



U.S. Department  
of Transportation  
Federal Aviation  
Administration

# Advisory Circular

Subject:

Type Certification of Very  
Light Airplanes Under FAR § 21.17(b).

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Change:

1. PURPOSE. This advisory circular (AC) provides a means but not the only means for the type, production, and airworthiness certification of very light airplanes (VLA); and designates the "Joint Aviation Requirements for Very Light Aeroplanes" (JAR-VLA), issued April 26, 1990, by the Joint Aviation Authorities (JAA) of Europe as an acceptable airworthiness criteria that provides an equivalent level of safety under FAR § 21.17(b) for Federal Aviation Administration (FAA) type certification of VLA as a special class of aircraft. Summary information and references are also provided on other acceptable uses of the JAR-VLA in the United States (U.S.) aircraft certification regulatory system.

2. RELATED REGULATIONS AND DOCUMENTS.

- a. FAR Part 1 — Definitions and abbreviations.
- b. FAR Part 21 — Certification procedures for products and parts.
- c. FAR Part 23 — Airworthiness standards: normal, utility, acrobatic, and commuter category airplanes.
- d. FAR Part 33 — Airworthiness standards: aircraft engines.
- e. FAR Part 35 — Airworthiness standards: propellers.
- f. FAR Part 36 — Noise standards: aircraft type and airworthiness certification.
- g. FAR Part 39 — Airworthiness directives.
- h. FAR Part 43 — Maintenance, preventive maintenance, rebuilding, and alteration.
- i. FAR Part 45 — Identification and registration marking.
- j. FAR Part 91 — General operating and flight rules.
- k. FAR Part 183 — Representatives of the Administrator.
1. JAA Joint Aviation Requirements for Very Light Aeroplanes (JAR-VLA).

m. JAA Joint Airworthiness Requirements for Sailplanes and Powered Sailplanes (JAR-22).

n. AC 23-8A, Flight Test Guide for Certification of Part 23 Airplanes dated February 9, 1989.

o. AC 23-11, Type Certification of Very Light Airplanes with Powerplants and Propellers Certificated to Parts 33 and 35 of the Federal Aviation Regulations, dated December 2, 1992.

### 3. BACKGROUND.

a. The need to type certificate a number of complex, high performance, twin-engine, small (12,500 lbs maximum takeoff weight or less) airplane designs over the past four decades has led the FAA to promulgate a large number of amendments to FAR Part 23 to provide adequate normal category airworthiness standards for those designs. Comments have been received from the public that, through these successive amendments, many certification requirements of FAR Part 23 (geared for more complex twin engine airplanes) have become unnecessarily burdensome for the design of very light, simple, single-reciprocating-engine/propeller, powered airplanes having low stall speeds which are only flown in the daytime under the visual flight rules (VFR) of FAR Part 91. The FAA agrees that there is an emerging genre of such airplanes that are not typical of the airplane designs envisaged by the present "normal category" airworthiness standards of FAR Part 23.

b. The aircraft certification regulatory authorities of several European countries previously reached a similar conclusion; and, accordingly, the Joint Aviation Authorities (JAA) of Europe developed and issued their "Joint Aviation Requirements for Very Light Aeroplanes," known as JAR-VLA, on April 26, 1990. The FAR Part 23 was selected by the JAA as a starting point to provide the format and substance of the JAR-VLA where it continued to be appropriate. Considering the typical design features and operating limitations of VLA (VLA definition provided in Section 5 of this AC), changes and deletions were made to the FAR Part 23 requirements where the JAA concluded that a particular requirement was impractical and/or unnecessary for safety.

c. The fact that only three new two-place, single-engine airplane designs have been type certificated in the U.S. under FAR Part 23 in the last 10 years (two designs were produced by non-U.S. manufacturers and type certificated in the U.S.) supports the contention that FAR Part 23, in a number of sections, has become inappropriate for the type certification of VLA. The FAA believes this, in turn, has contributed to the growing numbers of VLA designs being developed without attempting design certification. Components for these designs are being manufactured and sold to private builders for assembly and airworthiness certification as amateur-built aircraft. Amateur-built aircraft are certified with a special airworthiness certificate, under the experimental category without applying any FAA approved standards for design, production, quality assurance, or maintenance.

