FAA Aviation news

REPRINT

AVIATION SAFETY FROM COVER TO COVER

Home built

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Photo by Lisa Turner

Dedication-Perseverance-Confidence

The satisfaction in building your own airplane

by Kristina Tatusko Henry

Home built

Aviators the world over can admire those small aircraft they see flying over towns and fields everywhere. It is those rare few who can fully appreciate aircraft like the Pulsar XP, a 160 mph two-person home-built, after spending 1,840 hours constructing one in a garage. Lisa Turner is one of those few. Lisa received her private pilot's certificate in 1996 after years of dreaming about becoming an aviator. When she set out to build her own airplane, she had no idea of the time and energy it would require. But once the task was completed, Lisa realized a dream that has taken her on several cross country flights since.

A 1974 graduate of Washington College in Chestertown, MD (on Maryland's Eastern Shore), Lisa moved to South Florida, having spent most of her life in Massachusetts and New York State. It was in Florida where Lisa began her technical vocations, beginning as a bicycle shop mechanic apprentice for a year. It didn't take long for Lisa to start her own retail bicycle sales and service business while also performing automotive repairs, in-

Photo by Steve Shannon

cluding brake jobs and tune-ups.

It was during this time that Lisa pursued another vocation, flying, which began in 1974 with a gift of lessons in a Piper Cherokee.

"At the time I had just graduated college and my wallet wouldn't accommodate continuing flight school."

In 1978, Lisa became one of the few women in the U.S. to become nationally certified by the Association for Service Excellence as an Automotive Tune-Up Specialist. Lisa started her own bike sales and service shop, with revenues reaching a quarter of a million dollars in its fifth year. Lisa sold the business at a profit and returned to school to pursue a career in electrical engineering.

"Other interests filled my life until 1995, when I moved into a house that was located on the downwind for Runway 27 at a nearby airport. My dream awakened. Asleep at night, I would stretch my arms out and take off through the neighborhood - turns, climbs, glides, dives . . . . wake up . . . it's time to learn to fly."

In December of 1995, Lisa took another bold step. Deciding to build her own plane, this determined pilot bought several aviation magazines.

"Throughout the pages I saw aircraft kits . . . . I began my research in earnest. I read everything I could get my hands on. I spent time at the airport talking to builders. I went to Sun 'N Fun for the first time."

Like many pilots who build their own aircraft, Lisa was determined to learn as much as she could.

"I realized I would know every inch of the airplane intimately; I would be able to do my own condition inspections and mechanical work."

Building a plane was a reality, selecting the type of plane became a difficult choice. Ordering six information kits narrowed the field down for Lisa.

"Finally my choice narrowed down, guided by my requirements for low wing, composite construction, two-place, an economical, modern engine (Rotax), capable of cross country comfort, good looks and tame enough for a low time pilot but full of spunk. And there it was: out from the pages of the magazine jumped the PULSAR."

"I traveled to the factory in San Antonio for a demo ride. Bob Kromer of Aero Designs met me at the airport and took me to the Pulsar hangared nearby. As we rode to the airport, Bob patiently answered my questions about the building process. The more I heard, the more enthusiastic I became. When we reached the hangar I was surprised to see that the airplane was even more attractive in the flesh. Let's fly! As we lifted off the small Bulverde runway, Bob gave me the stick. We climbed to 7,500 feet and put the airplane through its repertoire. I was amazed at the power, smooth response, and quietness of the cockpit. This was the perfect airplane for me! One hundred forty - 150 mph cruise at 3.5 mpg, 1,200+ fpm climb out speeds, 600+ miles in range, and a stall speed of 45 mph."

Thrilled by what she saw, Lisa went back to the factory and placed her order.

Convincing her that it would be a

doable project for her, Bob gave her construction manuals to take home.

What Lisa had enough of was tools from her days as a bicycle shop owner. Time was another matter. Already working a 50 to 60 hour week as the human resource manager at Sensormatic Electronics Corporation, Lisa had to put her time management skills to good use.

