

Advisory  
Circular  
U.S. Department  
of Transportation  
Federal Aviation  
Administration

Subject: CERTIFICATION AND OPERATION OF AMATEUR-BUILT AIRCRAFT      Date: 6/22/90      AC No: 20-27D  
Initiated by: AIR-200      Change:

1. PURPOSE. This advisory circular (AC) provides guidance concerning the building, certification, and operation of amateur-built aircraft of all types; explains how much fabrication and assembly the builder must do for the aircraft to be eligible for amateur-built certification; and describes the Federal Aviation Administration (FAA) role in the certification process.

2. CANCELLATIONS. Advisory Circular 20-27C, Certification and Operation of Amateur-Built Aircraft, dated April 1, 1983, is canceled.

3. BACKGROUND. The Federal Aviation Regulations (FAR) provide for the issuance of FAA Form 8130-7, Special Airworthiness Certificate, in the experimental category to permit the operation of amateur-built aircraft. Federal Aviation Regulations section 21.191(g) defines an amateur-built aircraft as an aircraft, the major portion of which has been fabricated and assembled by person(s) who undertook the construction project solely for their own education or recreation. Commercially produced components and parts which are normally purchased for use in aircraft may be used, including engines and engine accessories, propellers, tires, spring steel landing gear, main and tail rotor blades, rotor hubs, wheel and brake assemblies, forgings, castings, extrusions, and standard aircraft hardware such as pulleys, bellcranks, rod ends, bearings, bolts, rivets, etc.

4. DEFINITION. As used herein, the term "office" means the FAA Flight Standards District Office (FSDO), Manufacturing Inspection District Office (MIDO), or Manufacturing Inspection Satellite Office (MISO) that may perform the airworthiness inspection and certification of an amateur-built aircraft.

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5. FAA INSPECTION CRITERIA.

a. The amateur-built program was designed to permit person(s) to build an aircraft solely for educational or recreational purposes. The FAA has always permitted amateur builders freedom to select their own designs. The FAA does not formally approve these designs since it is not practicable to develop design standards for the multitude of unique design configurations generated by kit manufacturers and amateur builders.

b. In the past, the FAA inspected amateur-built aircraft at several stages during construction. These inspections were commonly called precover inspections. The FAA also inspected the aircraft upon completion, before the initial issuance of the special airworthiness certificate, for the purpose of showing compliance with FAR section 91.42(b) (new FAR section 91.319), and again before issuance of the unlimited duration FAA Form 8130-7. After reassessing the need for these inspections, the FAA in 1983 decided to perform

only one inspection prior to initial flight test.

NOTE: FAR Part 91 has been revised effective August 18, 1990. Both old and new FAR sections are referenced in this AC.

C. Since 1983, FAA inspections of amateur-built aircraft have been limited to ensuring the use of acceptable workmanship methods, techniques, practices, and issuing operating limitations necessary to protect persons and property not involved in this activity.

d. In recent years, amateur builders have adopted a practice whereby they call upon persons having expertise with aircraft construction techniques, such as the Experimental Aircraft Association (EAA) Technical Counselors (reference paragraph 6.(a)) to inspect particular components, e.g., wing assemblies, fuselages, etc., prior to covering, and to conduct other inspections, as necessary. This practice is an effective means of ensuring construction integrity.

e. The FAA has designated some private persons to act in its behalf in the inspection of amateur-built aircraft and the issuance of airworthiness certificates. These persons are known as Designated Airworthiness Representatives (DAR) and are authorized to charge for their services. These charges are set by the DAR and are not governed by the FAA. The amateur-builder may contact the local FAA office to locate a DAR.

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f. In view of the foregoing considerations, the FAA has concluded that safety objectives, relative to the amateur-built program, can continue to be met by the use of the following criteria:

(1) Amateur builders should have knowledgeable persons (i.e., FAA certificated mechanics, EAA Technical Counselors, etc.) perform precover inspections and other inspections as appropriate. In addition, builders should document the construction using photographs taken at appropriate times prior to covering. The photographs should clearly show methods of construction and quality of workmanship. Such photographic records should be included with the builder's log or other construction records.

(2) The FAA inspector or DAR will conduct an inspection of the aircraft prior to the issuance of the initial FAA Form 8130-7 to enable the applicant to show compliance with FAR section 91.42(b) (new FAR section 91.319). This inspection will include a review of the information required by FAR section 21.193, the aircraft builder's logbook, and an examination of the completed aircraft to ensure that proper workmanship has been used in the construction of the aircraft. Also, the appropriate operating limitations will be prescribed at this time in accordance with FAR section 91.42 (new FAR section 91.319).

