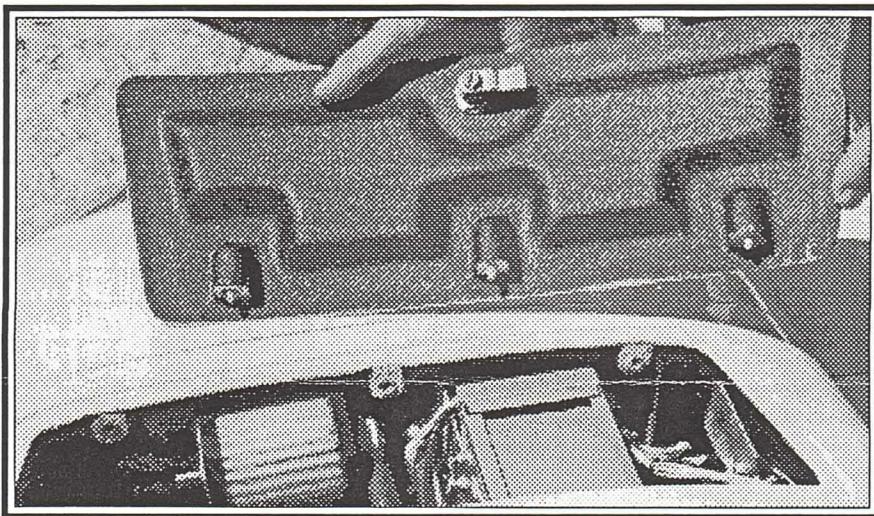
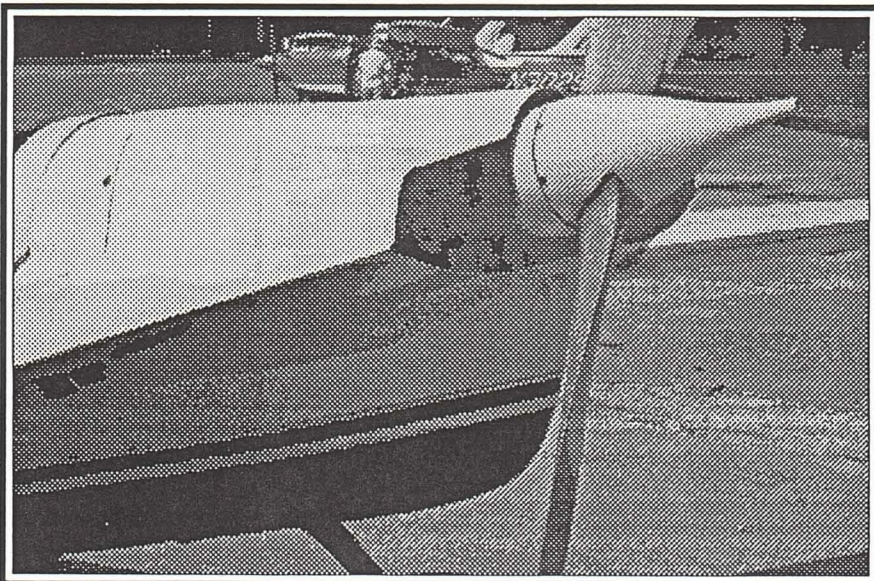


Skip Barchfeld's Texas tip treatment is made by cutting your state outline out on vinyl and letting the base color show through



Jerry Peck's great workmanship shows on his removable instrument panel cover

Frank Bibbee's boat tail cowl shows great craftsmanship



For new builders he suggests using a boat tail cowl with NACA inlet for the least drag with the least cooling development problems.

Gary uses the 65025 airfoil shape wheel pants and suggests if you vent the pants, to do it out the back end and not out the top where the air will produce draggy turbulent flow.

Be sure to install the main landing gear strut fairing at a 2 degree up angle as these airplanes fly with the nose up. Do not put on a large radius fairing to the fuselage. The leading edge should have almost no fairing and the trailing edge only a small one. Large fairings give more wetted area and cross section area, thus more overall drag.

