Would you believe I completed this issue about three months ago - and then never got around to making copies for mailing? - Well, better late than never. Maybe by the next issue Anne will have figured out how to print the mailing labels on the new computer - Jack

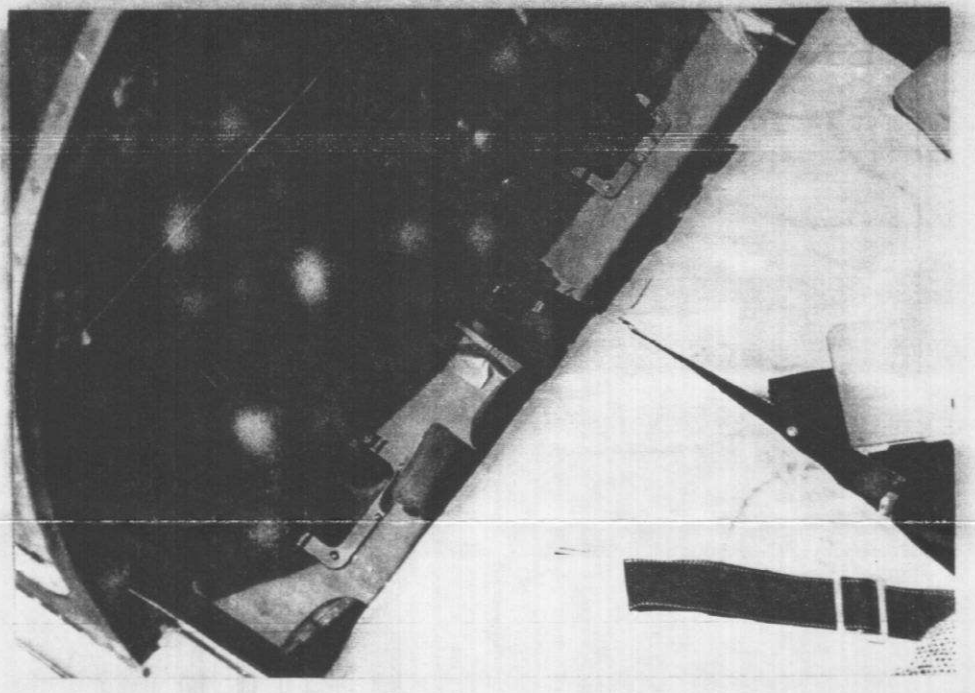
PAZMANY NEWSLETTER
NUMBER 90
3rd Quarter, 1993
Aircraft Designer:
Ladislao Pazmany
P.O. Box 80051
San Diego, CA 92138

Rates: $1.00/issue
($1.50 Overseas)
Editor:
Jack McCombs
2510 Crest Avenue
Cheverly, MD 20785
Phone 301-773-1076

TIME FOR ISSUE #90 of your PL Newsletter. This issue will primarily be further catchup on correspondence received in the past. I haven't received any new and earthshaking news since getting out the last issue of the newsletter, but I have enough to fill some pages with until I get N75PL flying again (still not there, but getting closer!) I still have some correspondence from **DUANE SEYMOUR** to report on, as follows:

1. Anyone out there have any problems with bugs (particularly mud dauber wasps) building homes in your fuel tank vents and/or pitot tube? An ounce of prevention is worth several pounds of cure, in this case. I wouldn't think bugs would enjoy living in a tube full of fuel vapor, and I've never had it happen to N75PL (yet!), but I've seen it on several other aircraft. It's a lot easier to prevent than to clean up afterwards. Duane came up with a simple fix for the above potential problem - he picked up a few golf tees to use as plugs, which work fine. I don't imagine changes in pressure would have any adverse effect on the pitot system, but make sure your fuel system is vented somehow, maybe with a small groove cut in the side of the tee or an axial hole down the center. Also, make sure you attach a **BIG** streamer to each of these plugs!!! It's embarrassing to depart the runway and have to come back and land to remove the pitot cover. Of course, I've never actually done that (and I hope I never do again, either!). Insofar as plugged fuel vents are concerned, this is potentially a **LOT** more serious. I don't know how long you could draw fuel from a plugged tank, but eventually the partial vacuum in the tank would overcome the ability of the fuel pump(s) to draw fuel as the tank is depleted. Hopefully, if you're running on one tank, you can switch tanks if the situation arises - until you can no longer draw fuel from that one either, if you forgot the plug on that side also. (If you forget one, you will probably forget both.) Your aux/boost pump may help, but probably not for long. I don't know how much flying time you'd have with plugged tank vents; obviously, the more power, the less time. This is one problem I've never experienced. If any of you have any experience in this regard, let me know.

