Pazmany Newsletter Number 69 Aircraft Designer: Ladislao Pazmany PO Box 80051 San Diego, CA



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Greetings from your new Pazmany Newsletter Editor, Jack McCombs. You old hands may notice a slightly different type face, since you now have a new editor (and typewriter). Let me say that I hope I can do somewhere near as fine a job as Dave Panton, my predicessor at this job, did. You may recall Dave's plea for help in the last issue he put out, and PL-2 enthusiast that I am, I wrote to let him know that he had a willing volunteer. The only willing volunteer, apparently! I am looking forward to this new task, however, and I apologize for taking so long after Dave forwarded materials and mailing list to me to get my first issue cranked out.

I plead several excuses, none of which really count for anything, but I was counting on putting out my first (and subsequent) issues on a word processor rather than a typewriter. What with finding that it didn't work when it arrived, sending it back, receiving it again to find the case on the monitor cracked, etc., well, time to buckle down to the typewriter and get a newsletter out in any case, rather than waiting until all the fancy gear has arrived and is working to do it the easy way. Come to think of it, the way it has gone so far, maybe the old typewriter is the easy way.

At the time I took on this assignment I was also, as the expression goes, "between jobs," which left me with much more time than I now have. Of course one allows for such distractions to one's spare time as making a living, but my new job is somewhat more demanding of my time than most - you see, I now work for the FAA. After the Convention (July 28-Aug. 4) things will settle down a bit more and I expect to be able to stick to a somewhat steady schedule.

In fact, this seems to be a good place to list prices/policies/etc. as your new newsletter editor. First of all, the original intent was for the newsletter to be a quarterly publication, and I intend to stick to at least that schedule. If I get sufficient input I'll expand on that schedule. I would really like to be able to turn out an issue every two months, but it all depends on contributions from you people out there. In any case, I plan on doing enough with my own TL-2 to be able to crank out a few pages every few months, but that makes for a pretty dull newsletter. If you want to read about other aircraft besides mine, drop me a line and I'll write it up for the newsletter.

As far as rates go, since the publication schedule is rather loose - the only promise being my intent to get out at least four issues a year - I cannot set a rate based on time. So I'll continue with our previous editor's policy of charging per issue. And I will keep the SAME RATE. NO price increase! How's that for a deal? Anyway, if you send in your \$5, or  $\frac{810}{510}$ , or whatever, you will receive that many issues. And for you people with subscriptions paid through a certain number of future issues, relax. Dave sent all the money from his news-

Dear "Paz" - Received your letter of Apr. 14 - sorry it took so long to get this issue out.

Ratestete. are listed above - \$1.00 per issue, same as before. This one is "on the house-"

I wanted to drop you a line anyway. When Dave turned this over to me he commented

that you might be able to provide me with some info. on your other PL designs - PL56.

Hope you can help me out on this -it would be great material For the newsletter.

I'll be working as a docent in the museum during the EAA convention-all day, every day. If you find the time to come to OSH, please look me up, at the museum or home

letter account to me along with letters from subscribers, back issues, etc. So all you old subscribers will continue to receive the number of issues you originally paid Dave for. The subscription rate may go up in the future (doesn't everything?), but I don't anticipate this happening for a long, long time. I would guess that postal costs will have to double before that happens, and that's a long ways in the future - I hope. Meanwhile, for those of you who are owed some number of subscriptions, even if I did raise rates, I will continue to send out the number of issues you originally paid for. But don't worry about any of this happening for a long time to come.

