



THE ENGINE BEAT

Can you really be your own A&P?

By John M. Larsen

An incentive for building your own Experimental airplane is that you don't need to hire a certified Airframe and Powerplant mechanic (A&P). Or do you? One consideration is something called the *yearly condition inspection*, commonly called the *annual*.

The FAA has a give-and-take policy regarding the yearly condition inspection. FAR 43, exempts Experimental aircraft from the provisions of the regulation. This seems to be the good news. The other news is that your special operation limitations, issued when the FAA inspector signs off your homebuilt plane, states that your aircraft must have a yearly condition inspection performed annually in accordance with Appendix D of FAR 43 by an A&P or a Certified Repairman.

The exception the FAA has made for Experimentals is that they are willing to certify you as the mechanic as long as you have built at least 51% of your plane.

So once the FAA representative signs off your plane's special airworthiness certificate, you can request to be designated as the repairman for that aircraft. From that time on, you can sign off in the logbooks after making the proper inspection. A close look at your repairman's certificate will indicate that you are only allowed to do the annual condition inspection for *your* plane and no one else's. Your buddy building an Experimental will have to get his own certificate or hire an inspector.

The Second Owner

If you, as the builder, sell the plane, you may perform the annual for the new owner. Remember when you filled out the data plate on your plane? You—not the company who built the kit or made the parts—were listed as the manufacturer. If you are unavailable to sign off the plane yearly, then the new owner must hire the services of a certified A&P

to do the inspection. The second owner of your plane cannot get a repairman's certificate to inspect the plane because he did not manufacture it.

FAA personnel don't check every Experimental aircraft to see if the annuals are current. The issue would not come up unless the documents were examined on a ramp check or if the FAA examined the paperwork following an incident or accident. If the pilot were operating the aircraft without a current annual, then he would be cited and the repercussions would go against both the airworthiness certificate and the pilot's license.

There is a sack full of contingencies, but another consideration is that if you sell your aircraft, Experimental or other category, and the buyer fails to have a yearly condition inspection, that could impair his liability access to you.

The thinking person cannot quarrel over the FAA insisting on the annual

FAR 43: On Annual Inspections

The following is Appendix D of FAR 43 for you to use as a checklist when you perform your annual, which will encompass both the airframe and the powerplant:

(A) Each person performing an annual or 100-hour inspection shall, before that inspection, remove or open all necessary inspection plates, access doors, fairing, and cowling. He shall thoroughly clean the aircraft and aircraft engine.

(B) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the fuselage and hull group:

(1) Fabric and skin—for deterioration, distortion, other evidence of failure, and defective or insecure attachment.

(2) Systems and component—for improper installation, apparent defects, and unsatisfactory operation.

(3) Envelope, gas bags, ballast tanks, and related parts—for poor condition.

(C) Each person performing an annual or

100-hour inspection shall inspect (where applicable) the following components of the cabin and cockpit group:

(1) Generally—for uncleanness and loose equipment that might foul the controls.

(2) Seats and safety belts—for poor condition and apparent defects.

(3) Windows and windshields—for deterioration and breakage.

(4) Instruments—for poor condition, mounting, marking, and (where practicable) improper operation.

(5) Flight and engine controls—for improper installation and improper operation.

(6) Batteries—for improper installation and improper charge.

(7) All systems—for improper installation, poor general condition, apparent and obvious defects, and insecurity of attachment.

(D) Each person performing an annual or 100-hour inspection shall inspect (where applicable) components of the engine and nacelle group as follows:

(1) Engine section—for visual evidence of excessive oil, fuel, or hydraulic leaks, and sources of such leaks.

(2) Studs and nuts—for improper torquing and obvious defects.

(3) Internal engine—for cylinder compression and for metal particles or foreign matter on screens and sump drain plugs. If there is weak cylinder compression, for improper internal condition and improper internal tolerances.

(4) Engine mount—for cracks, looseness of mounting, and looseness of engine to mount.

(5) Flexible vibration dampeners—for poor condition and deterioration.

(6) Engine controls—for defects, improper travel, and improper safetying.

(7) Lines, hoses, and clamps—for leaks, improper condition and looseness.

(8) Exhaust stacks—for cracks, defects, and improper attachment.