The FAA concluded, therefore, that it was in the public interest to review the equivalency of JAR-VLA for providing a more practical means of type certificating VLA.

d. During a review, undertaken by the Small Airplane Directorate, the FAA found that there are 225 sections of FAR Part 23 that are considered appropriate for VLA. The JAR-VLA regulatory sections were essentially the same as 204 of these sections. The other 21 sections were either absent from JAR-VLA or found to be substantively different. The FAA concluded that continuing to require full compliance with each of the FAR Part 23 sections that were either absent or different in the JAR-VLA would impose an unnecessary burden in type certificating typical VLA designs without increasing the level of safety of those designs.

e. The JAR-VLA permits the use of engines and propellers that meet the powerplant airworthiness requirements of JAA JAR-22 for powered sailplanes. The FAA agrees with the JAA on the adequacy of using these engine and propeller requirements for VLA operating under day and visual flight rule (VFR) conditions of FAR Part 91, considering the low maximum landing configuration stall speed requirements imposed by the VLA definition. Very light airplanes with engines and propellers approved in accordance with the provisions of JAR-22, Subparts H and J, respectively, may not be operated in either night or instrument flight rule (IFR) conditions under FAR Part 91. The FAA has concluded, however, that VLA operations at night and under IFR conditions would be acceptable provided the VLA were certificated to the JAR-VLA requirements, plus certain additional FAR Part 23 requirements including those related to night and IFR operations, and that both the engine and propeller installed were type certificated under FAR Parts 33 (JAR-E) and 35 (JAR-P). Lastly, the FAA concluded that there was no safety justification to restrict VLA from commercial use under FAR Part 91.

4. DETERMINATION. Accordingly, the FAA has determined:

a. That very light airplanes as defined in paragraph 5 of this AC are sufficiently different from normal category airplanes envisaged by FAR Part 23 to be considered a "special class" of aircraft under FAR § 21.17(b), and this finding is consistent with the FAR Part 1 definition of "class" as used with respect to the certification of aircraft; and

b. That the JAR-VLA provides acceptable airworthiness criteria equivalent in safety to those portions of FAR Part 23 determined applicable to VLA as defined in paragraph 5 of this AC when certain operating limitations are imposed.

5. VLA APPLICABILITY AS A SPECIAL CLASS. For the purpose of designating applicable and acceptable airworthiness criteria under FAR § 21.17(b), a VLA is considered to be a "special class" of aircraft and is defined as an airplane with a single engine (spark- or compression-ignition), not more than two seats, a maximum certificated takeoff weight of not more than 750 kg (approximately 1654 pounds), and a stalling speed of not more than 45 knots (CAS) in the landing configuration. The operation of these

airplanes is limited to normal category maneuvers and to day-VFR operations only under FAR Part 91. These airplanes are eligible for standard airworthiness certificates under FAR § 21.183. This definition is identical to that for very light airplanes in JAR-VLA.

## 6. AIRPLANE TYPE CERTIFICATION PROCEDURES.

### a. Application.

(1) Application for type certification must be made in accordance with the requirements of FAR § 21.15. It is recommended that application be made to the Aircraft Certification Office (ACO) having geographic responsibility for the business location of the applicant, or where the majority of ground and flight testing will be completed. Applicants based in the U.S. are, however, free to make application to any other ACO within the U.S. considered by the applicant to be to their advantage. In making the choice to apply to an ACO other than the one closest to the applicant, the applicant should consider the difficulties that may later be encountered in obtaining a Production Certificate (PC) or an Approved Production Inspection System (APIS) for the production of individual airplanes.

(2) An application for type certification of a VLA as a special class of aircraft is effective for 3 years as specified by FAR § 21.17(c) and (d).

(3) The Small Airplane Directorate has been assigned the national technical policy standardization functions concerning the use of JAR-VLA in the U.S., including the type certification of VLA as special class aircraft under FAR § 21.17(b). New VLA type certification projects should be considered as significant projects in accordance with Order 8100.5. Accordingly, Small Airplane Directorate or Chicago ACO engineers and flight test pilots may participate at their discretion in VLA type certification projects underway in other ACO's. This will ensure that the JAR-VLA is properly and consistently interpreted and applied.