Back issues: Dave sent me copies of all the older PL newsletters he had when he turned all this over to me, but that doesn't go back all that far - only through issue #62 (Summer, 1979). As for myself, I'm interested in having copies of as many back issues as possible, and I'd really appreciate it if any of you out there have older newsletter issues you'd be willing to copy and pass along. I'll take care of copying/mailing expenses, of course. In fact, I am willing to act as a clearing house, so to speak, to pass along whatever back issues I can to those who would like copies; same rate, \$1.00 per issue. But I say again that I only have back issues available through #62 at the moment; if that changes, I'll let you know in subsequent newsletters. But one thing for sure: I'll continue to make copies of the older issues I have available for as long as I am newsletter editor; I'll make sure I don't mail off the last copy of anything I have:

One other thing I want to point out as far as policies go is that the title of this publication is the "Pasmany Newsletter." Note that it is NOT limited only to the PL-1/2 series. For you PL-4 (or whatever) builders/pilots/fams, I am not planning to discriminate against you, but I will need some input on designs other than the PL-1 and 2 in order to write anything else up. You have a PL-2 owner as a newsletter editor, so that's what you can plan on reading about unless I get some input on some of Pas's other excellent designs.

Hopefully this newsletter will also serve as a forum to answer some of your questions also, and for builders' hints, etc. Now, here I am handicapped in that I didn't build my PL-2; I bought it from the family of the original builder, now deceased. However, I have been throughout practically the entire aircraft on many occasions, readying it for annual inspection, making improvemnts, etc., so I am pretty familiar with the aircraft. This doesn't make me a construction expert, however, so I will have to rely on some of you out there to help other less experienced builders along through this newsletter.

Meanwhile, here are some of the things I've done on our own PL-2, serial #113, N75PL (you get one guess as to which year it was completed). One of the first things I did was to remove the old vacuum operated turn and bank and install an electric T&B indicator. The original builder did not plan to do any IFR work with the aircraft, and I still don't have sufficient radio gear in the airclane to think seriously about it, but for those of you who are planning your panels right now, for gosh sakes, you've spent all that time and money on this project don't try to economize with a bunch of WIII era instruments: For only a couple hundred bucks more you can install a modern, standard panel, one that matches the capabilities of the aircraft. But whatever you do, DON'T put all your eggs in one basket, so to speak, in ANY subassembly/system/whatever, by relying on

only one principle of operation. Obviously this rule is inevitably broken, as with any single engine airplane, but any sensible designer/builder tries to keep such instances to a minimum. What I'm getting at in this case is that it makes no sense whatsoever to install gyro instruments which all rely on the same power source. If you're going to install a full gyro panel, also install a vacuum and an electrical system for the instruments. I have had both electrical and vacuum system failures in various aircraft I've flown over the years, but never (so far!) at the same time. I haven't heard of a PL-2 yet without an electrical system, so you have half of the systems you need right there for your gyros. The vacuum system is relatively simple (well, as aircraft systems go, anyway) if you have a pad on the engine to drive a vacuum pump. I'm not insisting that all PL's should be equipped for IFR, but I am saying that if you plan to go so far as to install a full panel, go a little farther and make sure you have both electrical and vacuum power sources for the instruments. Besides, some FAA inspectors get picky, and before authorizing IFR in your shiny new PL-2 they very well might insist on two power sources for the gyros, just like on all those inferior airplanes they build at Cessna/Piper/etc.

Shortly after modernizing the panel, I picked up a couple real, genuine aircraft seats from a recently deceased Grumman American Trainer. These seats look like they were made for the PL-2: My wife and I are rather short (about 5.6" and 5.7") and the aircraft as we originally purchased it had only some large foam cushions made to fit in the well behind the main spar carrythrough in the cockpit. Oh, they were upholstered and matched the rest of the interior and were very pretty to look at, but have you ever sat on 8-10" of foam rubber? You sink down, and down, and down until the foam has compressed to about one inch thick, and in the PL-2 it was like sitting in a hole. For those of you who have easily removeable seats or haven't gotten that far in construction, try sitting in the cockpit with maybe an inch of padding under you and you'll see what I mean. The Grumman seats are much firmer, which we don't really mind, but mainly they cause you to sit up quite a bit higher - so high that a person over about 5'10" would probably be uncomfortable in our aircraft with the canopy closed. For my wife and I, though, it fits just fine, thank you. In fact, we both fit just fine even with a couple of rather big military surplus chutes on for aerobatics, if we slide the seats all the way back. The limiting factor is the height, and I imagine someone could come up with a neater installation than mine if he were starting from scratch with it, rather than adding to a completed aircraft.