(3) An FAA inspector or DAR may elect to issue amateur built airworthiness certificates on a one-time basis to the builder for showing compliance with FAR section 91.42(b) (new FAR section 91.319) and continued operation under FAR section 21.191(g). Under this procedure, the aircraft will be inspected by the FAA only once prior to flight testing. The airworthiness

certificate will be issued, but its validity will be subject to compliance with the operating limitations. The limitations will provide for operation in an assigned flight test area for a certain number of hours before the second part of the limitations becomes effective, releasing the aircraft from the test area.

## 6. DESIGN AND CONSTRUCTION.

a. Many individuals who desire to build their own aircraft have little or no experience with respect to aeronautical practices, workmanship or design. An excellent source for advice in such matters is the EAA located in Oshkosh, Wisconsin. (See appendix 1.) The EAA is an organization established for the

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purpose of promoting amateur aircraft building and giving technical advice and assistance to its members. The EAA has implemented a Technical Counselors Program whose aim is to ensure the safety and dependability of amateur-built aircraft. Most EAA Technical Counselors are willing to inspect amateur-built aircraft projects and offer constructive advice regarding workmanship and/or design.

b. Any choice of engines, propellers, wheels, other components, and any choice of materials may be used in the construction of amateur-built aircraft. However, it is strongly recommended that FAA-approved components and established aircraft quality material be used, especially in fabricating parts constituting the primary structure, such as wing spars, critical attachment fittings, and fuselage structural members. Inferior materials, whose identity cannot be established, should not be used. The use of major sections (i.e., wings, fuselage, empennage, etc.) from type certificated aircraft may be used in the construction as long as the sections are in a condition for safe operation. These sections are to be considered by the FAA inspector or DAR in determining the major portion in FAR section 21.191(g), but no credit for fabrication and assembly would be given the builder for these sections. It is recommended that builders contact their local FAA office to coordinate the use of such sections.

c. The design of the cockpit or cabin of the aircraft should avoid, or provide for padding on, sharp corners or edges, protrusions, knobs and similar objects which may cause injury to the pilot or passengers in the event of an accident. It is strongly recommended that Technical Standard Order (TSO) approved or equivalent seat belts be installed along with approved shoulder harnesses.

d. An engine installation should ensure that adequate fuel is supplied to the engine in all anticipated flight attitudes. Also, a suitable means, consistent with the size and complexity of the aircraft, should be provided to reduce fire hazard wherever possible, including a fireproof firewall between the engine compartment and the cabin. When applicable, a carburetor heat system should also be provided to minimize the possibility of carburetor icing.

e. Additional information and guidance concerning acceptable fabrication and assembly are provided in AC 43.13-1A, Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair, and AC 43-13-2A, Acceptable Methods, Techniques, and Practices - Aircraft Alterations. These publications are available from the U.S. Government Printing Office.

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f. The builder should obtain the services of a qualified aeronautical engineer or consult with the designer of purchased plans or construction kits, as appropriate, to discuss the proposal if the aircraft design is modified during construction.

#### 7. CONSTRUCTION KITS.

a. Construction kits containing raw materials and some prefabricated components may be used in building an amateur-built aircraft. However, aircraft which are assembled entirely from kits composed of completely finished prefabricated components, parts and precut and predrilled materials are not considered to be eligible for certification as amateur-built aircraft since the major portion of the aircraft would not have been fabricated and assembled by the builder.

b. An aircraft built from a kit may be eligible for amateur-built certification, provided the major portion has been fabricated and assembled by the amateur-builder. Kit owner(s) may jeopardize eligibility for amateur-built certification under FAR section 21.191(g) if they allow someone else to build the aircraft. The major portion of such kits may consist of raw stock such as lengths of wood, tubing, extrusions, etc., which may have been cut to an approximate length. A certain quantity of prefabricated parts such as heat treated ribs, bulkheads or complex parts made from sheet metal, fiber glass, or polystyrene would also be acceptable, provided the kit still meets the major portion of the fabrication and assembly requirement, and the amateur builder satisfies the FAA inspector or DAR that completion of the aircraft kit is not merely an assembly operation.

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.

c. Various material/part kits for the construction of aircraft are available nationally for use by aircraft builders. Advertisements tend to be somewhat vague and may be misleading as to whether a kit is eligible for amateur-built certification. It is not advisable to order a kit before verifying with the local FAA office if the aircraft, upon completion, may be eligible for certification as amateur-built under existing rules and established policy.

d. It should be noted the FAA does not certify aircraft kits or approve kit manufacturers. However, the FAA does perform evaluations of kits which have potential for national sales interest, but only for the purpose of determining if an

aircraft built from the kits will meet the major portion criteria. A list of these kits is maintained at the local FAA office for information to prospective builders.

