Hendricks County EAA Chapter 1311

Newsletter article reprint — August and September, 2003

August's meeting program

Airworthiness Inspector Kay Lannoye presented a highly informative program on inspecting and certifying homebuilt aircraft.

Kay has been with the FAA for almost 13 years. Prior to coming to Indianapolis FSDO three years ago, she spent 8 years at the Milwaukee FSDO and served for six years at Oshkosh as an inspector. Before joining the FAA she worked a couple of years at a commuter airline and also ran her own business maintaining small aircraft. No stranger to the EAA, she was a member of the local chapter in Norfolk VA. According to Kay, "she kind of misses her years at Oshkosh."

Kay discussed the certification of homebuilt airplanes as it is done by the Indianapolis FSDO. "As you know, we are all one FAA," she says, poking fun at another FAA man, Mike Laurenzano. The FSDOs have guidance on procedures but every office still does it differently. Some do very few homebuilt certifications, others do a lot more. In Indianapolis there are four inspectors for homebuilts who each do an average about five homebuilt inspections a year.

The Indianapolis FSDO's geographic area of responsibility is all of the state of Indiana south of a jagged line approximately east-west, just south of Grissom Air Force Base. The South Bend FSDO is responsible for the activities in the northern portion of the state.

Getting Started:

When homebuilt is ready to fly (or close to being ready within a reasonable amount of time), Kay says the builder should call the Indianapolis FSDO and talk to an airworthiness inspector. There is an airworthiness inspector on duty every day from 7:30 a.m. until 4 p.m. If you get an avionics inspector they should know what you need. Tell them that you have a homebuilt and it is ready for certification, and you want a package; they should know what you need. Ask to talk to somebody about GA. They will take your name and address then mail out a certification package in a large manila envelope. Most of the good stuff inside will be forms, a cover letter, plus (depending on availability) there will be some Advisory Circulars specific to amateur-built aircraft.

Some of the forms need to be completed and returned to the FSDO; some go to the FAA in Oklahoma City. Kay and the staff try to keep the packets updated with the most current versions of the forms and ACs. Sometimes Kay adds additional items to the packets when available.

Once completed return the forms to the Indianapolis FSDO Airworthiness Unit Supervisor (Kay's boss). The supervisor has a rolling list of inspectors; next one up gets your package. At the moment Kay is working two homebuilt inspections, both happen to be in Madison. Some of the most southern Indiana inspections require overnight stays. They try to combine their overnight stays with other inspections or responsibilities.

The FSDO will try to contact the applicant within a couple of days of receipt of the packet. The inspectors do quite a bit of traveling for their jobs, but still try to respond as quickly as possible. They will go over the paperwork then will set up a date to do the inspection. Currently they are running about three months behind. Kay says that it is possible to make the application if you aren't finished but are fairly certain of the completion date.

Historically, Kay finds that builders finish their airplanes over the winter and want to start flying them in the spring. They want to be able to fly to Sun 'n' Fun or to Oshkosh, so there is a rush of new aircraft to inspect and certify. This is also the time that the schools release all of the new pilots and technicians.

If you are in a hurry to get signed off, a Designated Airworthiness Representative (DAR) can inspect a homebuilt if they have been qualified by the FAA to do so. Bear in mind that they may charge whatever fees they want while the FAA does it for free. The issue here is how quickly you need it done. A DAR can usually get it done faster but their fees can range anywhere from $250 to $500, and maybe more. Not every DAR can sign off a homebuilt, though. The FAA trains the DARs with the same training that they put their own inspectors through. Using a training syllabus, Kay says that they go through a "cuss and discuss" format: the trainer does an inspection with the student observing, then the student does an inspection while the trainer watches. Sometimes it takes two or three inspections to get the DAR signed off.

Kay says that if there are any questions on the forms the builder should complete them as much as possible then put an arrow or sticky note on the form calling attention to the part in question. She says that it is easier to answer the questions that way and helps to eliminate re-doing all of the paperwork. The inspectors would rather the applicant call and ask then complete a form improperly.

Eventually all of the paperwork is completed and returned. The inspector assigned to the aircraft will get in touch with the builder and schedule an inspection. They will review all of the forms to be sure that the builder is truly ready for the inspection. They will also check their computer system to verify that the aircraft is registered.

The inspector will call to schedule an appointment. They will need specific directions or a map to wherever the aircraft is located, as sometimes the builder intends to fly the aircraft from a private field or farm. The FAA does require a contact telephone number as schedules often change; they want to be able to notify you with as much advance notice as possible. If your plans change, they want you to return the favor with a call, too.