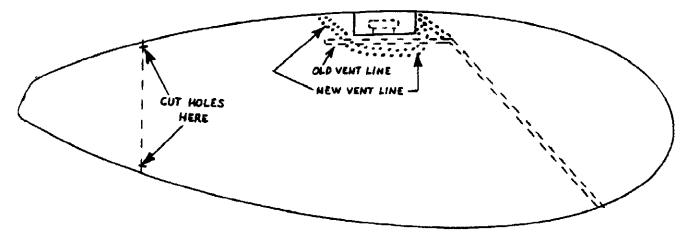
And right now I have to admit that our M.-2 is not airworthy. Being as how all the fuel is in the tip tanks, its range is severely limited since I removed the tanks for overhaul. It seems that over the past couple years, the fuel guages have gotten less and less reliable, until such time as they would no longer pass an annual inspection. Aside from that, there was evidence of seepage around the rivet heads holding the tank halves together, as well as around the overflow vents. This was causing problems with the paint, naturally, and after sitting out in the weather for all its life with nothing but a canopy cover the paint was pretty badly weathered. Time to pull both tanks and go to town on them. First of all, the fuel guage system was the late Ken Arnold's design, and completely different than anything I've ever seen before. And I've been through a lot of fuel systems, both on airplanes and cars. Please don't misunderstand me; the Arnold system was a good one while it lasted. But everything wears out

eventually, and with Ken Armold gone there didn't seem to be any way to determine anything about electrical values and etc. concerning these guages, as well as the sending units in the tanks. So I decided to install something that has been around for years and will likely be built for many more to come, that is easy to find information on, and relatively cheap. I purchased a couple new fuel guages and sending units from Stewart-Warner through a local auto parts shop. These sending units are designed to be installed through the top of the tank rather than on a bulkhead in the tank, but all that is necessary to make them work in a PL-2 installation is to bend the float wire 900. Of course, you'll also have to adjust the length of the float wire for the depth of the tank, but that's true in any tank installation; these are generic guages, not manufactured for any one specific application. If you're like me, and adding these to tanks which had a different system in them, you'll undoubtedly find that the mounting holes don't match and will have to fabricate some sort of adapter plate, but that's no big thing. In any case, make sure that the sending units in the tank and the guages in the panel are compatible with each other; this is the biggest reason for my getting the whole works at the same time from the same catalog and supplier. Incidentally, the part numbers are 385-B and 385-C for the sending units in the tanks (one is left hand and one is right hand - that's why the two different letters) and 284-M for the guages. Actually, there are several different models of guage which will work with these sending units, depending on internal lighting, chrome bezel around the face, etc., etc. And no, I don't know how well these will work out in an aircraft installation. But they are approximately the same weight (within a few ounces) as the old components and have been installed in a goodly number of other types of vehicles over the years, and I would be surprised if there are none in homebuilt aircraft out there somewhere. I understand that the reason Mr. Arnold came up with his system was that the originally recommended system (late '50's Ford, as I recall) seemed to be a bit erratic in turbulence, different pitch attitudes, etc. This system may very well end up to be the same. However, my rationale is that one should never put oneself into a spot where he is relying on his fuel guages, which is why I went ahead and flew the airplane anyway with known problems in the old system - until it just didn't work at all any more. So readings of + some large percentage of tank capacity (say, 10-20%) don't particularly worry me, as long as they're consistent in any given attitude and fuel level. I wouldn't expect turbulence to effect them too much; after all, most cars don't have guages which fluctuate wildly going over bumps, potholes, etc. Believe me, here in Oshkosh we have plenty of opportunity to porve that point! Anyway, I'll let you know how all this comes out in a future newsletter. And by the way, if any of you out there have information on the Arnold fuel guage system and/or have successfully repaired glitches in that system, please let me know so I can pass it along to others who might be in need of such info. Thanks.