8. REGISTRATION AND MARKING INFORMATION. Federal Aviation Regulations section 21.173 requires that all U.S. civil aircraft be registered before an airworthiness certificate can be issued. Federal Aviation Regulations Part 47, Aircraft Registration, prescribes the requirements for registering civil aircraft. The basic procedures are as follows:

a. A builder wishing to register an aircraft must first obtain a registration number assignment (N-number) from the FAA Aircraft Registry. (See appendix 1 for the address of the Aircraft Registry.) This number will eventually be displayed on the aircraft. It is not necessary to obtain a registration number in the early stages of the project. Builders intending to obtain a special number of their choice must submit a letter (see appendix 2) listing up to 5 possible registration numbers desired. Under FAR Part 47, a special registration number will cost \$10 and may be reserved for no longer than 1 year. Renewal is necessary each year with an additional \$10 fee. If a special number is being requested along with registration, an additional \$5 fee is required. Although this reservation does not apply to numbers assigned at random by the Aircraft Registry, it is recommended that application for registration number assignment in either case be made 60 to 90 days prior to completion of construction.

b. To apply for either a random or special registration number assignment, the owner of an amateur-built aircraft must provide information required by the Aircraft Registry by properly completing an Aeronautical Center (AC) Form 8050-88, Affidavit of Ownership for Amateur-Built Aircraft (see appendix 3). The affidavit establishes the ownership of the aircraft; therefore, all aircraft information must be given. If the aircraft is built from an eligible kit, the builder should also submit a signed bill of sale from the manufacturer of the kit as evidence of ownership. If AC Form 8050-2, Aircraft Bill of Sale, is used, the word "aircraft" should be deleted and the word "kit" inserted in its place. (See appendix 4.)

c. After receipt of the applicant's letter requesting a special or random number assignment, the Aircraft Registry will send a form letter to the applicant giving the number assigned (this does not constitute registration of the aircraft), a blank AC Form 8050-1, Aircraft Registration Application, and other registration information. All instructions must be carefully followed to prevent return of the application and delay in the registration process.

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d. The applicant must complete and return the white original and green copy of the Aircraft Registration Application (with N-number) to the Aircraft Registry as soon as possible, accompanied with a fee of \$5 by check or money order payable to the FAA (see appendix 5). The pink copy of the application is to be retained by the applicant and carried in the aircraft as temporary authority to operate without registration for a maximum of 90 days or until receipt of AC Form 8050-3, Certificate of Aircraft Registration. If AC Form 8050-3 is not received in the 90-day period, the builder must obtain written authority from the Aircraft Registry for continued operation. However, if the

recommendations in paragraph 8.a through 8.d above are followed, the applicant should have received AC Form 8050-3 before the airworthiness inspection.

9. IDENTIFICATION AND REGISTRATION MARKS. When applying for an airworthiness certificate for an amateur-built aircraft, the builder must show in accordance with FAR section 21.182 that the aircraft displays the nationality and registration markings required by FAR Part 45. The following is a summary of the FAR Part 45 requirements:

a. The aircraft must be identified by means of a fireproof identification plate that is etched, stamped, engraved, or marked by some other approved fireproof marking as required by FAR section 45.11. The identification plate must include the information required by FAR section 45.13.

b. The identification plate must be secured in such a manner that it will not likely be defaced or removed during normal service, or lost or destroyed in an accident. Aircraft built and certificated after March 7, 1988, must have the identification plate located on the exterior either adjacent to and aft of the rear-most entrance door or on the fuselage near the tail surfaces and must be legible to a person standing on the ground (reference FAR section 45.11.)

c. The name on the identification plate must be that of the amateur builder, not the designer, plans producer, or kit manufacturer. The serial number can be whatever the builder wishes to assign, provided it is not the same as other aircraft serial numbers.

d. The builder should refer to FAR sections 45.22 and 45.25, which define specific requirements for the location of registration marks on fixed-wing aircraft. The location of registration marks for non-fixed wing aircraft are specified in FAR section 45.27. These registration marks must be painted on or affixed by any means insuring a similar degree of permanence.

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Decals are also acceptable. The use of tape which can be peeled off, or water soluble paint, such as poster paint, is not considered acceptable.

e. Most amateur-built aircraft are required to display nationality and registration marks with a minimum height of 3 inches. However, if the maximum cruising speed of the aircraft exceeds 180 knots calibrated air speed (207 miles per hour), the registration marks must be at least 12 inches high. The builder should refer to FAR section 45.29, which defines the minimum size and proportions for nationality and registration marks on all types of aircraft.

f. The registration marks displayed on the aircraft must consist of the Roman capital letter "N" (denoting United States nationality) followed by the registration number of the aircraft. (Registration marks may not exceed five symbols following the prefix letter "N". These symbols may be all numbers (e.g., N-10000); one to four numbers and one suffix letter (e.g., N-1000A); or one to three numbers and two suffix letters (e.g., N-100AB). Any suffix letter used in the marks must also be a Roman capital letter. The letters "I" and "O" may not be used. The first zero in a number must always be preceded by at least one of the numbers 1 through 9. In addition, the word "experimental" must also be displayed on the aircraft near each entrance (interior or exterior) to the

cabin or cockpit in letters not less than 2 inches nor more than 6 inches in height.

g. If the configuration of the aircraft prevents marking in compliance with any of the above requirements, the builder should contact an FAA office regarding approval of a different marking procedure under FAR section 45.22(d). It is strongly recommended that any questions regarding registration marking be discussed and resolved with a local FAA inspector or DAR before the marks are affixed to the aircraft.

