll surely be able to wrangle someplace for the wings. Hopefully this could help someone with limited space get started. I'll keep in touch and tell you if it backfires in the near future.

In the meantime, any helpful hints to get me started...like not cutting that 10 footer into tw 5 footers and needing to order another 10 feet. Or gluing a panel in place only to find out that you needed to glue another one in first.

I'm willing to share my mistakes if others will share their hints and mistakes with me. (*That the idea!*)

Bruce Eilts



P.S. more below.....

### ● A question for George Pereira on cutting.....

I received my wood for the fuselage from Wicks. It is all 3/4" x 3" wide. My question is, when I rip to width, can I rip a 3" into a 1 and 2" and have each of them actually 1/16-1/8" sma7/8" due to the cut. If I do "true" each piece to width, will I have enough wood as suggested in the builder's manual. Thanks for your help.

*George will answer this question in the next issue.*

Dr. Bruce Eilts  
Louisiana State University, Baton Rouge , LA

### ● Another question for George.....

I ordered all my wood from Wicks Aircraft. Their material

list was the same as George's except for the canopy bow there's none on Wicks list. My question is the cutting of spruce for the fuselage which is all 3/4" thick. The taper longerons have to come out of the of the 3"X10' length because they are more than eight feet long. The forward part of the top longerons have come out of the 3"X10' because that is the only thing left since there is no canopy bows. Then all the upright except the 3/4"X3/4" all come from the 3"X8'. The No 0 bottom former come from the 6"X8' , because it is five inches wide. Are my assumptions correct?

If you have any information on this please let me know. I would hate to cut the wrong piece of spruce. There isn't a layout like there is for the skin. That also brings up another question. The formers for the fuselage come from the 1/2" Mahogany plywood but there is nothing that says which way the grain goes, I assume the grain goes across the former or parallel to the ground. If you or anyone just completed cutting the fuselage I would appreciate this information. I haven't received a newsletter for a while or has it been a while since the last issue.

Sincerely,  
Sid Mann - Plan #222

### ● Metal Bending Help and Kudo's

I have a question and comments for the newsletter. I want to know if anyone out there has a way to bend the front nose gear tubes - the horseshoe shaped, doubled tubes which hold the nose wheel. I would be glad to supply the tubes and pay for the bending as I end up with flat spots at my bends.

The wood work on this plane goes well with me and is not near as time consuming as the metal work has been.

I have flown in Mr. Pereira's GP-4 before I left California. -- IT IS FAST - compared to the 172's I teach in, well ....they both fly, but one REALLY FLYS!  
Thanks for a fine newsletter.

Larry Boggan  
Colorado Springs, Colorado

### ● Sorry For The Delay.....

I am sorry for the delay with this issue. It should of been out approx. around the 1st of October. My youngest son was in the hospital. He was shot in the back over a high school football game of all things. As you can imagine it really threw mom and dad for a loop. He's home and going thru therapy.  
- Spud



# GP-4

GP-4 Builders:

We are fabricating the following components for your GP-4 project. If there are other parts you are having trouble with, please give me a call, maybe I can help.

## GP-4 Price List

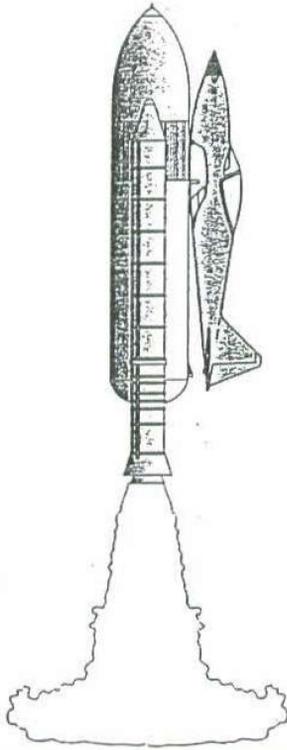
<u>Part No.</u>	<u>DWG</u>	<u>Description</u>	<u>Total</u>
GP4-07-01	7,8	Rudder Pedal and Brake Pedal Assembly <i>Does not include brake cylinder or center mount bracket</i>	530.00
GP4-09-01	9	Sta 78, Control Clevis Idler Arm	44.00
GP4-09-02	9	Sta 132, Control Clevis Idler Arm	44.00
GP4-09-03	9	Engine Mount Brackets (4)	170.00
GP4-12-01	12	Elevator Torque Tube Assembly	165.00
GP4-27-01	27	Left Flap Bell Crank Assembly	167.50
GP4-27-02	27	Right Flap Bell Crank Assembly	167.50
GP4-27-03	27	Left Aileron Mass Balance	48.50
GP4-27-04	27	Right Aileron Mass Balance	48.50
GP4-28-01	28	Landing Gear Retract Bearing Bracket	22.50
GP4-28-02	28	Retract handle Pillow Block (2)	42.50
GP4-28-03	28	Control Stick Pillow Block (2)	42.50
GP4-28-05	28	Pillow Block Plate	27.50
GP4-28-06	28	Spar Plate	17.50
GP4-28-07	28	Walking Beam, Bushing & Brass Plug	167.50
GP4-29-01	29	Pillow Block Plate Flange	13.00
GP4-30-01	30	Control Stick Assembly	175.00
GP4-30-02	30	Control Mount Bar with welded brackets <i>Includes pillow block bracket dwg 28</i>	67.50
GP4-30-03	30	Left Aileron Bell Crank Assembly	74.50
GP4-30-04	30	Right Aileron Bell Crank Assembly	74.50
GP4-31-01	31	Landing Gear Retract Handle Assembly	250.00
GP4-32-01	32	Left Landing Gear Truss & Idler Arm Bracket	67.50
GP4-32-02	32	Right Landing Gear Truss & Idler Arm Bracket	67.50
GP4-32-03	32	Aileron Idler Arm (2)	63.00
GP4-32-04	32	Outboard Seat Rail Brackets	10.50