(9) Accessories—for apparent defects in security of mounting.

(10) All systems—for improper installa-

inspection. We tend to shift mentally from builder to pilot and forget about the mechanical part of the plane. It is tempting to just relax and have fun once the rigors of building are behind you. Getting in the air has been the focus for many hours or years, so it is easy to forget that vibration, wear and the elements immediately start deterioration.

Another common error is to let a plane stand neglected for a year or two and then hop in without noticing the aircraft could be in need of inspection or maintenance. Bird nests in the cooling inlets, insects plugging pitot tubes, contamination in the fuel system or moisture deterioration have caused accidents that were truly avoidable. We get concerned when we see pilots with the attitude that an Experimental plane lets you *get out of* doing the annual. Remember that it is your plane, your money and your backside at risk. The regulations are there to keep you healthy.

The A&P Profession

If you are just starting out or are considering a career change, you may want to consider becoming an A&P. There are two ways to go about becoming a mechanic certified to work on general aviation aircraft as well as Experimental ones. The quickest way is to enroll in a training program that enables you to pass the examination for a Certified Airframe and Powerplant mechanic. These courses are taught at schools and universities throughout the U.S. and require a minimum of 18 months of training.

The alternative to obtain certification as a repairman is to work in the industry for a minimum of three years and then pass a proficiency test. Factory personnel can be designated to sign off the logbook on any plane manufactured by that company without going to an A&P school. If want to explore this area of

vocational training, your FAA office or local EAA chapter can help you find your closest training facility

The Beat Goes On

"Engine Beat" is sending out inquiries to engine manufacturers and vendors asking for lists of their customers. The purpose is to contact customers and ask them to evaluate the product and its accompanying service. We will bring you a synopsis of our findings so you will know how the engine is serving its owners.

Some vendors are changing to a new engine or have very few engines actually flying. If fewer than five customers are flying their model of engine, we feel that is an inadequate basis for our comment. In addition to the engine surveys, we will continue with helpful maintenance pointers for the various engine systems of your aircraft in coming issues. **KP**

tion, poor general condition, defects, and insecure attachment.

(11) Cowling—for cracks, and defects.

(E) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the landing gear group:

(1) All units—for poor condition and insecurity of attachment.

(2) Shock absorbing devices—for improper oleo fluid level.

(3) Linkages, trusses, and members—for undue or excessive wear fatigue, and distortion.

(4) Retracting and locking mechanism—for improper operation

(5) Hydraulic lines—for leakage.

(6) Electrical system—for chafing and improper operation of switches.

(7) Wheels—for cracks, defects, and condition of bearings.

(8) Tires—for wear and cuts.

(9) Brakes—for improper adjustment.

(10) Floats and skis—for insecure attachment and obvious or apparent defects.

(F) Each person performing an annual or 100-hour inspection shall inspect (where

applicable) all components of the wing and center section assembly for poor general condition, fabric or skin deterioration, distortion, evidence of failure, and insecurity of attachment.

(G) Each person performing an annual or 100-hour inspection shall inspect (where applicable) all components and systems that make up the complete empennage assembly for poor general condition, fabric or skin deterioration, distortion, evidence of failure, insecure attachment, improper component installation, and improper component operation.

(H) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the propeller group:

(1) Propeller assembly—for cracks, nicks, binds, and oil leakage.

(2) Bolts—for improper torquing and lack of safetying.

(3) Anti-icing devices—for improper operations and obvious defects.

(4) Control mechanisms—for improper operation, insecure mounting, and restricted travel.

(I) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the radio group:

(1) Radio and electronic equipment—for improper installation and insecure mounting.

(2) Wiring and conduits—for improper routing, insecure mounting, and obvious defects.

(3) Bonding and shielding—for improper installation and poor condition.

(4) Antenna including trailing antenna—for poor condition, insecure mounting, and improper operation.

(J) Each person performing an annual or 100-hour inspection shall inspect (where applicable) each installed miscellaneous item that is not otherwise covered by this listing for improper installation and improper operation.

These and other pertinent regulations can be found in the AIM/FAR published by Tab Aero McGraw-Hill, Blue Ridge, PA, 17294; or by contacting the FAA.