10. CERTIFICATION STEPS. The following procedures are in the general order to be followed in the certification process:

a. Initial Step. The prospective builder should contact the nearest FAA office to discuss the plans for building the aircraft with an FAA inspector. During this contact, the type of aircraft, its complexity and/or materials should be discussed. The FAA may provide the prospective builder with any guidance necessary to ensure a thorough understanding of applicable regulations.

b. Registration. Detailed procedures are in paragraph 8 of this AC. This must be done before submitting an FAA Form 8130-6, Application for Airworthiness Certificate, under FAR section 21.173 to an FAA inspector or DAR.

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c. Marking. The registration number (N-number) assigned to the aircraft and an identification plate must be affixed in accordance with FAR section 21.182 and Part 45, Identification and Registration Marking. Detailed procedures are in paragraphs 8 and 9 of this AC.

d. Application. The builder may apply for a special airworthiness certificate by submitting the following documents and data to the nearest FAA office or to the DAR.

- (1) Federal Aviation Administration Form 8130-6 (see appendix 6).
- (2) Enough data, such as photographs or three-view drawings, to identify the aircraft.
- (3) A notarized FAA Form 8130-12, Eligibility Statement - Amateur-Built Aircraft, certifying the major portion was fabricated and assembled for education or recreation, and that evidence is available to support this statement. Evidence will be provided to the FAA Inspector or DAR upon request. (See appendix 7.)
- (4) A letter identifying the aircraft and the area over which the aircraft will be tested should accompany the application. (See appendix 8.)

11. AIRCRAFT INSPECTION. The applicant should be prepared to furnish the following to the FAA inspector or DAR:

a. An aircraft complete and ready to fly except for cowlings, fairings, and panels opened for inspection.

b. An Aircraft Registration Certificate, AC Form 8050-3, or the pink copy of Aircraft Registration Application, AC Form 8050-1 (with N-number).

c. Evidence of inspections, such as logbook entries signed by the amateur builder, describing all inspections conducted during construction of the aircraft in addition to photographic documentation of construction details. This will substantiate that the construction has been accomplished in accordance with acceptable workmanship methods, techniques, and practices. It is recommended that this evidence be documented in some form (e.g., the Service and Maintenance Manual available from the EAA).

d. A logbook for the aircraft, engine, and propeller to allow for review of service records and recording of inspection and certification by the FAA inspector or DAR.

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## 12. FAA INSPECTION AND ISSUANCE OF AIRWORTHINESS CERTIFICATE.

a. After inspection of the documents and data submitted with the application, the applicant should expect the FAA inspector or DAR to inspect the aircraft. Upon a determination that the aircraft has been properly constructed, the FAA inspector or DAR may issue an FAA Form 8130-7, together with appropriate operating limitations. The applicant should expect the FAA inspector or DAR to verify that all required markings are properly applied, including the following placard which must be displayed in the cabin or the cockpit at a location in full view of all passengers. (Placard not applicable to single-place aircraft.)

"PASSENGER WARNING - THIS AIRCRAFT IS AMATEUR-BUILT AND DOES NOT COMPLY WITH FEDERAL SAFETY REGULATIONS FOR STANDARD AIRCRAFT"

b. Details concerning flight test areas are contained in paragraph 13. The operating limitations are a part of the airworthiness certificate and must be displayed with the certificate when the aircraft is operated. It is the responsibility of the pilot to conduct all flights in accordance with the operating limitations, as well as the General operating and Flight Rules in FAR Part 91.

c. In the case of a limited duration airworthiness certificate, upon satisfactory completion of operations in accordance with FAR section 91.42(b) (new FAR section 91.319), in the assigned test area, the owner of the aircraft may apply to the local FAA office or a DAR for amended operating limitations by submitting another FAA Form 8130-6, along with a letter requesting amendment of operating limitations. Prior to issuance of the amended limitations and a new FAA Form 8130-7, the applicant should expect the FAA inspector or DAR to review the flight log to determine whether corrective actions have been taken on any problems encountered during the testing and that the aircraft's condition for safe operation has been established. Reinspection of the aircraft may be

necessary.

d. Refer to paragraph 13d.(1) and (2) for the processing of unlimited duration airworthiness certificates.