### b. Type Certification Basis.

(1) The "type certification basis" reflected on the Type Certificate Data Sheet (TCDS) for VLA certificated as "special class" aircraft will be stated as FAR § 21.17(b), noting that JAR-VLA was applied. When the engine and propeller are type certificated as part of the airplane using the airworthiness criteria of JAR-22 Subparts H and J, these criteria will also be noted on the TCDS. Additionally, the operating limitation, "normal category maneuvers," should be specified.

(2) Special conditions may be specified under FAR § 21.16, when considered necessary by the FAA to address novel and unusual design features. If special conditions are applied, they should also be noted on the TCDS.

c. Type Certification Procedures. The general and procedural regulations of FAR Part 21, Subparts A and B are applicable to the type certification of VLA as special class aircraft. The details of these procedures are beyond the scope of this AC. Therefore, applicants who are unfamiliar with FAR Part 21 and the FAA type certification procedure should confer with the ACO where they intend to make application to assure that they understand the process.

d. Flight Test Guide. Because of the similarities between FAR Part 23 and JAR-VLA, applicants may find the FAA AC 23-8A, "Flight Test Guide for the Certification of Part 23 Airplanes, "useful in planning and executing their flight test program.

e. Airplane Flight Manual. An airplane flight manual that meets the requirements of FAR § 21.5 is required. The criteria of the JAR-VLA Subpart titled "Aeroplane Flight Manual and Approved Manual Material" will satisfy the requirements of FAR § 21.5.

f. Instructions for Continued Airworthiness. The Maintenance Manual criteria of JAR-VLA 1529 are adequate to meet the requirements of FAR § 21.50.

g. Changes to VLA Type Certificates. The requirements of FAR Part 21, Subparts D and E are applicable for approving changes to type certificates issued for VLA designs, including the issuance of supplemental type certificates (STC). Normal FAA "field approval" procedures may also be applied for changes made to individual airplanes.

h. Use of Designated Engineering Representatives (DER's). Applicants are encouraged to use the services of FAA DER's, including DER flight tests pilots, to the maximum extent practicable. A list of self-employed DER's is available from the ACO, or the applicant may wish to nominate their own qualified engineers and flight test pilots for designation under FAR § 183.29. Further advice on the use of DER's may be obtained from the ACO. The DER's authorized to make findings of compliance with FAR Parts 23, 33, or 35 are also authorized to make findings of compliance with the comparable sections of JAR-VLA and JAR-22 Subparts H and J. In all cases, DER findings must correspond to their technical areas of delegated authority.

7. NOISE REGULATIONS. The noise certification requirements of FAR Parts 21 and 91, and the noise standards for aircraft type and airworthiness certification of FAR Part 36, Subparts A and F are applicable to VLA being certificated as a special class aircraft.

8. PROVISIONAL TYPE CERTIFICATES. The Provisional Type Certificate provisions of FAR Part 21, Subpart C, are applicable to VLA being type certificated as a special class aircraft.

9. ENGINE AND PROPELLER TYPE CERTIFICATION OPTIONS. The Engine and Propeller Directorate is responsible for standardizing national technical policy for the certification and continued airworthiness of engines and propellers as approved by FAR Parts 33 and 35, respectively. Also, upon request, the Engine and Propeller Directorate will advise and counsel anyone certifying VLA engines and propellers in accordance with subparts H and J of JAR-22.

a. If the powered sailplane powerplant airworthiness standards of JAR-22, Subparts H and J are used for type certification of the engine and/or propeller, respectively, the engine and/or propeller are approved

as an integral part of the airplane. The applicant for type certification of the VLA is responsible for showing compliance with the requirements. Separate type certificates will not be issued for either the engine or propeller. FAA approval of an engine and/or propeller installed in one VLA design does not in and of itself constitute approval of the same engine and/or propeller in another VLA type design. FAA approved data developed in an earlier certification project will be used to the maximum extent possible within the guidelines governing proprietary data. Suppliers of engines and propellers to VLA type certificate applicants may wish to support the airplane designers' certification and retain rights to use data approved by the FAA in the process to assist other applicants.

b. Engines or propellers type certificated by a JAA member authority under JAR-E or JAR-P, respectively, and manufactured in a country with which the U.S. has concluded a bilateral airworthiness agreement covering engines and propellers, may be separately type certificated by the FAA using the procedures for import products under FAR § 21.29. During FAA type certification, the FAA considers the engines and propellers certificated under JAR-E and JAR-P, respectively, to be equivalent to engines and propellers type certificated under FAR Parts 33 and 35, respectively. Therefore, VLA type certificated by FAA to JAR-VLA using JAR-E engines and JAR-P propellers may be certificated as FAR Part 23 "normal category" (i.e., not "special class") airplanes. See AC 23-11 for more information.