Increasing the engine's compression ratio from 7.5 to 9 will produce 4-6% better fuel economy with 10% more power. Install the pistons with Total Seal rings™. Talk to Gary first about the rings.

Terminate the exhaust pipe inside the cowl about 1-1/2" to get an augmen-ter effect which helps extract the heat. This will also get the low density heated air out into the least efficient part of the prop.

**Bob Nuckolls of Aero Electric Connection** electrical installation tips: "Use shielded wire sparingly and only where it is called for by the manufacturer." Be sure to ground it on only one end to avoid ground looping which will allow current to flow on the shield. Tefzel wire is better to use than Teflon. Teflon gives off a toxic gas at high temperature.

Use 4130 steel 3/16" thick for alternator brackets. **Never use any aluminum** in the alternator mounting system. **It will break!**

If you have a transponder reply noise in your intercom put the intercom electronics in a grounded metal box.



To rid the intercom of strobe noise get a Radio Shack filter and put it on the input to the intercom. The unit is a black cylinder about 1-1/4" in diameter.

Use 14V instead of 28V systems. With today's light weight starters and modern battery technology there is no reason to pay for 28V systems.

Automotive electronic components are designed for very severe conditions and will probably work OK in aircraft applications.

You don't need a separate avionics bus as that is a design throw back to 20 years ago before TSO's called for radios to take all kinds of high and low spike voltage input.

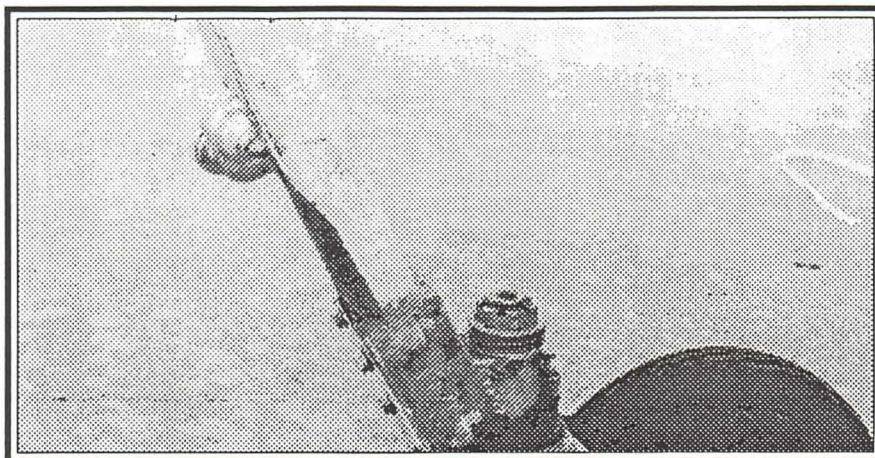
Why put the circuit breakers on the panel? *That is prime real estate.* 95% of the time you can't fix the problem by resetting the breaker. Size wire to 150% of the load and you will get rid of nuisance breaker trips. Then if there is an overload it means something broke and you can't fix it in flight anyway. Use relays to keep the current out of the cockpit. Many people don't like them but have **you** ever heard of one breaking?

**Bill Freeman's** tips on cooling engine related items: A top mounted oil cooler location is more efficient than a bottom mounted one. To even up CHT's, close the air inlet baffles to the cooler ones and open the hotter ones. Ramps are too hard to control and size. A very precise opening width is easy to make on the cylinder baffling. The cool aft cylinders should have about a 1" opening, while the hot front ones might need to be much bigger.

