FAA-Sanctioned Maintenance for Aircraft Owners

Legal Authority for Owner Maintenance

Under 14 CFR §43.3(g), a private pilot may perform preventive maintenance on any aircraft they own or operate, provided it is not used under Part 121, 129, or 135. According to §43.7(f), the same private pilot may return the aircraft to service after performing the work, as long as it is legally allowed under Appendix A(c).

- Preventive maintenance must not involve complex assembly operations or primary structural or operating system disassembling. Appendix A(c) strictly limits the permitted tasks.

Logging Preventive Maintenance (14 CFR §43.9)

All preventive maintenance performed by the pilot must be documented. The logbook entry must include:

- A description of the work performed.
- The date of completion.
- The pilot's name, signature, certificate number, and certificate type.

Example Log Entry:
"Changed oil with Phillips XC 20W50; replaced filter with CH48108-1. Run-up satisfactory. John Doe, PPL #123456789."

Failure to log the work is a regulatory violation and could invalidate the aircraft's airworthiness.

Once You Start an Annual, You're Committed

According to 14 CFR §91.409(a), once an annual inspection begins—meaning the IA has opened the aircraft, started disassembly, or made logbook entries—the previous annual becomes void. Even if no discrepancies are found, you cannot fly the aircraft until an IA completes the annual inspection and signs off.

If the inspection is canceled or the aircraft is taken to a different mechanic, the airplane is grounded. To move it, a Special Flight Permit (ferry permit) must be issued by the local FSDO.

Annual Does Not Automatically Mean “Airworthy”

An IA performing an annual inspection may discover discrepancies. The IA is not obligated to perform the repairs unless separately hired. The IA is only responsible for inspecting the aircraft and listing any discrepancies in the maintenance records.

The aircraft cannot legally fly until these discrepancies are resolved and logged. Any certified A&P mechanic may perform the corrective repairs. The A&P signs off that the work is completed, and then the IA reviews those entries and signs the annual as airworthy.

Key distinction:

- The IA signs the inspection.
- The A&P signs the repairs.

Both entries must be in the logs for the aircraft to be legally flown again.

Common Misconceptions:

- “The IA must fix what they find.” (False – repairs can be done by any A&P.)
- “If nothing is found, the old annual still applies.” (False – once started, it must be finished.)
- “Once the inspection is signed, it’s automatically airworthy.” (False – discrepancies must be corrected.)

Example IA Log Entry – No Discrepancies: "I certify that this aircraft has been inspected in accordance with an annual inspection and was found to be in airworthy condition. IA Name, Cert #, Date.

Example IA Log Entry – With Discrepancies: "I certify that this aircraft has been inspected in accordance with an annual inspection and a list of discrepancies and unairworthy items dated [date] has been provided to the aircraft owner. IA Name, Cert #, Date."

Example A&P Log Entry – Corrective Repairs Completed: "I certify that the discrepancies noted in the annual inspection dated [date] have been corrected in accordance with current FAA-approved methods. The aircraft has been inspected and found to be in airworthy condition. A&P Name, Cert #, Date."

Transponder or Encoder Replacement and Reinstallation Requires Inspection

Under 14 CFR 91.413 and 91.411, any time an ATC transponder or altitude encoder is removed, replaced, or reinstalled, the system must be tested and inspected before the aircraft can be used in controlled airspace.

This includes:

- Swapping a transponder or encoder for the same make and model unit
- Reinstalling a previously removed unit (re-racking)
- Moving a unit between aircraft or changing wiring connections

Even if no changes are made to the configuration and the same unit is put back in, the FAA considers this maintenance activity that can introduce data errors or connector faults.

Per 14 CFR 91.413(b):
"Following any installation or maintenance on an ATC transponder where data correspondence error could be introduced, the integrated system must be tested..."

According to FAA inspector guidance and FAA Order 8110.4C, disturbing any part of the transponder system—including connectors or mounts—requires a functional test before return to service.

The bottom line is that any time a transponder or encoder is pulled out and put back in or swapped—even for an identical unit—it must be inspected and tested before legal flight in controlled airspace.

Citations and Helpful References

Federal Aviation Regulations (FARs):

- 14 CFR 43.3 – Persons authorized to perform maintenance
- 14 CFR 43.7 – Persons authorized to approve return to service
- 14 CFR 43.9 – Maintenance record entries
- 14 CFR Part 43 Appendix A(c) – List of Preventive Maintenance Tasks
- 14 CFR 91.409 – Inspections (Annual, 100-Hour)
- 14 CFR 91.411 – Altimeter system and altitude reporting equipment tests and inspections
- 14 CFR 91.413 – ATC transponder tests and inspections

FAA Advisory Circulars:

- AC 43.13-1B – Acceptable Methods, Techniques, and Practices: Aircraft Inspection and Repair
    - https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_43.13-1B.pdf
- AC 20-27G – Certification and Operation of Amateur-Built Aircraft
    - https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_20-27G.pdf

FAA Legal Interpretations:

