



U.S. Department  
of Transportation  
Federal Aviation  
Administration

# Memorandum

Subject: **ACTION:** Deviation to FAA Order 8130.2,  
Airworthiness Certification of Aircraft and Related  
Products

Date: JUL 1 2005

From: Manager, Production and Airworthiness  
Division, AIR-200

Reply to  
Attn. of:

To: Manager, Manufacturing Inspection Office  
ANM-108

This is in response to your memorandum requesting a deviation to FAA Order 8130.2, Airworthiness Certification of Aircraft and Related Products, to use an AIR-200 interim version of Section 9, Experimental Amateur-Built Airworthiness Certification.

Your request for a deviation to Section 9 and the use of interim FAA Form 8000-38, Fabrication/Assembly Operation Checklist is granted. In your request, you took an exception to NOTE 1 of paragraph 147a(3), it has also been granted. Your request to use the interim FAA Form 8130-12, Eligibility Statement, Amateur-Built Aircraft is denied. This form is an official FAA form that has to be approved before it can be released.

These interim procedures will be included in a future change or revision to Order 8130.2. If there are any questions, please contact a member of the Production & Airworthiness Certification Division, AIR-200, at (202) 267-8361.

  
Frank P. Paskiewicz

cc: All Manufacturing Inspection Offices

## SECTION 9. EXPERIMENTAL AMATEUR-BUILT AIRWORTHINESS CERTIFICATIONS

**146. GENERAL.** Under the provisions of § 21.191(g), an amateur-built aircraft is defined as an aircraft in which the major portion has been fabricated and assembled by persons who undertook the construction project solely for their own education or recreation. The applicant should be advised of the availability of AC 20-27, Certification and Operation of Amateur-Built Aircraft.

### a. Eligibility.

(1) Amateur-built aircraft are eligible for an experimental airworthiness certificate when the applicant presents satisfactory evidence of the following:

- (a) The aircraft was fabricated and assembled by an individual or group of individuals.
- (b) The project was undertaken for educational or recreational purposes.
- (c) The FAA finds that the aircraft complies with acceptable aeronautical standards and practices.

**NOTE: Aircraft that are manufactured and assembled as a business for sale to other persons are not considered to be in compliance with § 21.191(g).**

(2) The determination of the major portion factor may be made by evaluating the amount of work accomplished by the individual or group of individuals, against the total amount of work necessary for the complete project, excluding standard procured items. The "major portion" of the aircraft is considered to mean more than 50 percent of the fabrication and assembly operations. The applicant must submit a notarized FAA Form 8130-12, Eligibility Statement, Amateur-Built Aircraft, certifying the major portion was fabricated and assembled for educational or recreational purposes, and that evidence is available to support this statement. The evidence will be provided to the ASI upon request. If a question arises as to the eligibility regarding the major portion requirement of an amateur-built aircraft, FAA Form 8000-38, Fabrication/Assembly Operation Checklist, may be used. See figure 4-14 for a sample Form 8130-12 and figure 4-15 for a sample Form 8000-38. The FAA reserves the right to verify the authenticity of any statement that was made on FAA Form 8130-12 and may or may not conduct an investigation to determine that the major portion requirements has been complied with. The ASI or DAR may withhold issuance of an airworthiness certificate if denied access into a build center in order to verify that major portion requirements have been meet.

**NOTE 1: Applicants will jeopardize eligibility for certification under § 21.191(g) if someone else builds the aircraft.**

**NOTE 2: If the aircraft kit is on the FAA Eligible Kit List (e.g., meets the 51% rule), and the builder has not deviated from the kit and has not used a Commercial Assistance Center for assistance in building the aircraft per statements made on FAA Form 8130-12, then no additional determination of the major portion is required.**

**d. Kit Evaluation.** The FAA does not certify aircraft kits or approve kit manufacturers. However, the FAA does perform evaluations of kits for the purpose of determining if an aircraft built from the kit will meet the major portion requirement of § 21.191(g). This evaluation must not be construed as meaning the kit is FAA “certified,” “certificated,” or “approved,” and it is not appropriate to represent it as such. See paragraphs 148, 149, and 150 of this order for kit evaluation criteria.