2. Duane also installed an external electrical power plug (Piper type) in his baggage compartment bulkhead (his battery is aft of the bulkhead). I've thought about doing this in the fuselage side, but N75PL's battery is in the baggage compartment, so it's reasonably accessible. Also, you can use any type of connector for a jump this way. With other aircraft, whenever I've needed a battery jump, it seems that they always have the wrong connector available! However, for those of you with batteries in the tailcone, an external plug is a good idea.



The photo above is of the interior of N25DS, in the area of the forward center console and control stick bases. (I hope this shows up all right after photocopying!) Anyway, Duane has installed electric flaps (note the toggle switch just ahead of the seat cushions on the console) and electric aileron trim (note the lateral rocker switch just ahead of the flap toggle switch). The aileron trim was developed by **BILL RAKSANYI**, and Duane reports running the trim completely to the limit in one direction to make sure he had enough stick authority to overcome a runaway trim problem, if such developed. He reports that there is no problem in a normal landing pattern. However, if you want to try this with one tank empty and the other full, and/or doing stalls, you're the test pilot - he's not tried those areas yet. The nice looking stick boots are gearshift boots out of J. C. Whitney of Chicago, IL. I'm sure most of you get their catalogs (whether you want to or not - they'll send them to you forever, once you're on their mailing list), and from time to time you can find some aircraft parts (like these control stick boots) in the catalog. No, Duane didn't provide a model number for them. Use the TLAR (That Looks About Right) system; everybody's airplane is a little different. N75PL, for example, has seats from a Grumman Trainer (Yankee) installed, and the leading edges of the seats are sufficiently far forward that we had to modify the sticks by cutting and welding to form a "Z" shape. The portion of the stick immediately above the cutout is essentially horizontal, which necessitated a home made boot.

Duane also included a copy of a checklist he developed for his annual condition inspection on N25DS. This is something that I've never seen in any of the earlier newsletters, and although every PL-1/PL-2 is different, there are sufficient generalities that most of the points of a checklist for any specific PL will be applicable to other PLs also. Anyway, the following five pages are copied directly from Duane's checklist for N25DS. (And thanks for making this issue so easy to write, Duane!)

ANNUAL INSPECTION OF N25DS

ENGINE RUN UP DATE INSPECTED

1. Engine temperatures.
2. Static RPM.
3. Magneto drop.
4. Engine response to change in power.
5. Any unusual engine noises.
6. Idle speed & mixture; proper idle cut-off.
7. Volt/Ammeter readings.
8. Suction gage reading.
9. Oil pressure reading.

ENGINE COMPARTMENT

1. Change engine oil, filter, check sump & temp by-pass valve screens for metal/contamination, safety as required.
2. Oil cooler for mounting, leaks, obstructions.
3. Carburetor air filter. Clean/replace, cracks in frame.
4. Entire engine assembly for cleanliness.
5. Carburetor air box for mounting, cracks, proper valve door operation, push-pull cable attachement security.
6. Cold/hot air flexible hoses for holes, chafing.
7. Engine baffles for security, sealing, cracks. Check bottom baffle springs.
8. Cylinders for security, cracks, broken fins, leaking rocker box and push rod covers.
9. Crankcase, oil pan, accessory case for security, leaks, safetying, crankshaft oil seal.

10. All oil lines for security, leaks, chafing.
11. Intake system for security, leaks, deteriorated hoses, loose clamps.
12. Exhaust system and heat shrouds for security leaks, cracks. Check swivel springs & muffler mounts.
13. Ignition harness for security, routing, chafing, loose/broken terminals.
14. Spark plugs for gap, cleanliness, cracks, & rotate.
15. Crankcase & vacuum breather hose for security, deterioration, chafing, clamping.
16. All electrical wiring in engine compartment for security, chafing, defective insulation, loose or broken terminals.
17. Vacuum pump for security, clean filter, hose condition.
18. Vacuum relief valve for security, clean filter, hose condition.
19. Engine mounts for security, deterioration, check bolt/nut condition & torque. Mounts for cracks, rust, dents, bends. Ground straps for security, corrosion.
20. Cabin heater door/box for sealing, cracks operation. Push-pull cable for security, condition, free operation.
21. Starter for security, proper lube, tight electrical connections, brushes & commutator condition.