As long as I was gutting those two big fiberglass fish, I decided also to enlarge their capacity a bit. The tanks on my PL-2 were built from a kit by Homebuilders Aircraft Associates, according to the tank assembly instructions I received with the plans when I purchased the aircraft. Believe it or not, with these particular tanks it is possible to enlarge their capacity by approximately 20% with NO external modifications. First of all, the tail cone on these tanks is only there for streamlining; it serves no other function and carries no fuel. Or at least, mine didn't used to; they will now. I don't know about other tank kits which may be available, but this is the case with the tanks on my PL-2. The shell for

the tailcone is thinner (fewer glass plies) than the rest of the tank, but considering the limited capacity of the tailcone volume (I don't know precisely, but on the order of 12 U.S. Gallons) the additional weight is not enough to damage the tank, even at 6g. I suspended over twice that 6g load from the tailcone of the tank while it was on the aircraft (hung from it myself) and there was no damage. For those of you who are thinking of modifying existing tanks, as I did, believe me, the easiest method of cutting through that rear tank bulkhead into the tailcone is to do it from outside, rather than trying flexible shafts, drill extensions, etc. Besides, even if you do find a combination that works, you'll likely accidentally drill through the outside wall of the tank anyway. Guess how I found out. Having worked with fiberglass before, this is no big deal; any of you who have already completed your tanks will find this to be a minor modification compared to building the tanks in the first place. Just cut through the top and bottom (remember, you won't be able to fill that section unless the fuel can flow in and the air can flow out) of the outer shell where the tailcone bulkhead is installed. I used a 5" drill, and enlarged the cut in the bulkhead with various combinations of knives, rattail files, grinding bits, etc. Once you have holes through that bulkhead which will allow fuel to flow, bevel down the multiple layers of glass around the holes you made in the tank shells and lay up at least two plies of glass over the holes. After this cures, you can fill any remaining slight depressions with a micro/epoxy mix and sand smooth. It really is about as easy as the description indicates.

But this doesn't give me my 20% increase - where's the rest of it? Well, again, I can't speak for others, but on my tanks the overflow vent was located rather low in the tanks. I couldn't fill my tanks to within an inch of the filler neck without fuel spilling out the overflow. As long as I was inside the tanks anyway I modified the overflow vent lines a bit. There is a fair amount of volume in the space both forward and to the rear of the filler neck, and if one has to stop filling his tanks an inch or more below the base of the filler neck, one loses probably a gallon or so of capacity. I cut the existing vent tube and bent the end so it now is positioned up in the highest portion of the tankforward of the filler neck. However, it is also necessary to vent the rear portion too. This entailed another section of vent line from the rear area to the front area. Now I should be able to fill both tanks right up to the lip of the filler neck without having them dump fuel out the vent or bubbling it back in my face. As I said, I haven't tried these ideas out yet, but they should work (he said hopefully). Since one picture is worth ten thousand words, see sketch below:



NOTE: Absolutely none of this is to scale. And to think I used to be a draftsman! Oh, well, that's what happens when you don't practice.

While I was at it, I also faired in the edge of the position light lenses on the nose of each tank. They had originally been installed with an overlap fit, and that offended my esthetic senses. So I built up around the lens edges with micro/epoxy and sanded it down to fair in the lens edges with the rest of the tank. I also countersunk the holes in the lenses (careful when working with plexiglass!) and will install flush, stainless screws after painting. These little refinements should show me a speed increase of at least .003 mph. But like I said, I did it because it looks better.