FAA Legal Interpretation Database

https://www.faa.gov/about/office_org/headquarters_offices/agc/practice_areas/regulations/interpretations

Maintenance Guidance:

FAA Aviation Maintenance Technician Handbook – General (FAA-H-8083-30)

https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/amt_handbook

EAA Resources:

EAA Maintenance Resource Hub

https://www.eaa.org/eaa/aircraft-building/maintain-your-aircraft

Special Flight Permits (Ferry Permits):

Request through your local FSDO (Flight Standards District Office)

https://www.faa.gov/about/office_org/field_offices/fsdo

FAA Preventive Maintenance Tasks (14 CFR Part 43 Appendix A(c))

Preventive maintenance. Preventive maintenance is limited to the following work, provided it does not involve complex assembly operations:

(1) Removal, installation, and repair of landing gear tires.

(2) Replacing elastic shock absorber cords on landing gear.

(3) Servicing landing gear shock struts by adding oil, air, or both.

(4) Servicing landing gear wheel bearings, such as cleaning and greasing.

(5) Replacing defective safety wiring or cotter keys.

(6) Lubrication not requiring disassembly other than removal of nonstructural items such as cover plates, cowlings, and fairings.

(7) Making simple fabric patches not requiring rib stitching or the removal of structural parts or control surfaces. In the case of balloons, the making of small fabric repairs to envelopes (as defined in, and in accordance with, the balloon manufacturers' instructions) not requiring load tape repair or replacement.

(8) Replenishing hydraulic fluid in the hydraulic reservoir.

(9) Refinishing decorative coating of fuselage, balloon baskets, wings tail group surfaces (excluding balanced control surfaces), fairings, cowlings, landing gear, cabin, or cockpit interior when removal or disassembly of any primary structure or operating system is not required.

(10) Applying preservative or protective material to components where no disassembly of any primary structure or operating system is involved and where such coating is not prohibited or is not contrary to good practices.

(11) Repairing upholstery and decorative furnishings of the cabin, cockpit, or balloon basket interior when the repairing does not require disassembly of any primary structure or operating system or interfere with an operating system or affect the primary structure of the aircraft.

(12) Making small simple repairs to fairings, nonstructural cover plates, cowlings, and small patches and reinforcements not changing the contour so as to interfere with proper air flow.

(13) Replacing side windows where that work does not interfere with the structure or any operating system such as controls, electrical equipment, etc.

(14) Replacing safety belts.

(15) Replacing seats or seat parts with replacement parts approved for the aircraft, not involving disassembly of any primary structure or operating system.

(16) Troubleshooting and repairing broken circuits in landing light wiring circuits.

(17) Replacing bulbs, reflectors, and lenses of position and landing lights.

(18) Replacing wheels and skis where no weight and balance computation is involved.

(19) Replacing any cowling not requiring removal of the propeller or disconnection of flight controls.

(20) Replacing or cleaning spark plugs and setting of spark plug gap clearance.

(21) Replacing any hose connection except hydraulic connections.

(22) Replacing prefabricated fuel lines.

(23) Cleaning or replacing fuel and oil strainers or filter elements.

(24) Replacing and servicing batteries.

(25) Cleaning of balloon burner pilot and main nozzles in accordance with the balloon manufacturer's instructions.

(26) Replacement or adjustment of nonstructural standard fasteners incidental to operations.

(27) The interchange of balloon baskets and burners on envelopes when the basket or burner is designated as interchangeable in the balloon type certificate data and the baskets and burners are specifically designed for quick removal and installation.

(28) The installations of anti-misfueling devices to reduce the diameter of fuel tank filler openings provided the specific device has been made a part of the aircraft type certificiate data by the aircraft manufacturer, the aircraft manufacturer has provided FAA-approved instructions for installation of the specific device, and installation does not involve the disassembly of the existing tank filler opening.

(29) Removing, checking, and replacing magnetic chip detectors.

(30) The inspection and maintenance tasks prescribed and specifically identified as preventive maintenance in a primary category aircraft type certificate or supplemental type certificate holder's approved special inspection and preventive maintenance program, when accomplished on a primary category aircraft provided:

(i) They are performed by the holder of at least a private pilot certificate issued under part 61 of this chapter who is the registered owner (including co-owners) of the affected aircraft and who holds a certificate of competency for the affected aircraft (1) issued by the holder of the production certificate for that primary category aircraft that has a special training program approved under § 21.24 of this subchapter; or (2) issued by another entity that has a course approved by the Administrator; and

(ii) The inspections and maintenance tasks are performed in accordance with instructions contained by the special inspection and preventive maintenance program approved as part of the aircraft's type design or supplemental type design.

(31) Removing and replacing self-contained, front instrument panel-mounted navigation and communication devices that employ tray-mounted connectors that connect the unit when the unit is installed into the instrument panel, (excluding automatic flight control systems, transponders, and microwave frequency distance measuring equipment (DME)). The approved unit must be designed to be readily and repeatedly removed and replaced, and pertinent instructions must be provided. Prior to the unit's intended use, and operational check must be performed in accordance with the applicable sections of part 91 of this chapter.