The irony of beginning her project on April Fool's Day was not lost on Lisa. Hitting the 1,000-hour build mark, caused her to wonder if she would ever see its completion. Deciding to add IFR capability rather than going with VFR was an easy decision for Lisa. It was those “bells and whistles” that presented her biggest challenges.

"The instrument panel... ended up taking much more time than I'd anticipated," said Turner.

"I used a program called 'Panel Planner' which was a big help. I had Aircraft Spruce and Specialty Company cut the panel out of .090 aluminum and powder coat it. I bought all the instruments from them and they were kind enough to weld the radio racks in and wire the sockets and switches. The wiring for the panel was complex and I spent a large amount of time making circuit diagrams."

Add an AM/FM cassette radio behind the seats with a wired remote control at the panel, strobe/nav system, fuel sump drains, electric pitch and roll trim, NASA type temperfoam seat cushions, a storage compartment in the armrest, super soundproofing foam throughout the cockpit and footwell, cabin heat, an engine cooling fan, a landing light, map pockets, stereo speakers in the baggage compartment, and a canopy lock and suddenly this little project took on a new meaning.

"I also designed a set of brake extensions for the Matco heel brake setup to convert them to toe brakes which is working well. It was a lot of fun thinking up things to add, and the other builders had some great ideas too," said Turner.

The entire 1,840 build hours or 20 months were enough to make even the most seasoned aircraft builder cringe from exhaustion. To avoid any surprises at the time of inspection, Lisa enlisted the help of an EAA Technical Advisor to inspect her work at various build stages. She also enlisted an EAA Flight Advisor to make her test flight as safe as possible.

"When I had my FAA airworthiness inspection, the designated examiner couldn't have been more professional and helpful, as well as complimenting me on my project quality," said Turner. "I think the system for homebuilts is excellent - not too much red tape, but

Photo by Steve Shannom

Photo by Lisa Turner

Photo by Gretchen A. Drilling

enough safeguards to ensure the highest level of safety for everyone."

When the moment came for the test flight, Lisa was, for the first time, in 20 months of building, unsure.

"With only 114 flying hours, I had considered enlisting an experienced Pulsar pilot to do my first flight. This is a very individual decision, after going to the Pulsar fly-in in Kansas and getting nearly 10 hours of flight time in Pulsars, I felt comfortable making this important step in my own plane," said Turner joyfully.

Turner recalls the day of her test flight. "I thrilled at the sensation of lifting into the air and feeling the powerful little Rotax engine pull the aircraft up at 1,000 fpm . . . . I turned downwind and found the plane going 120 mph! I pulled the power back to 2,000 rpm and pulled the nose up. The exceptionally responsive controls were smooth and predictable, but I had never flown anything this slick."

A day to be remembered for a long time, and Lisa has been an avid flyer ever since. With over 135 hours in her Pulsar, Lisa has since enjoyed short trips to the Keys and other exotic Florida locations, including Marco Island, Sebring, Tampa, Everglades City, Islamorada. Last fall, Lisa made her first true cross country in the Pulsar, a 3,800 mile trip from Florida that eventually ended up in Bar Harbor, Maine—and return.

"At one point I was registering a ground speed of 197 mph with an airspeed of 156 mph with a great tailwind at 9,500 feet," said Turner recalling that trip.

What's next for this female aviator?

"I am seriously considering a RotorWay helicopter," says Turner. "I would also like to build a Lancair someday. We'll see which one wins out for now!"

If anyone is interested in a Pulsar XP, Lisa's willing to talk or have would-be buyers and home-built fanciers browse via her Web page at http:\\pages.prodigy.net\lisaturner.

For this pilot, there aren't enough hours in the day to do everything she's set her mind to do. But for now, the prospect of building and flying another, larger airplane is enough to keep any pilot, mechanic, and manager happily engaged for a long time.

Any tips she can give to first time builders?

Turner says, "dedication - perseverance - confidence - and a passion for flying can enable anyone to get into the air in their own creation!"