### 13. FLIGHT TEST AREAS.

a. Amateur-built airplanes and rotorcraft will initially be limited to operation within an assigned flight test area for at least 25 hours when a type certificated (FAA-approved)

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engine/propeller combination is installed, or 40 hours when a non-certificated (i.e., modified type certificated or automobile) engine/propeller combination is installed. Amateur-built gliders, balloons, dirigibles and ultralight vehicles built from kits evaluated by the FAA and found eligible to meet requirements of FAR section 21.191(g), for which original airworthiness certification is sought, will be limited to operation within an assigned flight test area for at least 10 hours of satisfactory operation, including at least five takeoffs and landings.

b. The desired flight test area should be requested by the applicant and, if found acceptable by the FAA inspector or DAR, will be approved and specified in the operating limitations. It will usually encompass the area within a 25-statute mile radius (or larger depending on the type of aircraft) from the aircraft's base of operation or in a designated test area established by the local FAA office. The area selected by the applicant and submitted to the FAA for approval should not be over densely populated areas or in congested airways, so that the flight testing, during which passengers may not be carried, would not likely impose any hazard to persons or property on the ground. Advisory Circular 90-89, Amateur-Built Aircraft Flight Testing Handbook, contains recommended procedures for the flight testing of amateur-built aircraft. It is strongly recommended that amateur builders obtain a copy of this AC and follow its guidance.

c. The carrying of passengers will not be permitted while the aircraft is restricted to the flight test area. It is suggested that a tape recorder, for example, be used by the pilot for recording readings, etc. Flight instruction will not be allowed in the aircraft while in the flight test area.

d. In those instances where the unlimited duration special airworthiness certificate was issued, the operating limitations may be prescribed in two phases in the same document as follows:

(1) For the Phase I limitations, the applicant will receive from the certificating FAA inspector or DAR all those operating limitations, as appropriate, for the applicant to demonstrate compliance with FAR section 91.42(b) (new FAR section 91.319) in the assigned test area. This would further include a limitation requiring the owner/operator to endorse the aircraft logbook with a statement certifying when the aircraft has been shown to comply with FAR section 91.42(b) (new FAR section 91.319). The owner/operator may then operate in accordance with Phase II.

(2) For the Phase II limitations, the applicant will receive from the certificating FAA inspector or DAR all those operating limitations, as appropriate, to the issuance of an unlimited duration FAA Form 8130-7 for the operation of an amateur-built aircraft. Appendix 9 contains a sample of typical operating limitations that may be issued. For special conditions, these may vary for each aircraft.

14. SAFETY PRECAUTION RECOMMENDATIONS.

a. All Aircraft.

(1) The pilot should become thoroughly familiar with the brake tests, engine operation, and ground handling characteristics of the aircraft by conducting taxi tests before attempting flight operations. Liftoff is not permitted during taxi tests without an airworthiness certificate.

(2) Before the first flight of an amateur-built aircraft, the pilot should take precautions to ensure that emergency equipment and personnel are readily available in the event of an accident.

(3) Violent or acrobatic maneuvers should not be attempted until sufficient flight experience has been gained to establish that the aircraft is satisfactorily controllable throughout its normal range of speeds and maneuvers. Those maneuvers successfully demonstrated while in the test area may continue to be permitted by the FAA when the operating limitations are modified to eliminate the test area. All maneuvers satisfactorily conducted are to be documented in the aircraft logbook by the pilot.

(4) The operating limitations issued by the FAA inspector or DAR will require the aircraft to be operated in accordance with applicable air traffic control and general operating rules of FAR Part 91 as they apply to amateur-built aircraft. Those operators who plan to operate under Instrument Flight Rules are alerted to the specific requirements under FAR sections 91.115 through 91.129 (new FAR section 91.173 through 91.187).

(5) Depending on the intended operation under FAR Part 91, the following FAR sections may be applicable:

a. FAR Section 91.33(b) (new FAR section 91.205) Visual Flight Rules (day).

b. FAR Section 91.33(c) (new FAR section 91.205) Visual Flight Rules (night).

c. PAR section 91.33(d) (new FAR section 91.205) Instrument

Flight Rules.

(6) Unless authorization to deviate is obtained from Air Traffic Control, any aircraft that will be equipped with a Mode C transponder shall have a calibrated airspeed/static pressure system to prevent an error in altitude reporting. (Reference FAR section 23.1323 and 23.1325.) The Mode C transponder must be tested and inspected per FAR section 91.172 (new FAR section 91.413).

(7) An emergency locator transmitter is required to be on board by FAR section 91.52 (new FAR section 91.207) upon release from the flight test area. Single-place aircraft are exempt from this requirement in accordance with FAR section 91.52(f)(9) (new FAR section 91.207).

b. Rotorcraft. The appropriately rated rotorcraft pilot should be aware of the following operating characteristics:

(1) operators of rotorcraft having fully articulated rotor systems should be particularly cautious of "ground resonance." This condition of rotor unbalance, if maintained or allowed to progress, can be extremely dangerous and usually results in structural failure.

(2) Tests showing that stability, vibration, and balance are satisfactory should normally be completed with the rotorcraft tied down, before beginning hover or horizontal flight operations.