GP4-32-05	32	Left Aft Landing Gear Socket and Plate	95.00
GP4-32-06	32	Right Aft Landing Gear Socket and Plate	95.00
GP4-32-07	32	Rear Lnd Gear Truss Clevis (2)	21.00
GP4-32-08	32	Pulley Clevis (4)	20.50
GP4-33-01	33,34	Left Main Landing Gear	1337.50
		<i>Does not include wheel, tires, brakes or springs</i>	
GP4-33-02	33,34	Right Main Landing Gear	1337.50
		<i>Does not include wheel, tires, brakes or springs</i>	
GP4-35-01	35	Left Retracting Link	147.50
GP4-35-02	35	Right Retracting Link	147.50
GP4-36-01	36	Left Retracting Link Spider	207.50
GP4-36-02	36	Right Retracting Link Spider	207.50
GP4-36-03	36	Left Forward Main Gear Bearing Block	92.00
GP4-36-04	36	Right Forward Main Gear Bearing Block	92.00
GP4-37-01	37	Left Uplock Bar & Clamp	32.50
GP4-37-02	37	Right Uplock Bar & Clamp	32.50
GP4-37-03	37	Left Pivot Link	21.00
GP4-37-04	37	Right Pivot Link	21.00
GP4-50-01	50,52	Nose Gear Strut & Steering Assembly	1800.00
		<i>Does not include wheel, tire, brake or Nose Gear Truss (Nose Gear Truss must be made with the engine mount)</i>	
GP4-54-01	54	Motor Mounts <i>includes pivot truss</i>	1500.00
GP4-56-01	49,56	Nose Gear Retract Bell Crank & Bracket	155.00

TOTAL

\$9,930.00

- The above parts do not include AN bolts or fittings
- All 4130 steel parts will be Heliarc welded and primed with Epoxy paint
- A 50% deposit will be required on all orders
- Customers to pay all shipping charges
- Prices subject to change without notice
- All orders subject to CA sales tax



## THE CLASSIFIEDS

**For Sale:** INSTRUMENT PANEL LAYOUT STICKERS- Trying to lay out your instrument panel and you've forgotten which circle is which? Here's what you need!! A packet of 10 pages of full size photo-repro's of instruments, gauges, switches, etc. Just peel them off and stick them to a mockup of the panel or on the instrument panel itself. A good way to fly the instruments before the plane is finished. Send \$20.00+\$2.50 S/H to Houde Enterprises, 12573 U.S. HWY 26, Riverton, WY 82501 <55-61>

**For Sale:** Pre-fabricated composite components for GP-4. Cowling - \$700.00, exhaust blisters - \$100.00, inlet ramps - \$100.00, tailcone - \$100.00. All four peices for \$925.00. Jake Jackson - Rio Linda, CA (916) 992-0608

**For Sale:** Elevator torque tube as per DWG 12 and rudder pedals and clivis arms per DWG 7 \$150.00 Don Milker, Port Ludlow, Washington (360)437-9331



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Tell someone that  
there are  
300 billion stars in  
the universe and he  
will believe you.

However,  
tell him that  
something has  
wet paint on it  
and he will have to  
touch it to be sure.



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