Ms. Tatusko Henry is the Assistant Director of Alumni Affairs at Washington College in Chestertown, Maryland and author of "Sam: The Tale of a Chesapeake Bay Rockfish."

Rules and Regulations of Airplane Building

BY RON ALEXANDER

REPRINT FROM MAY 1997 SPORT AVIATION

We hear the word "experimental" used within the sport aviation industry on a regular basis. The most common use of experimental applies to a classification of an airworthiness certificate used for an amateur built airplane. This is different from the airworthiness category assigned to an airplane that is mass produced by a manufacturer which is then sold to the general public. I will explore the exact meaning of the word experimental later in this article. Suffice to say that FAR (Federal Aviation Regulations) pertaining to the operation of experimental airplanes can be confusing. I will attempt to clarify the confusion that exists and to simplify the regulations as they apply to building an airplane. Each phase of building and operating an amateur-built airplane will be discussed along with the applicable regulations.

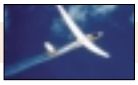
In general, we are very privileged to have only a minimum number of regulations that actually pertain to building and flying our amateur-built aircraft. When an aircraft manufacturer plans to mass produce an airplane, they are required by FAR to comply with design standards that are detailed in FAR Part 23. This regulation is very restrictive as to design, weight, speed, etc. Amateur builders are not restricted by Part 23 or any other certification regulation. Basically, our only restriction is that we must construct and assemble the majority of the aircraft. (Most aircraft kit for recreation and education manufacturers actually voluntarily comply with the guidelines of Part 23.) Part 23 is titled "Airworthiness Standards: Normal, utility, acrobatic and commuter category airplanes." As the builder of our own airplane, which will not be mass produced, we are limited only by our imagination and ingenuity. Of course, when we build our own airplane we are going to impose strict limitations and restrictions concerning quality of construction, materials used, etc. We certainly want a safe, reliable airplane to fly and in which to carry our passengers.

Let's define the "experimental" category and see how it applies to our amateur-built airplane. To legally fly within the United States, we must have four documents on board: an airworthiness certificate, a registration certificate, a copy of the operating limitations, and the weight and balance for our airplane. Airworthiness certificates are classified under two categories according to FAR §21.175 - standard and special. Standard airworthiness certificates are issued for most production airplanes and they are usually classed under the normal category. We are interested in special airworthiness certificates that are further broken down into several additional categories of which one is “experimental." Experimental airworthiness certificates are issued for different purposes. These purposes are: (1) research and development, (2) to conduct flight tests to show compliance with airworthiness regulations, (3) for crew training, (4) for exhibition, (5) for air racing, (6) to conduct market surveys and sales demonstrations, (7) to operate an amateur-built airplane, and (8) to operate a kit-built aircraft that was assembled by a person from a kit manufactured by the holder of a production certificate for that kit.

We will primarily concern ourselves with purpose number 7, to operate an amateur-built airplane. Fully 95% of all airplanes that we build from a set of plans or from a kit will be certificated under the amateur-built classification. Purpose number 8, the kit plane classification, only applies to kit manufacturers who have certified their airplane under a type certificate termed a "primary category" aircraft. To date, only one kit plane manufacturer falls in this category to my knowledge. All other kit plane manufacturers sell their kits to be classed under the experimental certificate for the purpose of operating an amateur-built aircraft. FAR §21.191(g) is the heart of all regulations for the builder of an airplane. This regulation states the following: "Operating amateur-built aircraft. Operating an aircraft the major portion of which has been fabricated and assembled by persons who undertook the project solely for their own education or recreation." This regulation is the essence of custom aircraft building. The intent of the classification is very clear. Notice that one or more persons may build the airplane but they must build it only for their own enjoyment or education, and not for profit.