After all this work on the tanks, I flushed them out with MEK and used a Randolph tank sealant in them. One quart can is enough for at least two coats in two PL-2 tanks. This should stop the problem of the seepage at the rivet heads and vent tube outlets. Hopefully real soon I can get them painted. Just primer for now, until I get around to getting the rest of the airplane painted - when I find a hangar for it. Finding a primer that would be (1) fairly weatherproof, (2) fuel proof, and (3) compatible with whatever finish I decide on in a couple years or so pretty much dictated the use of DuPont Corlar, which is used as a primer for Imron. I imagine any similar type polyurethane type primer/paint will do the same thing, but this stuff was relatively easy to get in town and has an excellent reputation as finishing materials go.

Meanwhile, tank capacity has been increased from the original 12½ U.S. gals. to an additional 1½ (approx. - tail cone) and 1 (approx. - relocation of vent tube) gallons, for a total of approximately 15 gallons U.S. in each tank. I have never flown this airplane with less than about a 40 minute reserve, but it will be nice to have almost an hour more fuel on board with the present engine (Lycoming 0-235, 108 hp.) Eventually I have plans to install an 0-320 in the airplane, in which case the original 25 gals. of fuel would only have given me about 2½ hours at 75% power with hr. reserve. Now I will be able to fly 3 hours and still have 45 min. reserve at 75% with an 0-320. Or looking at it another way, 4 hrs. flight time with yet another hour reserve with the present engine at 75% power.

Yes, I know the 0-320 won't do much for my cruise speed; I'd be better off with aerodynamic cleanups, like wheel fairings, etc. Some day I'll get to them. The main thing the 0-320 will do is double the rate of climb, which will be nice for getting to altitude fast, possibly getting out of ice when IFR - Although I'd just as soon not put that use to the test - and various other situations. We can always think of more ways to spend money on our toys, can't we?

Meanwhile, I hope to hear from a few of you out there as to how your projects are coming along and also any modifications/improvements you may have in mind. One thing I've been looking forward to hearing more about is the rumor that several PL-1B's were imported to the U.S. and were sitting out on the west coast somewhere. You might recall that the PL-1B is the version of which several dozen were built by various Southeast Asian nations as military trainers. It is essentially a PL-1 with a 150 hp. Lyc. 0-320 engine. As I heard the story, it was impossible to legally license these aircraft in the U.S., since they were originally not built as civil aircraft and the nation(s) building them have no recprocal agreements with our FAA as to certification standards. We can't license them as amateur built, since they're not, or apparently not in any experimental category. About all they can legally be used for is parts, from what I understand, which is a real shame. If any of you have heard anything more on this, please

let me know.

By the way, I'm sure practially all of you are familiar with EAA's attempts to save the operators of a good many production aircraft considerable money by gaining STCs for the use of auto fuel (unleaded regular) in those aircraft. I have been involved in this work for EAA - on the fringes, as a volunteer - but have learned a lot about the subject. EAA initially went after an STC for auto fuel in the Cessna 150, since that was about the most numerous single type of training aircraft around, and besides, they had been given one for test purposes. From there it was easier to continue work towards approval of other Continental engines. All this is to explain why they are just now getting around to Lycomings, currently in the 0-320 version in a Piper Cherokee and Cessna 172. Mind you, all these engines are 80 octane engines; we're not talking about the higher octane versions. In any case, although the flight testing for the STCs is not yet complete, I do know that they have run into no problems and that things are going routinely - so it looks good for those of you who want to use auto fuel in your Lycoming.

I will throw a little cold water on the situation here, however. Honestly, I really don't think you have anything to worry about with an 80 octane engine of any sort - physically, that is. In fact, I've been using unleaded regular in our PL-2 for a couple years and have noticed NO ill effects. (By the way, the fuel tank seepage problems I mentioned above were pre-existing problems before I started using auto fuel.) Actually, I noticed a couple benifits: First, the builder of our PL-2 had used some form of gasket cement around the filler neck in the fuel tanks, and some additive in the 100LL avgas was causing this stuff to flake off inside the tank. Since using unleaded regular, this problem dropped to practically nil. Second, I get a lot less plug fouling. The engine does not tend to load up at idle, and the plugs look a lot cleaner at annual time. You can bet that if the plugs are cleaner, so is the rest of the engine, too. So I'm sold on autogas myself.