22. Bendix magnetos. Check for correct timing. Mag's for condition, signs of over heating, attach nut security.
23. Carburetor for security, cracks, corrosion, leaks, clean inlet fuel screen, remove/re-install drain plug. Safety.
24. Engine driven fuel pump for security, cracks, leaks, cooling duct security, condition. Safety wiring.
25. Engine cowling for cleanliness, proper fit, cracks, hinges and cam locks.
26. Cylinder compression test. Record in engine log book.
    A. No. 1. _____
    B. No. 2. _____
    C. No. 3. _____
    D. No. 4. _____
27. Generator/alternator for security, cooling duct attachment condition. Drive belt for proper tension and condition. Retaining nut & bolt condition, torque.
28. Oil separator, security, hose condition, leaks.

PROPELLER

1. Check for track. Cracks, nicks.
2. Prop bolts for security, safetying, torque.
3. Spinner & bulkheads for cracks, dents, alignment.

FUEL SYSTEM

1. Gascolator cleanliness, security, leaks, proper operation, safetying. Clean/re-install filter.
2. Electric fuel pump for cleanliness, leaks, operation, inspect electrical connections & wiring. Remove, clean and re-install filter.
3. Fuel tanks sump drain for water, sediment, leaks. Remove clean and re-install finger screens.
4. Tank filler cap/chain for condition, leaks.
5. Tank pressure pickup open/clean.
6. All fuel lines for security, chafing, leaks & cracks.
7. Fuel quantity gages and transmitters for security, correct indications. Wiring for condition. Terminals inspected inside and outside the tanks.
8. Engine primer for proper operation, leaks, security. Primer lines for chafing, bends, leaks.
9. Fuel tanks for seeps, structural damage. Mounts and bolts for condition. Position light wiring inspected.

LANDING GEAR

1. Brakes for proper operation, sponginess, failure to hold pressure. Parking brake operation.
2. Master cylinders, brake lines, & hoses for security leaks, cracks dents chafing. Cylinder fluid level proper.
3. Brake linings for wear, cleanliness, chips & security.
4. Brake discs for scoring, warping, wear, chips.
5. Wheel & brake assembly for cracks, dents, leaks, loose bolts, freedom to move & wear.

6. Axles for security, cracks, bends, damaged threads. Axle nuts for proper adjustment and safetying.
7. Wheel bearings for rust, cracks, pits, scoring, brinelling, discoloration, wear, & lubrication.
8. Landing gear struts for security, excessive play, cracks bends. Attach bolts tight. Service strut with nitrogen & hydraulic fluid. Check operation. Strut for nicks, chrome flaking, retaining nut safetying.
9. Tires for proper inflation, tread wear, cuts, blisters, flat spots, [redacted], uneven wear.
11. Nose gear steering linkage/cables for condition, proper travel, lubrication, corrosion, bolt attachment & torque. Pulleys for condition, wear, security.
12. Shimmy dampener for leaks, security/condition. Remove, service with hydraulic fluid & re-install.
14. Lubricate all gear via Zerk fittings.

AIRFRAME

1. Pitot/static tubes for obstructions, security, cracks, leaks, check pitot tube for alignment. Drain system.
2. Entire aircraft exterior and accessible interior for cracks, metal distortion, loose or missing rivets, screws, bolts, corrosion, apparent damage.
3. Aircraft structure for evidence of excessive loads.
4. Windshield & canopy for proper attachment, sealing, cracks, crazing or discoloration.
5. Canopy slides and locks for lubrication, operation.
6. Seat belts for proper latching, mounting, cuts, tears, fraying, broken stitching.
7. Control sticks for binding, cracks, looseness correct travel. Bearings for cleanliness, binding, wear. Tubes for cracks, bending, corrosion, alignment, bolt torques.
8. Instruments for cracked glass, security, proper operation, legible markings. Gyro filter replaced.
9. Magnetic compass for security, fluid level, leaks, lighting, accuracy on all cardinal headings.
10. Instrument wiring & plumbing for security, chafing, leaks, cracks, kinks, insulation loose terminals.
11. Instrument panel for security, deteriorated shock mounts, cracks, legibility of decals/labels.
12. Cockpit upholstery & trim for rips, tears, holes, cleanliness & security.
13. Cockpit floor for cleanliness, security, evidence of leaks, & FOD.
14. Electrical switches, circuit breakers, & fuses for security, proper functioning, legibility of labels. Wiring for security, insulation & chafing.
15. Instrument and cockpit lights for proper operation, security; reostat for proper operation.
16. Comm/Nav, Encoder, Transponder for proper operation and secure mounting. Wiring check. ELT battery for currentcy, mount security, wiring, antenna. Check ELT operation.