**e. Advising Applicants.**

(1) FAA inspection of an amateur-built aircraft will be limited to a general airworthiness inspection when the aircraft is submitted for airworthiness certification. The FAA will not perform any progressive precover inspections during the construction of the aircraft. These in-process inspections should be conducted by knowledgeable persons, for example, Experimental Aircraft Association (EAA) technical counselors and certificated mechanics, etc. All advice given to the amateur builder by the FAA should be made a matter of record for future reference. **IN NO INSTANCE WILL THE FAA ACTUALLY PERFORM ANY OF THE FABRICATION OR CONSTRUCTION WORK.**

(2) 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. Information on EAA programs and benefits may be obtained via the EAA Web site at <http://www.eaa.org>.

(3) When the prospective builder contacts the appropriate FAA office to advise the FAA of the construction project, the inspector should provide the prospective builder with the applicable forms and any guidance necessary to ensure a thorough understanding of applicable regulations.

(4) The prospective builder, when applying for an airworthiness certificate, should submit to the FAA a three-view sketch, drawing, or photograph of the proposed aircraft project.

(5) The applicant should be advised that to show compliance with § 91.319(b), the applicant must develop a flight test program that addresses the requirements, goals, and objectives of each test flight. The flight test program should be developed in accordance with AC 90-89, Amateur-Built Aircraft and Ultralight Flight Testing Handbook, as revised, or its equivalent in scope and detail. Flight test programs accomplish two purposes. First, they ensure that the aircraft has been adequately tested and determined to be safe to fly within the aircraft’s flight envelope. Second, the flight test data is used to develop an accurate and complete aircraft flight manual and to establish emergency procedures.

**NOTE: The EAA flight advisor program has been established to assist applicants in developing flight test programs.**

(6) The FAA district office, when requested, should furnish the builder with the following forms:

(a) Aircraft Registration Application, Form 8050-1;

**h. Operation of Canadian-Registered Amateur-Built Aircraft in the United States.** Canadian-registered amateur-built aircraft are issued a special certificate of airworthiness with operating limitations set by Transport Canada Civil Aviation. In the United States, operation of Canadian-registered amateur-built aircraft certified under the provisions of Canadian air regulations is permitted by the issuance of an SFA under § 91.715. This authorization must be obtained before operation in the United States is permitted. The authorization may be obtained electronically via the Flight Standards Web site at <http://www.faa.gov/avr/afs/afs800/formtext.htm>. Additional guidance on the issuance of SFAs for Canadian-registered amateur-built aircraft may be found in paragraph 261 of this order.

**i. Prototype Aircraft Produced by an Amateur-Built Aircraft Kit Manufacturer.** When persons produce prototype aircraft to be used to prove their design for amateur-built purposes, even though the design is intended to be sold as plans and/or kits, such aircraft are considered to be produced as a furtherance of a business.

(1) These prototype aircraft are not produced by persons “solely for their own education or recreation,” and therefore cannot be certificated as amateur-built aircraft under § 21.191(g). An application to be certificated as amateur-built cannot be accepted for such aircraft, but the aircraft could qualify for the purpose of R&D under § 21.191(a). FAA inspectors may issue experimental certificates for the purpose of R&D as long as the applicant has a bona fide program of R&D.

(2) Following termination of an R&D program, such prototype aircraft may be eligible for an experimental certificate for the purpose(s) of exhibition and/or air racing with appropriate operating limitations issued for such purpose(s).

(3) Kit manufacturers also may be eligible to receive an experimental certificate (§ 21.191(f)) for the purpose of conducting market surveys, sales demonstrations, and customer crew training as provided in § 21.195(a). The airworthiness certificate may be issued ONLY after the applicant has satisfied the requirements of § 21.195(d). The following operating limitations will be added when issuing airworthiness certificates under § 21.191(f):

(a) Condition inspections must be performed in accordance with appendix D to part 43 at least every 90 days or 100 flight hours, whichever comes first. The inspections must be performed by an FAA-certificated mechanic with appropriate ratings as defined in § 43.3.