Ultralight airplanes fall under a different set of rules. If your completed airplane meets the requirements of FAR §103.1, it is classed as an ultralight vehicle and as such does not require an airworthiness certificate. Briefly, these requirements are: single pilot, used for recreation only, weighing less than 254 pounds empty weight, fuel capacity not to exceed 5 U.S. gallons, not capable of more than 55 knots in level flight, and a power-off stall speed not exceeding 24 knots. As you can readily observe, the majority of custom built airplanes exceeds one or more of these criteria. Often, the owner of an ultralight airplane will choose to certificate their aircraft under the experimental category. This is usually done to comply with the regulations regarding weight, passengers, etc. Note that the operator of an ultralight does not have to be a certificated pilot contrasted to the operator of an amateur-built airplane who, of course, must be a licensed pilot and the holder of a current medical certificate.

To continue our discussion of FAR



§21.191(g), it is clear that to certificate an airplane under the experimental category for amateur-built operation, we must assemble and construct at least 51% of the airplane. The FAA emphasizes this restriction in at least two publications. The first is FAA Order 8130.2C, which is the airworthiness certification manual used by FAA Inspectors as a guide to inspect an airplane and to issue an airworthiness certificate. On page 116 of that guide, the following guidelines appear under the eligibility section. (1) "Amateur-built aircraft may be eligible for an experimental airworthiness certificate when the applicant presents satisfactory evidence that the aircraft was fabricated and assembled by an individual or group of individuals." This section goes on to state that the project must be undertaken for educational or recreational purposes and the FAA must find that the airplane complies with acceptable standards. Aircraft that are manufactured and assembled as a business for sale are not considered to be amateur-built. This statement appears within the Order: "NOTE: Amateur-built kit owner(s) will jeopardize eligibility for certification under FAR § 21.191(g) if someone else builds the airplane." The applicant for amateur-built certification must sign a notarized form (FAA Form 8130-12), certifying the major portion, or 51% of the aircraft, was fabricated and assembled for educational or recreational purposes, and that evidence is available to support the statement. The second place the 51% rule is emphasized is in Advisory Circular 20-27D, Certification and Operation of Amateur-Built Aircraft. This section simply emphasizes the major portion rule.

When you purchase an airplane kit from a manufacturer, the kit should be listed on the FAA listing of kits that have been evaluated to ensure that 51% of the building will be completed by the purchaser (this is commonly known as the major portion rule). I want to emphasize that the FAA in no way endorses any of these kits or do they approve kit manufacturers. They simply evaluate the kits solely for the purpose of determining if an aircraft built from the kit will meet the major portion criteria. A listing of these kits is available from your local FAA office. I do not recommend purchasing a kit that is not on this listing unless you are prepared to prove to the FAA Inspector that the kit meets the proper criteria.

The FAA does not expect the builder to personally fabricate every part of the airplane. A number of items can be purchased and several tasks can be contracted commercially. FAA Advisory Circular 20-139, "Commercial Assistance During Construction of Amateur-Built Aircraft," provides a very detailed guide concerning what can be purchased complete and what can be contracted commercially. Engines, propellers, wheel and brake assemblies, and standard aircraft hardware are examples of items that may be purchased. Installation of avionics, painting an airplane, upholstery items are examples of tasks that may be contracted. The bottom line of the entire discussion is that you must prove to the FAA Inspector who issues your airworthiness certificate that you have complied with FAR §21.191(g). In the next issue we will discuss the necessary documentation to present to the inspector to assure your compliance.

If you decide to allow someone else to build your airplane to be certificated as amateur-built, you will be required to certificate it under the experimental category for the purpose of exhibition. This category is much more restrictive than amateur-built. The purpose of this category is to allow the holder to exhibit their airplane at air shows, motion pictures, television filming, etc., and, of course, to fly to and from these productions. I will not spend time discussing this category since it is rarely used.

Now that I have discussed the general regulations concerning building your airplane, I will detail specific regulations as they apply to each phase of building, flying, and maintaining an amateur-built airplane. I would recommend that you obtain a copy of the regulations for your own reference. Several books are available that contain the FAR along with computer discs containing all of the FAA regulations. The FAA also maintains a web site with all regulations. This site can be found at <www.faa.gov>.