17. Battery for service, security, corrosion, terminal and wire condition. Pressure, vent & drain lines connected, condtion.
18. Firewall for proper sealing, security of grommets. Cracks, dents loose or missing rivets, bolts, evidence of excessive loads, & cleanliness.
19. Antennas for security, proper connections, corrosion, cracked insulators.
20. Navigation, landing light, and rotating beacon fc cracked glass/lens & proper operation.
21. Fresh air vents, heat control for operation. Lubricate fresh air vent screw jack.
22. Check fire extinguisher for security & need of service.

AILERONS

1. Push-pull tubes for security, cleanliness, binding, misalignment, cracks, corrosion. Check attaching bolts.
2. Bellcranks & bearings for cleanliness, security, operation, binding, cracks, distortion. Check attach bolts.
3. Aileron system, including trim, for correct rigging and proper travel. Trim light indicators operating correctly.
4. Hinges for lubrication. Hinge pin condition.
5. Ailerons & trim tab for security of attachment, smooth operation, cracks, corrosion & structural damage.
6. Trim actuator & drive shaft for security, cracks, corrosion, binding. Check wiring for condition, security.

FLAPS

1. Actuator motor & screwjack for security, operation. Mount & structure for binding, cracks, corrosion & structural damage. Lubricate hinges and slip connections. Check drive rod bearings & torque tubes. Lubricate hinges & slip connections.

STABILATOR

1. Push/pull tube for security, cleanliness, binding, misalignment, cracks, corrosion. Check attach bolts.
2. System for correct rigging.
3. Stabilator for security of attachment, smooth operation, security of balance weight, cracks, corrosion, structural damage. Loose, missing rivets, & screws.
4. Hinge bearings for play/wear, security, corrosion.
5. Trim torque tubes for security, distortion, corrosion. Push-pull rod also plus bearing condition & attach bolt.
6. Trim control wheel for lubrication, binding, position indicating correct.
7. Trim system rigging correct.
8. Trim tab for security, cracks, missing fasteners, corrosion, structural damage. Lubricate hinge pins.

RUDDER

1. Pedal assembly for binding, cleanliness, security, cracks, corrosion.
2. Pulleys for security, cleanliness, binding, misalignment, cracks, chips, deformed support brackets.
3. Cables for cleanliness, security of terminals, corrosion, fraying, broken wires, correct tension, safety of turnbuckles.
4. Fairleads and cable guards for security & wear.
5. Rudder system for correct rigging & proper travel.
6. Rudder assembly for security of attachment, bearing condition, smooth operation, cracks, corrosion, missing/loose fasteners, & structural damage.

Vertical Fin

1. Security of attachment, cracks, corrosion, missing fasteners including fin cap. Check for structural damage.

WINGS

1. Wing attach bolts for security, torque, corrosion, cracked fittings, missing/loose rivets, screws, bolts. Evidence of structural damage or excessive loads.
2. Fairings, inspection panels for cracks, loose/missing fasteners, corrosion, proper fit. Trim condition and attachment.

ENTIRE AIRCRAFT

1. Wash, vacuum/clean, wax/polish as appropriate.
2. Check all drain holes are open.
3. If any equipment removed or added re-compute weight & balance & or re-weigh aircraft.

SIGN-OFF

1. Make appropriate log book entries and sign off.

The preceding five pages were Duane's checklist for N25DS; now for my comments. First of all, Duane, you've provided a really extensive checklist here, and 99% of it should be applicable to virtually any PL-1 or PL-2 (and most other light aircraft, for that matter). This is a major piece of work. I know because my wife Anne (who is an A&P mechanic, by the way) also developed an annual condition inspection checklist for our N75PL. I don't have room to print our checklist here in addition to Duane's, but I will describe the (few) differences between them.

One thing we do differently, is to complete Duane's next-to-last "Entire Aircraft" section first. Mechanics just hate working on dirty airplanes, and will generally wash the exterior and clean the interior of an airplane before starting into the details of the inspection. Washing an airplane is good for another reason, too: Generally, it forces you to take a close look at the entire airframe as you wash it. You'll be more likely to notice chafed areas, missing rivets or screws, etc. as you perform the wash job.

Next point: When you accomplish the "Engine Runup" section, those of you with carbureted engines should check the carb. heat function also. (I've forgotten, Duane - is N25DS injected?) And you might as well check out all the lights/radios/etc. while the engine is running and keeping the battery charged (although I'll admit that our checklist calls for the lights and avionics check immediately after cleaning the aircraft).