But about that cold water: Even though physically I have found no problems, the legality may be something else. Here in the States, at least, if you fly an experimental aircraft, you can pretty much try about anything you want with it. A major modification may require an additional flight test period, but that's about it. However, this only applies to the airframe, not the engine - unless you're using some non-aircraft engine anyway, such as the 0-290 ground power unit, VW power, or whatever. For those of you with certificated aircraft engines (like me), technically you are invalidating the certification of that engine and are under the same status as the person using VW or other non certificated powerplants. As far as the FAA is concerned, probably all you'd have to do is fly an additional flight test period as assigned by your friendly neighborhood inspector. In fact, what with autogas STCs all over the place now, he might even say the hell with it, go fly just like you always did - I don't care. But best to check with them anyway, just in case. Another consideration is insurance. Some policies may just use your use of autogas to try to get out of paying a claim, if they find that your use of autofuel was not conducted with the blessings of the FAA. Not to say that this will happen, just that it might. Some states have regulations to prevent insurance companies from pulling something like this, others don't. Most companies are reputable, but there is always the possibility. Keep in mind also that even if you have the same type of engine in your PL as

one which has been cleared for use with autogas in some type of production aircraft. that still does not mean you can legally use autogas in your PL! You see, all autogas STCs must be tested not only for the type of engine used, but also for the type of aircraft. Actually, when you purchase an autogas STC from the EAA. you are getting TWO STCs, in effect: One for the engine type, and another for the type of airframe it is installed in. In other words, although the engine might like the stuff fine, some idiosyncrasy in the fuel system of the airplane may cause problems - gravity feed, fuel pump systems, etc. Since your PL does not have a TC (type certificate), it is not possible to issue an STC (supplemental type certificate) to the airframe. So the only way to make your use of autofuel absolutely legal is to tell the FAA that's what you want to do, and then abide by any additional limitations they may impose on you. This is true for every FL out there; each is considered as a separate case, even though you know a guy who went through this with exactly the same type engine in his PL just last week. The logic is that no two homebuilts are exactly alike, even though they might have been built from identical plans, kits, etc. There are no standards to force a builder to conform to a certain design, as there are with production aircraft, and a builder can modify any part of the aircraft he desires. Even something as relatively minor as a different type of fuel selector could conceiveably cause a problem, as could different seals, etc., etc. So the Feds say your PL is different from everyone elses and it has to go through testing to make sure your fuel tanks won't fall off, or whatever, even though old Joe right down the street has been using the stuff in his PL for years.

So what did I do about all this? Well, I got a couple five gallon cans, make a stop at the nearest gas station, and pour the stuff in my tanks and go fly. No, I haven't told the Feds. Yes, technically, I should, I guess. This is a case of "do as I say, not as I do." I'm really not worried about any physical problems caused by using autogas, and I have flown with the stuff long enough to have far exceeded any likely local flight test restrictions the FAA might be inclined to place on the aircraft. But just bear in mind that all that I have mentioned above is the way it's supposed to be done, if you want to pick nits.

One more point: If you're going to use autogas, go to a name brand station to buy it for your airplane. Doesn't have to be a national brand - a major regional refiner is fine. The main thing is that you want to make sure that the fuel you are buying for your airplane has been controlled from refinery to retailer. A lot of local, cut rate discount operations buy their fuel from any source, as long as it's the cheapest source at the time. This stuff might have been adulterated with who knows what (generally alcohol) to make it cheaper - or the retailer himself may do it. (Yeah, I know - then why is gasohol more expensive than standard gasoline? Pon't ask me. If I knew the answers to questions like that I'd probably be rich.) In any case, even a small percentage of alcohol in the fuel can possibly do nasty things to some components in the fuel system - like dissolving seals, plastic carburetor floats, needle seats in the carburetor, etc. I'm not saying this will happen, only that it's a possibility, depending on such variable as how much alcohol is in the fuel, how long have you been using it, what sort of plastic components do you have in your fuel system, etc. Anyway, you're on your own if you try to save a few cents by going to Smokey Joe's Super Rotgut instead of to a name brand station. I figure I'm saving so much by buying autogas as opposed to avgas that an extra few cents for name brand stuff is nothing by comparison; it's well worth it.

