

OLE' 409L TAKES A LICK AND KEEPS ON TICKING.

So, is this why they call it training! NO!

Yeah, seems one day things got just a bit out of hand on what should have been a routine training flight and it ended with a bent ego *and* a bent airplane!

409L has logged close to 2,000 hrs and during that time, we only really worried about the lack of any down locks in its unique main gear assembly. (It's quite different from kit versions.) On 409L, loss of hydraulic pressure to the mains would let them fall off their bumper blocks. That's why we went through all the agony of designing our own custom main gear cylinders with internal down locks for all kit versions.

But one sunny day, on what should have been a routine training mission, things went astray. First of all, the instructor called for a military style engine out approach (not part of the curriculum and we might mention that he's no longer part of it either!). This type of approach starts out with (after the simulated engine failure) a sharp 180 degree turn into a downwind followed by another 180 degree turn to the runway. The standard course practice is the simulated engine failure once established in the downwind leg.

There were tall trees at the approach end. Speed was to be set at 120 and flaps are to be used. Seems the whole affair was coming up a bit short so the plane was pulled up over the trees, speed dropped to about 100, still in a bank and still no flaps. Just as they got the wings leveled they smacked the runway real hard blowing the right main tire and having a "challenging" time maintaining control and keeping pavement under them. The word was, "it's probably flyable". Well, when we say "probably" flyable, that means you "fly it straight onto a trailer"!

Now for some background: 409L is of course the prototype.

The main gear "box" is actually a wet layup fiberglass affair. The bumper blocks are aluminum blocks bolted direct to the sides of the fuselage. This prototype system was designed to take minimum FAR loads (approx. 2.67 G's.) The plane has a G meter and it registered just shy of 4.0 G's. In that process, the main gear bumper blocks cracked the side of the fuselage over an area about 6" on either side of the bolt patterns. The impact also buckled the fwd cross layup and sheared through the left side of the rear cross fiberglass bulkhead. And that was it structurally.

The kit version gear box is quite different. It is a roll formed, 2024 aluminum box assembly with steel corner bracing and a steel cross strap. We've drop tested this assembly and have recorded 8.7 G's with no damage whatsoever. In addition, the kit gear box absorbs all the loads and then transfers that squarely into the fuselage at several locations fwd, aft and across the bottom. While the angle of the bumper blocks in 409L subjected a sizeable twisting load into the fslg at the same time, the kit version does not as that's all taken out by the gear box itself.

So, out of necessity, we're now finishing up the conversion of a standard kit gear system in 409L. The fuselage was pretty easy to repair using a 6 ply carbon layup technique. Along with the new main gear box, we're of course having to totally re-plumb the hydraulics since the kit version is also an improvement over what was in 409L, including the flap actuation - and including the instrument panel layout too! And oh yea, while we're at it we decided to install the kit version fuel selector / boost pump arrangement too! We had planned on doing these things during the more "quiet" times of winter but plans do change now don't they! And the plan is to have 409L up and running again by mid to late October - looks like we're on schedule - and look for a new paint job too!