15. AMATEUR-BUILT AIRCRAFT CONSTRUCTED OUTSIDE THE UNITED STATES AND PURCHASED BY U.S. CITIZENS.

a. When a U.S. citizen purchases such aircraft, acceptable procedures for obtaining airworthiness certification for amateur-built operations are as follows:

(1) The previous owner should have conducted or had a condition/annual type inspection performed on the aircraft within 30 days of the new U.S. owner applying for certification. This inspection shall be recorded in the aircraft records.

(2) The previous owner should obtain documentation from their Civil Aviation Authority that verifies the aircraft is/was originally certificated in that country as an amateur-built, and that the aircraft meets the requirements of FAR section 21.191(g). This documentation should be furnished to the new owner.

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b. The new owner of such aircraft shall present the FAA inspector or DAR with a properly completed FAA Form 8130-6, along with the following documentation:

(1) All letters and records of inspections called for in paragraph 15.a. (1) and (2).

(2) Proper documentation of registration in accordance

with FAR section 47.

(3) A letter of request to accompany the FAA Form 8130-6.

c. The applicant should expect the FAA inspector or DAR to:

(1) Conduct a thorough review of all documentation called for under paragraphs 15 a and b.

(2) Determine the amateur-built eligibility of the aircraft presented.

(3) Inspect the aircraft like any other amateur-built aircraft, since these airworthiness certifications are considered original.

(4) If the aircraft is found to be eligible and inspection is satisfactory, issue the FAA Form 8130-7 with proper operating limitations. If the required flight time has not been met or there is some question regarding the aircraft's flight capability, the certificating representative may require flight testing.

(5) Advise that the condition inspection on the aircraft can only be performed by the original builder.

16. REPAIRMAN CERTIFICATION. The aircraft builder may be certificated as a repairman if the builder is the primary builder of the aircraft and can satisfactorily prove requisite skill in determining whether the aircraft is in condition for safe operation. This certification can be obtained by making application to the local FAA office after the satisfactory completion of required flight hours in the test area. Each certificate is issued for a particular aircraft. (See appendix 10.)

17. REFERENCE MATERIAL.

a. AC Forms. These forms may be obtained through the local District Office.

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AC Form 8050-1, Aircraft Registration Application.

AC Form 8050-2, Aircraft Bill of Sale.

AC Form 8050-88, Affidavit of Ownership for Amateur-Built Aircraft.

FAA Form 8130-6, Application for Airworthiness Certificate.

FAA Form 8130-12, Eligibility Statement - Amateur-Built Aircraft.

FAA Form 8610-2, Airman Certificate and/or Rating Application.

b. Federal Aviation Regulations.

Part 21, Certification Procedures for Products and Parts.

Part 45, Identification and Registration Marking.

Part 47, Aircraft Registration.

Part 65, Certification: Airmen Other Than Flight Crew-members.

Part 91, General Operating and Flight Rules.

Part 101, Moored Balloons, Kites, Unmanned Rockets and Unmanned Free Balloons.

Part 103, Ultralight Vehicles.

c. Advisory Circulars.

AC 20-126A, Aircraft Certification Service Field Office Directory.

AC 43.13-1A, Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair.

AC 43.13-2A, Acceptable Methods, Techniques, and Practices - Aircraft Alterations.

AC 43-16, General Aviation Airworthiness Alerts.

AC 65-23A, Certification of Repairmen (Experimental Aircraft Builders).

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AC 91-23A, Pilot's Weight and Balance Handbook.

AC 183-33A, Designated Airworthiness Representatives.

AC 183-35B, FAA Designated Airworthiness Representatives (DAR), Designated Alteration Stations (DAS), and Delegation Option Authority (DOA) Directory.

18. HOW TO GET PUBLICATIONS. The FAR and those AC's for which a fee is charged may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. A listing of FAR and current prices is in AC 00-44, Status of Federal Aviation Regulations, and a listing of all AC's is in AC 00-2, Advisory Circular Checklist.

19. PUBLICATIONS:

a. To request free advisory circulars, contact:

U.S. Department of Transportation  
Utilization and Storage Section, M443.2  
Washington, DC 20590

b. To be placed on FAA's mailing list for free AC's contact:

U.S. Department of Transportation  
Distribution Requirements  
Section, M-494.1

Washington, DC 20590

M.C. Beard  
Director, Aircraft Certification  
Service

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Appendix 1

APPENDIX 1. ADDRESSES

EXPERIMENTAL AIRCRAFT ASSOCIATION, INC. (Telephone, (414) 426-4800);  
Mail to: P.O. Box 3086, Wittman Air Field, Oshkosh, Wisconsin 54903-3086;  
Street address: 3000 Poberezny Road, Oshkosh, Wisconsin 54903-3086.