(b) Familiarization flights must be conducted only over sparsely populated areas. If aerobatics are involved, the applicant must inform the local FAA office and additional limitations may be imposed as necessary.

**NOTE 1: “Customer crew training” means pilot familiarization with that aircraft rather than training the customer to become a pilot. The manufacturer will only be familiarizing an already qualified pilot with the novel characteristics of the aircraft, not training the customer to obtain a pilot’s certificate.**

**NOTE 1: A builders assistance center can perform fabrication or assembly of components not listed in the approved Kit list without affecting the eligibility of the aircraft to obtain an amateur-built aircraft airworthiness certificate under the 51 percent rule.**

**NOTE 2: "When a FAA evaluated kit is assembled at a facility such as a Builder Assist Center, or a Completion Center, that provides tools, jigs, and/or manual labor, the original kit evaluation form must be annotated to determine eligibility of the specific aircraft. The annotation of form 8000-38 is accomplished by adding a third column to evaluate the effect of the builder assistance on the aircraft's eligibility for amateur-built certification. The required kit evaluation form will be provided by the geographic MIDO.**

**b. Record Inspection and Document Review.** The FAA representative must—

- (1) Obtain from the applicant a properly executed Form 8130-6 and any other documents required for the certification.
- (2) Obtain from the applicant a program letter identifying the aircraft, the purpose of the certificate, the area over which the operations are to be conducted, and the duration of the program.
- (3) Review the documentation provided by the applicant to determine that the registration requirements of part 47 have been met, and ensure the aircraft is marked in accordance with part 45.
- (4) Check with AFS-750 to determine if a denial letter exists for the particular aircraft. This may assist the inspector in determining aircraft eligibility.
- (5) Review the aircraft records to determine whether any required maintenance, inspections, etc., have been accomplished. Records must be complete.
- (6) Review the applicant's weight and balance data for accuracy and currency for the aircraft submitted.
- (7) Ensure there is a signed and dated statement from the owner in the aircraft records that the aircraft has had an inspection performed in accordance with appendix D to part 43, or other approved programs, and was found to be in a condition for safe operation. This statement will support the owner's inspection and airworthiness statement on block III of the Application for Airworthiness Certificate. The inspection described above will help reduce errors made during construction of the aircraft. (Appendix 1 to AC 90-89, as revised, may be used.)

**NOTE: There is NO requirement for airframe and powerplant mechanics to sign off on amateur-built airworthiness inspections. The aircraft builder's signature on Form 8130-6, block III, attests to the airworthiness of the amateur-built aircraft.**

**c. Aircraft Inspection.** The FAA must arrange with the applicant to make the aircraft available for inspection to determine the following:

- (1) The ID plate meets the requirements of § 45.11, as applicable.

(d) Examine, review, and route the certification file in accordance with the instructions contained in chapter 8 of this order.

(5) If the aircraft does not meet the requirements for the certification requested and the airworthiness certificate is denied, the FAA must—

(a) Write a letter to the applicant stating the reason(s) for denying the airworthiness certificate.

(b) Attach a copy of the denial letter to Form 8130-6 and forward to AFS-750 to be made part of the aircraft record.

#### **148. EVALUATION OF AMATEUR-BUILT AIRCRAFT/KITS.**

a. The purpose of Form 8000-38 is to record the amount of fabrication and assembly accomplished by the kit manufacturer, and the fabrication and assembly necessary for the amateur builder to complete the aircraft.

b. Form 8000-38 may be used when—

(1) Determining whether an aircraft built from a kit would meet the major portion fabrication and assembly requirement of § 21.191(g).

(2) Settling any question with respect to the major portion requirement that may arise in the certification of an amateur-built aircraft in accordance with § 21.191(g).