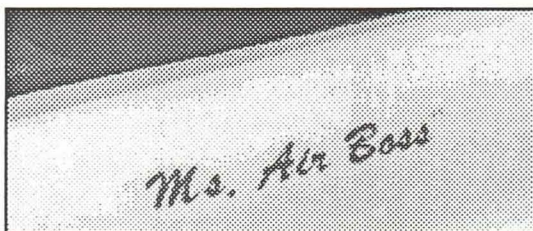
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### Nose Gear Attach Bolt Upgrade

**Bill Freeman (KS)** - Several years ago, as I landed in very gusty conditions, the nose was slapped down by a gust and hit **MUCH** harder than any



"Pete" Peterson uses a ball bearing on the nose gear strut to keep the strut from dragging on the ground when the electric actuator raises the nose. It just shows you don't have to have that big drag inducing foot mounted on the strut.



Norm Dodge's GIB canopy sign shows how wise he is.

nose wheel touchdown before or since. It was a little scary. I inspected the nose gear and found the 1/8" aluminum plate across the front of the strut was very bent and the whole nose wheel assembly was loose on the strut. The AN3 bolts (upgraded per the CP mod) had their heads bent at a 10 degree angle from the perpendicular. The 1/4" cross bolt attaching the spring strut to the nose gear strut was also bent.

I drilled out the nosewheel pivot casting to 1/4", straightened the 1/8" aluminum plate and drilled it to 1/4" also. I reassembled it with fresh flox and appropriate length AN4 bolts. Watch out for interference between the bolts and the nose gear strut cover. I had to grind a little off the bolt ends to get the needed clearance for complete gear retraction.

The cross bolt attaching the strut to the nose gear spring strut bends easily when built per plans. I made

my own spring strut and, therefore, have the large rod end with the 3/8" ID hole. This was bushed (per plans) to 1/4" and a 1/4" bolt used to attach the spring strut to the nose gear strut. One published fix is to replace the sheet metal inner U bracket with a thick (about 1/4" material) replacement U bracket.

This probably works well but is more difficult for those with the original type large hole rod ends. The problem is there is too much bending load for the 1/4" bolt. The super thick bracket shortens the distance between the supports by making them very thick which reduces the bending load on the bolt and appears to work.

I just removed the 1/4" bolt, drilled the strut wrap around bracket up to 3/8", removed the 3/8" to 1/4" reducing bushing and installed a 3/8" bolt and thin shear nut using red Locktite, since the clearance (to the strut cover, again) is pretty tight. I've had no problems in about 400 hours.



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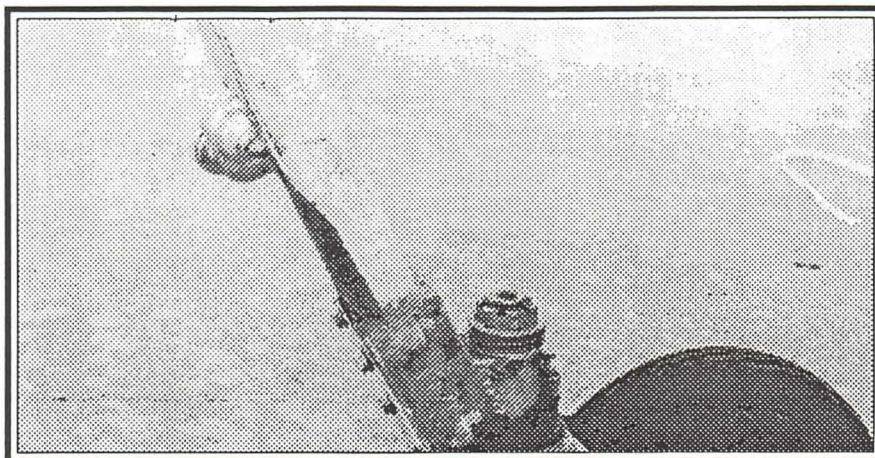
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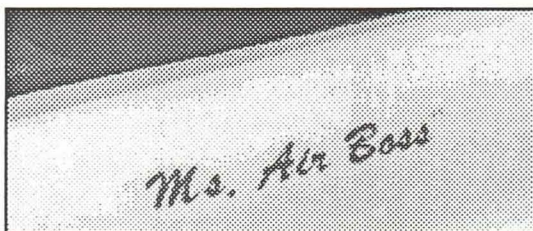
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