HOMEBUILT AIRCRAFT CERTIFICATION 101

By David Snell

How do you certify an amateur-built airplane?

It's pretty easy, just follow these steps.

1. **Obtain a US Identification Number.** The identification number that will be displayed on the airplane must be obtained from the Federal Aviation Administration Aircraft Registry by requesting it from them either online or in writing. State that the aircraft is being built by you from raw materials and that it was never registered anywhere else. You must also describe the aircraft by class (airplane, rotorcraft, glider, weight-shift control, powered parachute, or balloon), serial number, number of seats, type of engine installed, how many engines, and if the aircraft built for land or water operation. There is a fee of $10.00 for this.
   FMI: http://www.faa.gov or 866-762-9434.

2. **Register the Aircraft.** Once the identification number (N number) has been assigned, you must fill out an application for registration using FAA Form 8050-1 and complete and have notarized an Affidavit of Ownership, AC Form 8050-88. These must then be mailed to the FAA Registry in Oklahoma City along with the fee of $5.00. Follow the instructions provided on the forms. Note: For amateur-built aircraft, the aircraft make is the name of the builder. When two or more persons are involved, enter the name of the individual listed first on the aircraft ID plate.

3. **Apply for the Airworthiness Certificate.** Once the aircraft has been completed, fill out FAA Form 8130-6. Use FAA Advisory Circular AC 21-12C and FAA Order 8130.2H Chapter 8, Paragraph 801 for guidance on completing this form. Note: The owner does NOT have to be the builder, however the owner MUST be the applicant. You will also need to complete FAA Form 8130-12, Eligibility Statement – Amateur-Built Aircraft. This form must also be notarized.

4. **Request an Airworthiness Inspection.** You may request an FAA inspector come to do the airworthiness inspection. There is no fee for this, however there can often be a wait of several months due to budget cuts within the agency and their limited manpower resources. Alternately, you may request an FAA Designated Airworthiness Representative, or DAR, come do the inspection. DAR's are independent contractors who do this work on behalf of the FAA. You can usually expect to pay anywhere from $200 to $500 for their services.

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5. **What you need to have for the Inspection.**
    a. The aircraft should be properly prepared for the inspection (clean and opened up) in an area protected from wind, rain, etc.
    b. Be sure all placards are properly in place on the aircraft, including the aircraft and engine identification plates.
    c. The original aircraft registration certificate, AC Form 8050-3, showing the current registered owner's name and address.
    d. Three-view drawings or photographs of your aircraft showing overall dimensions.
    e. The completed Application for Airworthiness Certificate, FAA Form 8130-6.
    f. The completed Eligibility Statement – Amateur-Built Aircraft, FAA Form 8130-12.
    g. A letter of request by you for certification of your aircraft in the Experiment Amateur Built category. This should be addressed to the nearest FAA FSDO or MIDO office and should state the purpose of the experiment is to operate the amateur built aircraft. This is also known as the program letter.
    h. The design and construction criteria used by you in building this aircraft, such as drawings, specifications, instructions, circulars, and pertinent FAA regulations.
    i. Weight and balance data sheet for the aircraft showing actual weighing information, empty CG position, and fore and aft loading schedule showing the operational CG in relation to the design operational CG range.
    j. A log book for the airframe and a log book for each powerplant and propeller.
    k. A record of construction of the aircraft showing pertinent dates. Also, a record of invoices, receipts, etc. showing the purchase of materials and parts used in the construction of the aircraft.
    l. A current list of equipment installed in the aircraft.
    m. Evidence of compliance with applicable Airworthiness Directives.

6. **Common Problems**
    a. Improper data plate. The data plate must be made from fireproof material and must be mounted properly to the aircraft. Also, the name on the data plate MUST match the name on the registration. FMI: 14 CFR §45.11.
    b. Improper information on the Application for Airworthiness Certificate. Remember, the name of the application MUST match the name shown on the registration EXACTLY.

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c. Improper registration marking. N-numbers must be uniform, capital Roman font letters and numbers, and must have the proper size, aspect ratio, and spacing. This is not an area where a builder should become artistic. See the requirements in 14 CFR §45.
d. The aircraft has never had the engine run or the flight controls fully exercised and cycled.
e. Placards are missing, especially the EXPERIMENTAL placard or the passenger warning.

7. **What if Everything Looks Good?** Once the inspector is satisfied that all of the requirements have been met and that the aircraft is airworthy, he will issue an FAA Form 8130-7 Special Airworthiness Certificate. Along with this will be a list of operating limitations under which the aircraft is to be operated. The aircraft can then be flown in Phase I of the flight test program. This is done for a minimum number of flight hours (typically 25 to 40) in an assigned flight test area to prove out the airplane. After this has been completed, the aircraft moves into Phase II, in which the aircraft may be flown within the operating limitations for an unlimited duration. Here is where you get to really enjoy the efforts of your building project!

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