FEDERAL AVIATION ADMINISTRATION, AIRCRAFT REGISTRY. (Telephone,  
(405) 680-3116); Mail to Airman and Aircraft Registry Division,  
Mike Monroney Aeronautical Center, P.O. Box 25504, Oklahoma City,  
Oklahoma 73125; Street Address: 6500 South MacArthur Boulevard,  
Oklahoma City, Oklahoma 73169.

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APPENDIX 2. SAMPLE LETTER FOR REQUESTING AN AIRCRAFT REGISTRATION NUMBER IN  
ACCORDANCE WITH FAR SECTION 47.15

xx-xx-xx  
Date

FAA Aeronautical Center  
FAA Aircraft Registry  
P. O. Box 25504  
Oklahoma City, Oklahoma 73125

Gentlemen:

This is a request for a United States identification number assignment for my  
home-built aircraft.

Aircraft description:

Make RIGHTWAY Type (airplane, rotorcraft, glider, etc.)  
ROTORCRAFT Model: WHIZ-BANG  
Serial number: 001

This aircraft has not been previously registered anywhere. (FAR section 47.15)

----- Normal Request - \$5 (Fee attached)  
X  
----- Special Registration Number Request \$10 (Fee attached)

CHOICES  
1st 123TR  
2nd 100TR  
3rd 100R  
4th 200TR  
5th 300TR

\_\_\_\_\_  
Signature

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Appendix 3

APPENDIX 3. SAMPLE AFFIDAVIT OF OWNERSHIP FOR AMATEUR BUILT AIRCRAFT

U.S. Identification Number

Builder's Name Joe Brown

Modal Star Fire 1

Serial Number (required) 001

Class (airplane. rotorcraft. glider, atc.)

Type of Engine Installed (reciprocating, turbopropeller. etc.)

reciprocating

Number of Engines Installed 1

Manufacturer. Model, and Serial Number of each Engine Installed

Lycoming, 0-290D, 12395

Built for Land or water Operation

Number of Seats 2

The above described aircraft was built from parts and I am the owner.

Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_  
Telephone: Home \_\_\_\_\_ Work \_\_\_\_\_

\_\_\_\_\_  
(Signature of Owner)

State of \_\_\_\_\_

County of \_\_\_\_\_

Subscribed and sworn to before me this \_ day of \_\_\_\_\_ 19

My commission expires \_\_\_\_\_

\_\_\_\_\_  
(Signature of Notary Public)

AC Forms 8050-88 (6-87)(0052-00-559-0003) Supersedes previous edition.

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\*\*\*\*\*  
APPENDIX 3 through 7 intentionally omitted on BBS Copy of Advisory Circular  
\*\*\*\*\*

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APPENDIX 8. SAMPLE LETTER TO ACCOMPANY APPLICATION FOR AIRWORTHINESS  
CERTIFICATE

Date: XX-XX-XX

To: (LOCAL FAA OFFICE)  
OR DAR)

In compliance with FAR section 21.193, I hereby request a Special Airworthiness Certificate for my amateur-built aircraft for the purpose of operating amateur-built aircraft. The aircraft description is as follows:

Builder: A. BROWN	Registration No: N6543
Model: T-BIRD	Serial No: 21
No. of Engines: 1	No. of Seats: 2

Design Criteria; own design plans , kit x

The aircraft has been completely assembled and the following has been accomplished:

Yes No I enclose FAA Form 8130-6 which has been completed in Sections I, II,

and III.

Yes No I enclose FAA Form 8130-12, which has been completed in Sections I, II, and III by me and notarized in Section IV.

Yes No I possess AC Form 8050-3 or the pink copy of AC Form 8050-1, signed and dated as evidence that I have complied with the registration requirements of FAR Part 47.

Yes No I enclose a three-view drawing or photographs of the aircraft as required by FAR section 21.193.

Yes No I have weighed the aircraft to determine that the most forward and aft center of gravity positions are within established limits. The weight and balance report is available at the aircraft, and a copy is submitted with this application.

Yes No I have maintained a construction log for the project, including photographs taken during the construction. Log entries describe all inspections conducted during construction.

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APPENDIX 8. SAMPLE LETTER TO ACCOMPANY APPLICATION FOR AIRWORTHINESS CERTIFICATE (CONT'D)

Yes No The marking requirements of FAR Part 45 have been complied with, including permanent attachment of a fireproof aircraft identification (data) plate, permanent application of appropriate registration marks, and the word "EXPERIMENTAL" near each entrance.

Yes No The following placard has been displayed in the cockpit in full view of all occupants (not required for single-place aircraft):

"PASSENGER WARNING - THIS AIRCRAFT IS AMATEUR BUILT AND DOES NOT COMPLY WITH  
FEDERAL SAFETY REGULATIONS FOR STANDARD AIRCRAFT."