INITIAL BUILDING PHASE

The first phase of construction is, of course, the building phase. I would highly recommend that before you begin your project you ask your local FAA office for their information packet that is available relating to amateur-built airplanes. The part of this packet that you will refer to regularly is Advisory Circular 20-27D. Regarding regulations governing the first phase, we have discussed in detail FAR §21.191(g). Another regulation, FAR §21.173, presents the eligibility for an airworthiness certificate. FAR §21.191 defines all purposes that are allowed for licensing under the experimental category including, of course, amateur-built. FAR §21.175 defines the classifications of airworthiness certificates. FAR §21.193 contains the information that must be submitted for an experimental certificate. Advisory Circular 20-27D presents this information much more completely. FAA Part 45 details the markings that are necessary for your aircraft with respect to what is required, size, location, etc. FAR § 45.23 is where we are told that we will display the word "experimental" in letters not less than two inches high nor more than six inches high near the entrance to the cabin or cockpit. FAR §45.29 provides us with the size of registration marks and specifically allows us, as owners of experimental aircraft, to use three inch high numbers and letters providing our maximum cruising speed is less than 180 knots. If our cruising speed is higher than 180 knots, then we are required to use 12 inch letters and numbers. An additional regulation applies if our airplane had an experimental certificate issued more than 30 years ago. This regulation allows us to use numbers and letters only two inches high. FAR §45.22 specifies the rules as they apply to the older airplanes. Details of spacing, width, and other factors are discussed in this section.

Continuing the building stage, FAR §47.15 informs us about registration numbers. You may select an "N" number of your choice providing the number is currently not in use on another airplane. FAR §47.33 lists the information that must be submitted with your application for the "N" number. If you intend to fly your airplane at night or under Instrument Flight Rules, you are required to have specific equipment. The necessary equipment, including instruments, radios, etc. is outlined in FAR §91.205. This regulation also tells you what is needed for VFR flight during the day. FAR §91.207 outlines the requirements for emergency locator transmitters (ELT). The requirements for an ELT are basically the same for all airplanes, including amateur-built. It should be noted that if you remain within 50 nautical miles of your home airport and you are engaged in flight training, you are not required to have an ELT. Also, if you have a single place airplane, you are not required to install an ELT.

Obviously, there are a number of other issues involved in the building phase namely the FAA inspection process and the required documentation and papers. After the FAA inspects your airplane, the inspector will issue a set of Operating Limitations. Those limitations then become regulations for operation of your aircraft and they are actually part of the special airworthiness certificate. The airworthiness certificate will be issued at the time of the inspection and will contain two phases. Phase I is the initial flight testing phase of the aircraft, and Phase 2 lists the operating limitations that go into effect upon completion of the flight testing. Phase 2 applies for the duration of the certificate.

FLIGHT TESTING

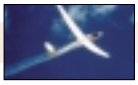
FAR §91.305 defines a flight test area. Basically, it states that you must conduct your flight testing over sparsely populated areas having light air traffic. FAR §91.319 provides a listing of operating limitations. As I mentioned, when your aircraft is inspected you will be given a copy of operating limitations. Usually, the inspector will issue Phase 1 and Phase 2 at the time of inspection providing you with two sets of operating limitations: flight testing and subsequent operation. The flight test area is defined within the Phase 1 limitations along with the required number of hours you must fly the aircraft. The primary restrictions regarding flight testing are: (1) no passengers including flight instructors or persons non necessary for the conduct of flight, (2) day, VFR only, (3) no operation over congested areas, (4) you must advise ATC that you are experimental, and (5) the pilot must have the appropriate ratings. Of course, the general operating rules under FAR Part 91 are applicable. Phase 1 operating limitations have an expiration time of 12 months from date of issue. All flight testing must be completed within that time period or the aircraft must be reinspected. One of the restrictions in FAR §91.319 that is interesting is that in order to have the Phase restrictions lifted you must prove that the aircraft has no hazardous operating characteristics and that it is controllable throughout its normal range of speeds and maneuvers. The FAA has an Advisory Circular that is very helpful in providing guidelines for flight testing. This circular, Advisory Circular 90-89A, Amateur-Built Aircraft Flight Testing Handbook, is necessary to read prior to your first flight. Also, the EAA Flight Advisor Program is highly recommended. The flight testing phase should be an enjoyable conclusion to your building experience and it will be if planned and executed properly.