The Inspection

Once the ASI or DAR arrives (s)he will need a three-view drawing (or photographs) available when they inspect the aircraft. These do not need to be sent with the application. Most people just use the drawings that are included with the plans. Electronic files are acceptable but they must be viewable during the inspection, which means that a computer needs to be running.

You must also possess a certification of registration. When you send in the form they will run it through the computer to see if it is registered or not. If you do not have the permanent white copy, the temporary pink copy will suffice.

A construction log is required. Kay sees as many types of logs as there are builders. Loose-leaf binder notes are OK, as are photo albums. If the construction log is a computer file she needs to be able to see it during the inspection.

"Experimental" markings must be on the plane and the N-number. The N number must be at least three inches high; if aircraft can exceed 180 knots then must be 12 inches high. The passenger warning placard must be displayed. You will need to have the aircraft fully opened as much as possible with actually disassembling it. That means that all inspection covers should be opened, the cowling off and the wheel pants removed. Aircraft identification is required and must include name of builder and serial number (you may make up your own serial number or use the one assigned by the kit manufacturer or seller of the plans). The ID plate must be fireproof and secured to the exterior of the aircraft.

Although you must attest that the engine has been run for at least one hour, Kay says that they do not need to see it in operation. Note that the inspector will use a checklist, although these

checklists may vary from inspector to inspector.

Inspections can take an hour but sometimes go a couple of hours. First is the paperwork: a check logbooks and ADs (when required of a type certified engine and propeller combination), Lastly is the actual inspection of the aircraft. Once that is done the inspector issues the temporary airworthiness certificate and goes over the limitations with the builder line by line. Kay recommends keeping the better part of a day open for the inspection process.

The FAA used to perform pre-cover inspections; this practice had been discontinued by the time Kay came to FAA 13 years ago. Since 1983 the inspectors have relied on the builders' knowledge and use of acceptable workmanship, methods, techniques and practices. Undoubtedly a major influence on this process has been because of the efforts from individuals like the EAA technical counselors and EAA chapters, and DARs.

Kay claims that inspector cannot tell the builder how to build an aircraft. By issuing the airworthiness certificate the FAA does not say that the aircraft if safe to fly; the builder does. The builder puts a statement in the log book saying that it is safe to fly (last statement in logbook before inspector issues airworthiness certificate). The inspector can and will make suggestions, though. She says that tech counselors are good about advising builders about potential problems and getting airplanes ready. A second set of eyes may see the things that you haven't been looking at.

When the inspection is successfully completed a temporary airworthiness certificate is issued. With the airworthiness certificate there will be limitations issued in two parts. First part is flight test phase. During the flight test phase, the builder will be restricted to flying within the assigned test area. Phase I will last 40 hours, but may be shortened to 25 hours only if a certified engine and propeller combination is used (along with compliance with all applicable ADs). Flights must not be conducted over populated or dense areas and no passengers are permitted.

Once the test hours are flown off the builder puts a statement in the aircraft records that attests that the required test hours have successfully been completed and have recorded all of the pertinent "V" recorded speeds. Now comes Phase II; Kay says that you are good to go!

Concerning the application of the Repairman's Certificate, Experimental aircraft may be kit-built or plans built. Kit-built includes aircraft with subassemblies or major pre-constructed components. Plans-built is an aircraft constructed exclusively from plans (does not count engines, etc.). Plans-built includes aircraft of builder's own design, even if intended to be an eventual kit. To qualify as an amateur-built aircraft the builder must build at least 51% of the aircraft. FAA maintains a list of kits that are already pre-qualified as meeting the 51% rule. Other kits may meet the 51% rule but the builder may need to prove that he/she did at least 51% of the work.

If buying a partially completed kit or components the builder should obtain plans and assembly records. Kay's advice is that it is wise not to buy somebody else's kit.

Kay says that only one person may hold the Repairman's Certificate for any specific Amateur-Built aircraft, and that it is not transferable. If a group of people build an aircraft only one person's name will be on the certificate.

Questions and Answers

Several persons in the audience asked some tough questions that required a bit of research. Kay fielded the questions and promised report back through Mike Laurenzano. Here's what they discovered:

Question: Who can work on an amateur-built aircraft beside the holder of the Repairman's Certificate? Does it require an A/P? **Answer:** Anyone can work on it, and no specific logbook entry is required. Only requirement is that a Condition Inspection (loosely the equivalent of an Annual) be done within the previous 12 months (if flying).

Also, a new owner can make major changes to an amateur-built aircraft during Phase II. Requires a logbook entry before flight and 5 hours of test flight in flight test area. Must records speeds like originally done. Note that the airworthiness certificate is issued to the aircraft, not to the builder. It goes with the aircraft. It is possible to get the limitations amended with the procedure above. Test flight will be required and FAA will need to approve changes.