**NOTE: The use of this checklist is not necessary for an aircraft built from a kit previously found eligible for amateur-built certification or when the builder's records, data, and notarized statement provide ample proof that the builder fabricated and assembled the major portion of the aircraft.**

(3) The aircraft was built from prefabricated major components that are readily available from aircraft parts suppliers.

(4) The aircraft was built using salvaged or used sections from type-certificated standard category aircraft.

(5) The aircraft was built from a kit that has not been found eligible by the FAA.

(6) The aircraft was built from a kit that was changed by the kit manufacturer after the date of eligibility was established.

(7) Providing guidance to a kit manufacturer to determine if a proposed kit-built aircraft meets the major portion requirement of § 21.191(g). Using this checklist, the kit manufacturer can determine whether a proposed kit is eligible for amateur-built certification. If not, the kit manufacturer may be able to adjust the kit content to meet the major portion requirement.

c. The totals derived from the Kit Manufacturer and Amateur columns on Form 8000-38 indicate the relative portions of the aircraft fabricated and assembled by the kit manufacturer and the amateur builder. To meet the requirements of § 21.191(g), the total in the Amateur column must be greater than the total in the Kit Manufacturer column.

e. The MIO that performs the kit evaluation will establish a permanent file that should contain the following documents:

- (1) A copy of the eligibility or non-eligibility letter that was sent to the kit manufacturer.
- (2) A copy of Form 8000-38 completed for the kit.
- (3) A copy of the manufacturer's document (parts list, assembly manual, etc.), exactly as sold with the kit. Manufacturers should identify each page of the document by date and/or revision level. This information will help to establish configuration of the kit as evaluated.

f. For kits found eligible, the MIO will send an evaluation report to the Production and Airworthiness Division, AIR-200, 800 Independence Avenue SW., Washington, DC 20591. The evaluation report must contain copies of the documents listed in paragraphs 149e(1) and (2) of this order.

g. Upon receipt of the evaluation report, AIR-200 will e-mail the results to the appropriate FAA field offices and add the kit to the listing of eligible amateur-built aircraft kits. The updated listing is available on the aircraft certification page of the FAA Web site at <http://www.faa.gov>, or a hardcopy may be obtained from AIR-200 by calling 202-267-8361.

**NOTE: The placing of a kit on this list is not a prerequisite for amateur-built airworthiness certification. The purpose of the listing is to assist the FAA by eliminating the need for duplication of evaluations for the major portion determination.**

**150. CHANGES TO ELIGIBLE KITS.** Once a kit has been found eligible for amateur-built status, the manufacturer should coordinate with the FAA any change made to the kit that affects the fabrication and assembly operations.

a. The kit manufacturer should contact the geographically responsible MIO and describe the changes using parts lists, photographs, drawings, etc.

b. The FAA will determine the extent of reevaluation needed. Major changes that decrease the amount of fabrication and assembly required by the builder(s) may affect kit eligibility. Changes that consist of substituting standard hardware items, such as bolts, nuts, rivets, fasteners, etc., normally will not affect eligibility.

c. Derivative models developed from kits previously found eligible may have their eligibility determined based on inspection and evaluation of the original kit, and evaluation of detailed documentation of the changes submitted by the kit manufacturer. Inspection of the actual derivative kit is an option of the original evaluating FAA inspection office.

d. Evaluation reports of major kit changes and reports for derivative models will be processed the same way as original evaluations. Kits found not eligible after reevaluation will be removed from the listing of eligible amateur-built aircraft kits.

**151. INSTRUCTIONS FOR COMPLETING FORM 8000-38.**

- a. Enter the kit manufacturer's company name and address.