The aircraft will be available for inspection at this location, and directions are as follows:

GOLD CITY AIRPORT HGR. 5 1400A AIRPORT ROAD GOLD CITY, NEVADA

I request that the initial operating limitations be issued to permit me to operate the aircraft within the following geographical area for flight test:

My residence telephone number is: (XXX) xxx-xxxx  
A daytime telephone number is: (XXX) xxx-xxxx

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Signature (owner/builder)

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APPENDIX 9. SAMPLE LIST OF OPERATING LIMITATIONS

THESE OPERATING LIMITATIONS SHALL BE ACCESSIBLE TO THE PILOT

EXPERIMENTAL OPERATING LIMITATIONS  
OPERATING AMATEUR-BUILT AIRCRAFT

REG. NO.	SERIAL NO.
MAKE	MODEL

Phase I, Initial Flight Test in Restricted Area,.

1. No person may operate this aircraft for other than the purpose of operating amateur-built aircraft to accomplish the operation and flight test outline in the applicant's letter dated in accordance with FAR section 21.193. Phase I and II amateur-built operations shall be conducted in accordance with applicable air traffic and general operating rules of FAR Part 91 and the additional limitations herein prescribed under the provisions of FAR section 91.42 (new FAR section 91.319).

2. The initial hours of flight shall be conducted within the geographical area described as follows:

3. Except for takeoffs and landings, no person may operate this aircraft over densely populated areas or in congested airways.

4. This aircraft is approved for day VFR operation only.

5. Unless prohibited by design, acrobatics are permitted in the assigned flight test area. All acrobatics are to be conducted under the provisions of FAR section 91.71 (new FAR section 91.303).

6. No person may be carried in this aircraft during flight unless that person is required for the purpose of the flight.

7. The cognizant FAA office must be notified and their response received in writing prior to flying this aircraft after incorporating a major change as defined by FAR section 21.93.

8. The operator of this aircraft shall notify the control tower of the experimental nature of this aircraft when operating into or out of airports with operating control towers.

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APPENDIX 9. SAMPLE LIST OF OPERATING LIMITATIONS (CONT'D)

9. The pilot-in-command of this aircraft must, as applicable, hold an appropriate category/class rating, have an aircraft type rating, have a flight instructor's logbook endorsement or possess a "Letter of Authorization" issued by an FAA Flight Standards Operations Inspector.

10. This aircraft does not meet the requirements of the applicable, comprehensive, and detailed airworthiness code as provided by Annex 8 to the Convention on International Civil Aviation. This aircraft may not be operated over any other country without the permission of that country.

Phase II:

Following satisfactory completion of the required number of flight hours in the flight test area, the pilot shall certify in the logbook that the aircraft has been shown to comply with FAR section 91.42(b) (new FAR section 91.319). Compliance with FAR section 91.42(b) (new FAR section 91.319) shall be recorded in the aircraft logbook with the following or similarly worded statement:

"I certify that the prescribed flight test hours have been completed and the aircraft is controllable throughout its range of speeds and throughout all maneuvers to be executed, has no hazardous operating characteristics or design features, and is safe for operation."

The Following Limitations Apply Outside of Flight Test Area:

1. Limitations 1, 3, 7, 8, 9, and 10 from Phase I are applicable.
2. This aircraft is approved for day VFR only, unless equipped for night VFR and/or IFR in accordance with FAR section 91.33 (new FAR section 91.205).
3. This aircraft shall contain the placards, markings, etc., required by FAR section 91.31 (new FAR section 91.9).
4. This aircraft is prohibited from acrobatic flight, unless such flights were satisfactorily accomplished and recorded in the aircraft logbook during the flight test period.

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APPENDIX 9. SAMPLE LIST OF OPERATING LIMITATIONS (CONT'D)

5. No person may operate this aircraft for carrying persons or property for compensation or hire.
6. The person operating this aircraft shall advise each person carried of the experimental nature of this aircraft.
7. This aircraft shall not be operated for glider towing or parachute

jumping operations, unless so equipped and authorized.

8. No person shall operate this aircraft unless within the preceding 12 calendar months it has had a condition inspection performed in accordance with FAR Part 43, appendix D, and has been found to be in a condition for safe operation. In addition, this inspection shall be recorded in accordance with limitation 10 listed below.

9. The builder of this aircraft, if certificated as a repairman, FAA certified mechanic holding an Airframe and Powerplant rating and/or appropriately rated repair stations may perform condition inspections in accordance with FAR Part 43, appendix D.

10. Condition inspections shall be recorded in the aircraft maintenance records showing the following or a similarly worded statement:

"I certify that this aircraft has been inspected on (insert date) in accordance with the scope and detail of appendix D of Part 43 and found to be in a condition for safe operation."

The entry will include the aircraft total time-in-service, the name, signature, and certificate type and number of the person performing the inspection.

\_\_\_\_\_  
Aviation Safety Inspector

\_\_\_\_\_  
Office,

\_\_\_\_\_  
Date Issued

\_\_\_\_\_  
Nation

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