Other than that, the primary differences seem to be the order in which the various steps are accomplished. Duane, for example, has a separate "Fuel System" section, whereas our checklist checks the various components of the fuel system depending upon their physical location (ahead of the firewall, in the cockpit, wing tips, etc.) at the time inspection is accomplished in those areas. One point I see that we should add to our checklist: Item 22 under the "Airframe" section - check the fire extinguisher. This isn't on our checklist, but we have one installed between the two seat backs, immediately above the rear end of the center console. Also, I note that you include the removal and cleaning of your fuel tank sump finger screens in your checklist. We don't go that far with N75PL, because it would require draining the tanks - once those sump quick drains (or whatever arrangement you have) are removed to get at the finger screens, the fuel in the tank(s) will leave promptly.

One thing you might consider adding to your checklist, Duane, is a specific review of the paperwork on board the airplane. You make note of instrument placards and markings, and checking the accuracy of the weight and balance data, but the Feds just love to check for airworthiness and registration also. There's a nice mnemonic to help you remember all that stuff:

A R R O W S

See the next page for a description of what each letter means.

A = Airworthiness certificate. This is first on the list, not only because it makes the memory aid come out properly, but also because it's required to be displayed. We have a clear plastic pocket on the baggage compartment bulkhead in N75PL with various paperwork items like this in it, with the airworthiness on top where it's visible.

The first R is for Registration. You must have your FAA registration on board, although it doesn't have to be visible.

The second R is for your FCC Radio Station License. Make sure it provides for all the different types of transmitters you may have - you may have more than you think! Sure, you have a transceiver on board to talk to ATC, but you probably also have a transponder (also a transmitter) and perhaps a DME (yet another transmitter). If you have a low frequency transceiver, add another to the list. So far as I know, the FAA won't hang you for not having a proper FCC Radio Station License, but on the other hand, if you are up for a check ride, they can use an improper or missing FCC license to refuse to make the flight - then you have to (1) get the proper FCC paperwork, and (2) re-schedule the checkride all over again, hopefully before your written test expires. And another by the way: Check your radio station license. If it has an expiration date, it's probably no longer current. As I recall, the FCC decided to make aircraft radio station licenses permanent a few years back. Check with the FCC (or easier yet, your local FBO, with his fleet of airplanes, should know, and have current application forms).

The O is for Operating Limitations. You can use instrument markings and placards, an approved flight manual, or a combination of both. I've never heard of an approved flight manual for a homebuilt; most everyone uses markings and placards. This includes things not in the cockpit, such as markings for fuel grade and quantity at the fuel tank filler(s), etc. And by the way, speaking of items not in the cockpit, a few years ago the Feds also came up with a requirement for a data plate legible to persons on the ground while the airplane is parked. The plate should have the type of aircraft, N number, and serial number on it. This is one of those "anti-drug" things that supposedly enables an airplane stolen and used for such to be detected rapidly; no, I don't know how. While I have no way of knowing for sure, I believe I can safely say that none of Paz's designs has ever been used for drug running anyway. Let's face it; nice as PLs are, they just won't carry a ton or more of anything.

W: Weight and Balance. Yes, this sort of fits in with operating limitations, but it makes the memory aid work out nicely to stick it in with its own letter. You should have a current weight and balance sheet in the airplane. We keep ours folded in the same plastic envelope with the airworthiness, registration, and radio station license.

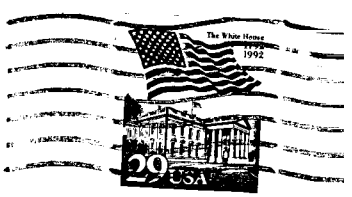
What's the last S for? How many of you live in a state which has a State aircraft registration requirement? Guess what

happens if you live in a state with such a requirement, own an aircraft, and don't tell the state? That's right, it's expensive. Cheaper to go ahead and pay the registration in the first place, than to get fined later. No, I don't know what the states do with the money. Virginia's and Wisconsin's programs aren't bad; they actually use the money on aviation. For you others, I can only repeat Will Rogers comment: Just be thankful you're not getting all the government you're paying for. And for you non-US people, you're on your own for memory aids for your requirements.

Well, time flies like an arrow (sorry about that), and it's time to wrap up another issue. For the next issue, I not only have a few more comments from Duane to wrap up, but several items of interest from other subscribers to report on. Till then--

Jack McCombs, PL Newsletter Editor

Jack & Anne Mc Combs
2510 Crest Ave.
Cheverly, MD 20785
301-773-1076



Ladislao Pazmany
P.O. Box 80051
San Diego, CA 92138