**FABRICATION/ASSEMBLY OPERATION CHECKLIST**

Company/Builder Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 Aircraft Model \_\_\_\_\_ Document Name and Date \_\_\_\_\_  
 Type of Aircraft \_\_\_\_\_

	Accomplished By	
	Kit Manufacturer	Amateur
<b>FUSELAGE</b>		
1. Fabricate Special Tools or Fixtures		
2. Fabricate Longitudinal Members		
<del>3. Fabricate Composite Cores or Shells</del>		
4. Fabricate Bulkheads or Cross Members		
5. Assemble Fuselage Basic Structure		
6. Fabricate Brackets and Fittings		
7. Install Brackets and Fittings		
8. Fabricate Cables, Wire, and Lines		
9. Install Cables, Wires, and Lines		
10. Fabricate Fuselage Covering or Skin		
11. Install Fuselage Covering or Skin		
12. Fabricate Windshield/Windows/Canopy		
13. Install Windshield/Windows/Canopy		
<b>WINGS</b>		
1. Fabricate Special Tools or Fixtures		
2. Fabricate Wing Spars		
3. Fabricate Wing Ribs		
<del>4. Fabricate Composite Cores</del>		
5. Fabricate Wing Leading and Trailing Edge		
6. Fabricate Drag/Anti-Drag Truss Members		
7. Fabricate Wing Brackets and Fittings		
8. Fabricate Wing Tips		
9. Assemble Basic Wing Structures		
10. Install Wing Leading/Trailing Edge and Tips		
11. Install Drag/Anti-Drag Truss		
12. Fabricate Cables, Wires and Lines		
13. Install Cables, Wires, and Lines		
14. Fabricate Wing Covering or Skin		
15. Install Wing Covering or Skin		
16. Fabricate Wing Struts/Wires		
17. Install and Rig Wings and Struts		

FABRICATION/ASSEMBLY OPERATION CHECKLIST (Continued)

	Accomplished By	
	Kit Manufacturer	Amateur
<b>EMPENNAGE</b>		
1. Fabricate Special Tools and Fixtures		
2. Fabricate Spars		
3. Fabricate Ribs		
4. Fabricate Composite Cores		
5. Fabricate Leading and Trailing Edges		
6. Fabricate Tips		
7. Fabricate Brackets and Fittings		
8. Assemble Empennage Structures		
9. Install Leading/Trailing Edges and Tips		
10. Install Fittings		
11. Fabricate Cables, Wires, and Lines		
12. Install Cables, Wires and Lines		
13. Fabricate Empennage Covering or Skin		
14. Install Empennage Covering or Skin		
<b>CANARD</b>		
1. Fabricate Special Tools and Fixtures		
2. Fabricate Spar		
3. Fabricate Ribs		
4. Fabricate Composite Cores		
5. Assemble Canard Structure		
6. Install and Rig Canard		
<b>LANDING GEAR</b>		
1. Fabricate Special Tools or Fixtures		
2. Fabricate Struts		
3. Fabricate Brakes System		
4. Fabricate Retraction System		
5. Fabricate Cables, Wires and Lines		
6. Assemble Wheels, Brakes, Tires, Landing Gear		
7. Install Landing Gear System Components		
<b>PROPULSION</b>		
1. Fabricate Special Tools of Fixtures		
2. Fabricate Engine Mount		
3. Fabricate Engine Cooling System/Baffles		
4. Fabricate Induction System		
5. Fabricate Exhaust System		
6. Fabricate Engine Controls		
7. Fabricate Brackets and Fittings		
8. Fabricate Cables, Wires and Lines		
9. Assemble Engine		
10. Install Engine and Items Listed Above		
11. Fabricate Engine Cowling		
12. Install Engine Cowling		
13. Fabricate Propeller		
14. Install Propeller		
15. Fabricate Fuel Tank		

FABRICATION/ASSEMBLY OPERATION CHECKLIST (Continued)		
	Accomplished By	
	Kit Manufacturer	Amateur
COCKPIT/INTERIOR		
1. Fabricate Instrument Panel		
2. Install Instrument Panel and Instruments		
3. Fabricate Seats		
4. Install Seats		
5. Fabricate Electrical Wiring, Controls/Switches		
6. Install Electrical System Controls/Switches		
Comments		
Printed Name	Signature	Date