NORMAL OPERATION OF YOUR AMATEUR-BUILT

Once again, all of the general operating rules under FAR Part 91 apply to daily operations of your aircraft. In addition, the operating limitations presented under FAR § 91.319 and as issued by the FAA Inspector at the time of inspection govern. After completion of Phase 1, you are then allowed to carry passengers and fly at night or IFR if so equipped. Phase 2 limitations do add some restrictions that merit discussion. First of all, you may not carry passengers or property for hire. Secondly, any major changes that are made to the airplane as defined by FAR § 21.93 require inspection by the FAA prior to further flight. A minor change is defined as one that has no appreciable effect on the weight, balance, structure, or anything affecting the airworthiness. Examples of a major change would be a different horsepower engine, a different pitch propeller, a change in basic design, etc. If a major change is made, notify the FAA in writing providing the details of the change to ascertain whether or not an inspection will be required. Thirdly, you may not operate your airplane unless it has received a condition inspection (annual inspection). This will be discussed in the next section.

MAINTAINING YOUR AIRPLANE

As I mentioned in the previous section, a condition inspection is required every 12 calendar months on amateur-built aircraft. This check is similar to an annual inspection required by FAR Part 43 on production airplanes. The Phase 2 Operating Limitations specifically refer to FAR Part 43, Appendix D, as the guide to performing this inspection. The inspection can be performed by any licensed A&P mechanic, an FAA Approved Repair Station, or by the builder of the airplane provided the builder obtains a "Repairman's Certificate" from the FAA. FAA Advisory Circular 65-23A, Certification of Repairmen (Experimental Aircraft Builders), is available for information concerning application and privileges of this certificate. In short, the primary builder of the airplane is eligible to apply for this certificate which then permits inspection of the airplane and a logbook endorsement of the condition check. It is noteworthy that the primary builder must be one person. If a group of people builds an airplane, only one can be designated as the primary builder. In addition, the issuance of the repairman's certificate only applies to the one airplane that has been built by the pri-



mary builder and no other airplane regardless of same type, etc.

Normal maintenance on an experimental airplane can be performed virtually by anyone regardless of credentials. Once again, this does not apply to the condition check previously discussed. You can perform maintenance items on the engine whether or not it is "certified." Once a certified engine is placed on an amateur-built aircraft and is operated, it no longer conforms to its type design. This means that the engine can no longer be placed on any aircraft other than an amateur-built until it has been inspected and found to meet its type design. It also must be found to be in a condition for safe operation "airworthy." Once again, common sense should rule. We do not want to overhaul an engine on our airplane unless we are equipped to do so with tools and proper knowledge and data.

I will point out that FAR Part 43 specifically states that the rules of that part do not apply to amateur-built airplanes. With that in mind, anyone can maintain the airplane. However, remember in our earlier discussion that Part 43, Appendix D was referenced in Phase 2 operating limitations presented to the builder at the time of inspection. It is referenced as a guide to be used in conducting condition inspections. That means Part 43, Appendix D does apply to the condition inspection because of this reference. The FAA has further clarified AD (Airworthiness Directives) as they apply to amateur-built airplanes. Airworthiness Directives cannot apply to any part on an amateur-built airplane unless that specific airplane is cited along with who should do the work and to what standards. The reason for this is because once an approved part is placed on an experimental airplane it is no longer considered an approved part. Again, let me emphasis that just because a regulation does not require an action it still may be prudent and within our best interest to conform to an AD note. We are striving to improve the safety record of this industry and in all cases we must act on the side of common sense and good practice.

