

Aircraft Owner Maintenance

Subtitle: To Be or Not to Be

Disclaimer

- I am neither an IA nor an A&P
- I am a flight instructor
 - I fly in other people's airplanes
 - I have some basic guidelines I follow
- I own airplanes – both certified and experimental
 - I have a leg in both worlds
- And I am active in my experimental's community (Velocity)

So let's get started.....

The Basics

- ARROW
 - Airworthiness certificate
 - Registration
 - Now every 7 years – up from 3 that was implemented during 9/11 aftermath
 - Radio telephone license
 - Only if you fly out of country – Mexico and Canada
 - Operating limitations
 - Where do you find them?
 - Weight and Balance
 - Current!

Other Considerations - AV1ATE

- A - Annual Check
 - 12 Calendar Months
- V - VORs
 - 30 Calendar Days
 - ONLY if IFR and ONLY if you use this navigation aid!
- 1
 - 100 Hour Check or 100 Hour Inspections
 - ONLY if you use the airplane for flight instruction or <<>>
- A
 - Altimeter / Pitot Static Check
 - Every 24 Calendar Months If....
- T
 - Transponder check
 - Every 24 Calendar Months
 - Same as pitot-static check?
- E
 - Emergency Location Transmitter
 - Every 12 Calendar Months or 1/2 Battery or 1 Hour of Cumulative Use

Let's Some of These in Context

- Do you need a pitot-static check to fly VFR?
- Do you need your airplane logbooks in the airplane when you fly?
- You own an airplane but are still a student pilot and signed off for solo BUT....
 - Can you approve your airplane for return to service after an annual?
- You are a CFI and fly with your student in his/her airplane to a location for the airplane to be painted...
 - After the flight (successful) your student sheepishly admits that the airplane was out of annual when it was delivered for paint
 - If you had been ramp-checked, who would get the ding - you as PIC or student as airplane operator/owner? (Note: Safety pilots beware!)

Now Let's Look at Some Basic Definitions

- Maintenance
 - “Inspection, overhaul, repair, preservation, and replacement of parts, but excludes preventative maintenance.”
- Preventative Maintenance
 - “Simple or minor preservation operations and the replacement of small standard parts not involving complex assembly operations.”
- Major Alteration/Repair
 - “Might appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness”
- Minor Alteration/Repair
 - Anything other than major....

Bottom Line

- You can tinker with your airplane except those elements that affect airworthiness....
 - Aerodynamics and control surfaces
 - Engine (e.g., non-PMA parts, non-STC approved changes)
 - Propellor
- So what CAN an owner do? (Note: Answer does differ between experimental and certified aircraft but we will stick to the latter...)
 - See Appendix A to Part 43
 - But wait....

Example

Student C182 Door Doesn't Latch

- Can he repair it?
- Some more background –
 - Door handle on pilot door stopped working
 - Issue was the cotter pin on the bolt for the bolt push rod worked loose
 - Bolt came out
- Getting an A&P's attention difficult
 - Good ones swamped
 - Owner/pilot more than capable
- Wording in Part 43, Appendix A – paragraph (c) – “does not involve complex assembly operations.”



Enter FAA Legal Interpretation....

- FAA Legal Interpretation re: Coleal (Bombadier-Learjet)
 - Request for Interpretation of Applicable Rules in 14 C.F.R. parts 43, 91. and 135 Pertaining to Whether a Pilot of a Transport Category Aircraft May Check Tire Pressure During a Normal Preflight Inspection
 - Definition of "preventive maintenance" is highly subjective, contrary to what is stated in Part 43 Appendix A(c) and in Advisory Circular 43-12A states
- Bottom line (per Mike Busch)
 - “Go for it”
 - “The risk of a door opening in flight is far less severe than the risk of a cylinder separating in flight. The line has to be drawn somewhere, but Coleal makes that line very, very fuzzy indeed.:
 - But – per reg – a student pilot can’t return the airplane to service...

Which brings me to another point - the gravity of “return to service...”

Thoughts on Return to Service (RTS) Flights

- Experimental:
 - Whoever is more cautious -- wins
- Certified
 - Engine replacement on a C172 -- I taxied back on the initial flight because there was a subtle (but critical) issue.
- Bottom line:
 - You take your life in your hands in a RTS flight - no matter how simple.
 - Night, IMC, flying to Mexico, and other special conditions do not apply on the RTS flight

Closing Thoughts...

- Number one:
 - Complacency
- But other things to keep in mind:
 - Good preflight planning
 - Develop a good checklist for your aircraft
 - Maintain a list of maintenance items that would require a maintenance check (aka RTS) flight prior to leaving the area
 - Always have someone check your work (including your spouse...)
 - Practice, practice, practice. I know a lot don't like training with instructors or other aircraft because it's expensive but nothing is better than a fresh set of eyes on your technique. Never stop learning.
 - Every time before you pull onto the runway, have a plan of what to do if you have an issue in TO, cruise, and Appr. Note: "This isn't any different for me if I'm in a small piston single/twin, turbo prop, or a 3/4 million pound aluminum tube (777)."

My Bottom Line

- If I can't scare myself into what CAN go wrong, don't advance the throttle(s)....
 - But then
 - Line up
 - Throttle forward
 - Airspeed alive, gear up, we're off
- And gone...***