Question: If I buy an amateur-built aircraft that is in progress (not finished) and not registered, who's name goes on the registration? **Answer:** If you finished it and made the application your name goes on the registration.

Question: Can you use a homebuilt aircraft to receive flight instruction? **Answer:** Yes, even if you pay for the instruction, provided no one is renting the aircraft.

Question: If a new aircraft has an electrical system is a transponder required? **Answer:** Yes and no. The transponder is required for flight into Class A, B and C airspace (you can't go there during Phase I flight, anyway) and some other altitude restrictions. Refer to FAR Part 91.215 for details.

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Nuts & Bolts

(EDITOR'S NOTE: Due to the highly technical nature of the following information there is a strong likelihood that some of it may be in error or incomplete. Please report any necessary changes to the newsletter editor. These changes will be corrected in a future newsletter and/or on the chapter website as a "how to" document.)

The first part of the packet is the program letter. Is very important to answer the yes/no questions correctly because this where the inspector gets the information to do the limitations that are part of the Airworthiness Certificate. There will be two sets of limitations, one set for Phase I (test flying) and one set for Phase II (all flight after Phase I).

Program Letter Page 2: Instrument markings, has the aircraft been weighed? Aircraft type and weight, what scales used? Weight and balance must be shown. Some kits and plans will give sample weight and balances; you will need to show yours specific for your airplane.

Limitations for aerobatic flight. Sometimes confusing to the applicant. FAA needs to know if you want to permit aerobatics or not, and if so, what you want to limit.

Directions to airport (include map if appropriate) of where the aircraft is when it will be inspected. If you change your plans be sure to give the inspector advance notice.

Telephone numbers where you can be reached, email addresses also requested. Anywhere they can leave a message in case their plans change. They check voice mail regularly.

Operating limitations: This states where the aircraft can be flown during Phase I. They will supply small map of test flight area. Inspector has authority to change radius to suit aircraft and location.

Be sure to sign the forms.

Application for the Airworthiness Certificate, form 8130-6. This is the same form that is used for any (GA) aircraft. This gets filed at the FSDO.

Eligibility Statement for Amateur-Built Aircraft, form 8130-12. This statement must be notarized. One copy goes to Oklahoma City; notarized copy goes to the FSDO office.

Airman's Certificate or Repairman's Rating Application, form 8610-2. This is your application for the Repairman's Certificate. 8610-2 goes to the FSDO. Indicate "Experimental, Repairman's Certificate" on the appropriate space. A temporary certificate can be issued in office.

Application for Registration Form (form 8050-1); not available on-line. Call FAA at Oklahoma City 405-954-3116 for this form. It

goes back to OK City.

Affidavit of Ownership (form 8050-88) comes with the cover letter. Goes to Oklahoma City. Add engine builders name and model designation, number of engines, propeller name and model

Cover letter is a canned letter, sometimes with some variation, contains all of the information on where to send the documents. Contains some "nice to know" information on some Advisory Circulars.

Also Worth Studying:

AC20-27e Certification and Operation of Amateur-Built Aircraft

AC21-39 Commercial Assistance During Construction of Amateur-Built Aircraft

AC39-7C Airworthiness Directives

AC65-23a Certification of Repairman, Experimental Aircraft Builders

Most or all of the above documents are available on the internet at the FAA's web site. Some of the AC's are rather large PDF documents that take some time to download, especially via dial-up. The FAA bookstore and some of the FBOs offer these forms and circulars. Note that Chapter 1311 will be keeping a CD of all of the above documents. Contact the Chapter secretary for a copy.

Also see http://www.eaa1311.org/homebuiltlinks.html

From September, 2003 newsletter

At the August meeting the members asked presenter Kay Lannoye some specific questions that required additional research. After meeting with Lannoye Mike Laurenzano reports the following:

1. An owner of a homebuilt aircraft, whether or not the original builder, can do anything to the homebuilt aircraft EXCEPT perform the Conditional ("annual") Inspection;

2. If buying an airplane that is not complete, whoever finished it is considered to be the builder if you have documentation to the FSDO's (or DAR's) satisfaction. It doesn't necessarily mean that you will get the repairman certificate;

3. You may use your homebuilt airplane for paid flight instruction, providing that the aircraft is not rented. be sure you find out about your insurance coverage;

4. A transponder is not required in a homebuilt aircraft UNLESS it is required for a particular airspace or airport;

5. An OPINION gleaned from an FAA magazine, any engine and prop hung on an experimental airplane being an uncertified engine. According to local feds this isn't necessarily true. Laurenzano’s recommendation is to contact the FSDO for its local interpretation of the regulations.