REGULATIONS INVOLVING THE SALE OF YOUR AMATEUR-BUILT

There are few regulations governing a sale of your airplane. The airworthiness certificate is transferable with the airplane even though it is experimental (FAR §21.179). The proper bill of sale and registration documents must be completed when you sell the airplane. Of particular

ADDITIONAL INFORMATION: Experimental Exhibition

An aircraft may be issued an airworthiness certificate under the provisions of 14 CFR part 21.191(g) if the major portion of the aircraft was fabricated and assembled by one or more persons, solely for the purpose of education and recreation. An aircraft may not meet the requirements for certification under the amateur-built rule if the aircraft has been built by a commercial builder. If the aircraft cannot meet the requirements of 14 CFR Section 21.191(g) as an aircraft which was built for the purpose of recreation and education, the owner may have no recourse other than certification in the experimental-exhibition category.

An applicant for an experimental category airworthiness certificate for the purpose of exhibition must keep in mind that the purpose is to exhibit the aircraft in motion picture and television productions or at airshows or other organized events and not, as some think, for personal transportation. Proficiency flying (for the purpose of practicing for airshows) is also one of the purposes for the certification.

Operators or owners of experimental category exhibition aircraft will have their aircraft assigned to one of four groups under which operating parameters are established.

Group 1 aircraft are those specialty aircraft that posses design characteristics that make the aircraft suitable for competition, would only be used in performance based competitive events (air racing, aerobatic, soaring), and would not be utilized for personal business or transport activity. These aircraft are limited to a proficiency area of 300 nautical miles from their designated home base airport.

Group 2 aircraft includes turbo-fan, turbo-jet, or turbo-prop aircraft except those which have a design capability or carrying cargo or more than four occupants. These aircraft are limited to a proficiency area of no more than 600 nautical miles from the designated home base airport with a non-stop flight that begins and ends at the home airport. An alternate airport may be selected within the proficiency area, however, the operator must notify his or her Flight Standards District Office of the destination before making such a flight.

Group 3 aircraft are those piston-powered, military aircraft, replicas and vintage aircraft produced before 1945 and commonly classed as "Warbirds." These aircraft are limited to a proficiency area of 300 or 600 nautical miles depending upon horsepower and never-exceed speed (Vne)

Group 4 is the "other" category where most commercially built aircraft are placed. Group 4 is for aircraft which do not clearly fit into groups 1, 2, or 3. The aircraft are limited to non-stop flights from the home airport or to predetermined airshows and other exhibits.

The appropriate reference for experimental category aircraft issued an airworthiness certificate for the purpose of exhibition, is FAA Order 8130.27. Information regarding this and other FAA Orders and Notices may be found at <www.faa.gov>.

interest is the fact that the new owner may maintain the newly purchased airplane, but may not perform the condition check. The repairman's certificate is not transferred with the airplane. It remains with the original primary builder. That person legally may still perform the condition check if you can persuade him to do so. If you are purchasing a partially completed kit you need to obtain the proper documentation to ensure you will meet the major portion rule. FAA Advisory Circular 20-27D has the following warning: "CAUTION: Purchasers of partially completed kits should obtain all fabrication and assembly records from the previous owner(s). This may enable the builder who completes the aircraft to be eligible for amateur-built certification." Once again, a call to your FAA Inspector will prevent future problems. The time spent by the original builder is usually applied toward the total time required to build the airplane. Documentation is necessary.

Summary of Federal Aviation Regulations
Amateur-Built Aircraft

Initial Building

21.191 Basic definition of amateur-built
21.175 Classification of airworthiness
21.193 Needed information for experimental licensing
45.22 "N" number rules
45.23 Experimental display
45.25 Location of "N" number
45.29 Size of "N" number
47.15 General information/"N" number
47.33 General information/"N" number
91.205 Instrument and equipment requirements
Advisory Circular 20-27D
Advisory Circular 20-139

Flight Testing

91.305 Flight testing area
91.319 Operating limitations
Advisory Circular 90-89A

Normal Operation

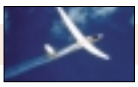
21.181 Duration of airworthiness
91.25 Accident Reporting
91.207 ELT requirements
91.319 Operating limitations

Maintenance

21.93 Major and minor alterations
Part 43, Appendix D
Advisory Circular 65-23A

Sale

21.179 Transfer of airworthiness



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