But onward to other things. As I'm sure you're all aware, Paz's designs are not built in nearly as great numbers as a good many other homebuilt designs. Because of this, there are a lot of things offered to the builders of some of the more popular (notice I didn't say "better") designs that us Pazmany builders don't see. What I'm thinking of is some sort of embroidered type of jacket patch to let the world know what sort of aircraft we're building and/or flying. I haven't priced something like this yet, but if there's a little interest shown out there, I'll see about coming up with something. Meanwhile, anybody got some thoughts on a design for such a thing? Naturally I lean toward something with a PL-1/2 on it, but all you PL-4 people might prefer something different. Who knows, if I get sufficient response on this, we might come up with a couple different patches. I'd like to get that much response, anyway! Assuming that we come up with some minimum number sufficient to make it worthwhile to place an order, I'll do so and sell them at cost plus postage. As I say, I really don't know what they would be likely to run; I imagine it depends on design complexity (the patch, not the sirplane!) as well as the number ordered. Give me some feedback on this and I'll see about getting it going. We might also think about the same sort of thing regarding badges, tie pins, etc., if any of you might be interested in something like that.

One more thing I would like to institute here is a sort of buy/sell/swan/whatever column. I'm sure a lot of you out there have jigs/fixtures/spare parts/surplus equipment, tools, etc. which you might like to see go to a good home if you have completed your FL. I have a stack of letters I received from Dave Panton when he passed the newsletter on to me, a couple of which indicate a need for a few items. And I have some goodies (?) I'd like to get rid of. I'll divide this up into a WANTED and a FOR SALE column.

FOR SALE: 4th horizon, 3" DG (horizontal card) and T&B - all vacuum powered. (these are the instruments I removed to modernize my panel and told you guys not to use in your PL's:) They seem to want about \$50 for these things at the Oshkosh Convention, but they'll only give you \$5 to take them off your hands. I'll settle for something in between. Yes, they all work. Also have an ancient VSI (3") which works but needs adjustment/overhaul (how about \$10?) and a .125" aluminum panel for a PL-2 shock mounted flight instrument panel, fabricated to fit the above instruments plus one. This panel was removed when I fabricated a new one for the more modern panel. If you have any use for any of this, give your newsletter editor a call or drop me a line at the number/address on the first page.

WANTED: PL-2 fuselage and stabilator, completed or parts, possibly jigs/fixtures for the above. Have a complete set of rib form blocks for all flying surfaces; will swap for needed items or sell outright. Contact Leigh Blake, PO Box 122, Felts Mills, NY 13638.

FOR SALE: One set of alleron push pull tube ends (attach to control stick rod end bearings). Machined as per drawings, alodined and lightly chromated. Contact Pete Karmouche, 9 Cranfield Ave., San Carlos, CA 94070.

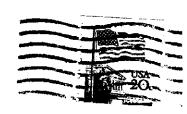
FOR SALE: Lyc. 0-290G, 125 hp. OSMOH, professional chrome major. \$3000 US.

PL-2 landing gear with 5.00x5 Cleveland wheels. \$850 US.
Contact Warren Soapes, 1110 Cook St., Ramona, CA 92065. Call (619)789-1588.

That's all I have for this one. Sorry to be so late with the want ads; hopefully now that the transition has been made to the new newsletter editor, things will smooth out a bit. Meanwhile, give me a call if you get into Oshkosh for the Convention. I can't promise that I'll have much time to spend with all you PL people, but do try to get in touch. Next newsletter will be after EAA Convention - the fall issue. I should have lots of goodies to report on from the Convention by then, and hopefully some input from some of you. More then.

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