10. PRODUCTION CERTIFICATION. To be eligible for a standard airworthiness certificate under FAR § 21.183(a), the VLA must be manufactured under one of the production approval systems identified in FAR Part 21, Subparts F and G. Advisory Circular 21-1B, Production Certificates, provides information and guidance on the acceptable means for complying with the regulations concerning PC's. For imported airplanes to be eligible for a standard airworthiness certificate, they will have to meet all of the requirements of FAR § 21.183(c).

11. AIRWORTHINESS CERTIFICATION. For VLA to receive a standard airworthiness certificate under FAR § 21.183(a), the airplanes must have a type certificate and be manufactured under an FAA approved production system. The airplanes will be issued standard airworthiness certificates, FAA Form 8100-2, in a manner like that for any other aircraft receiving the same certificate. Since the VLA is type certificated as a special class of aircraft, the category in FAA Form 8100-2, block 4, will be identified as VLA-Special Class. For VLA to receive a special airworthiness certificate for a purpose identified in FAR § 21.175(b), use FAA Form 8130-7, Special Airworthiness Certificate. The same procedures would apply as specified in current FAR and FAA policies.

12. IMPORTED VLA. The import product type certification requirements of FAR § 21.29 and import product airworthiness certification requirements of FAR § 21.183(c) are applicable to VLA designed to meet the criteria of JAR-VLA. The FAA type certification basis for import VLA with JAR-22 engines and propellers installed will also be shown on the TCDS as FAR § 21.17(b).

13. IDENTIFICATION AND REGISTRATION MAKING. The identification and registration marking requirements of FAR Part 45 are applicable to VLA type certificated as a special class of aircraft. Advisory Circular 45-2, Identification and

Registration Markings, provides guidance and information concerning the identification and marking requirements of FAR Part 45. This AC provides a reference for applying and locating these markings.

14. REPORTING FAILURES, MALFUNCTIONS, AND DEFECTS. Holders of a type certificate for VLA type certificated as a special class of aircraft are required to report failures, malfunctions, and defects under FAR § 21.3. These reporting requirements also apply to the engine and/or propeller when they are certificated as a part of the VLA.

15. AIRWORTHINESS DIRECTIVES.

a. Airworthiness Directives (AD's) may be issued on VLA type certificated as a special class of aircraft in accordance with FAR Part 39. If the potential unsafe condition is with either the JAR-22 engine or propeller, the AD will be issued against the VLA type certificate (i.e., not the engine or propeller type certificate) because the engine and propeller are type certificated as an integral part of the VLA. If engines or propellers of the same basic design are approved for installation on other VLA type designs, additional AD's may be issued to protect all affected VLA types.

b. Holders of VLA type certificates are required to develop actions to resolve all significant in-service safety difficulties resulting from either design or production quality inadequacies. If the FAA determines that an AD is necessary, the type certificate holder will be expected to develop the necessary service instructions as required by FAR § 21.99.

16. APPLICABLE OPERATIONS AND MAINTENANCE REGULATIONS. All privileges and requirements of FAR Parts 43 and 91 applicable to aircraft having a "standard" airworthiness certificate are applicable to VLA holding a "standard" airworthiness certificate in the "VLA-Special Class" category. "VLA-Special Class" aircraft type certificated under FAR § 21.17(b) are eligible for "standard airworthiness certificates" under FAR § 21.183, and should not be thought of as aircraft holding a "special airworthiness certificate" as envisaged by FAR § 21.175(b).

17. OTHER APPLICATIONS OF THE JAR-VLA STANDARDS IN THE U.S. AIRCRAFT CERTIFICATION SYSTEM.

a. The appended figure and notes on "Airworthiness Certification Options for Small Airplanes" are provided to show the interrelationship between the various classifications, categories, and kinds of airworthiness certificates issued in the U.S. aircraft certification regulatory system. From this figure and its notes, one can see how the JAR-VLA may be used, leading to the issuance of standard airworthiness certificates in either the normal category or "VLA-Special Class" category. It is also apparent that the JAR-VLA may be used, leading to the issuance of "Primary Category" type and airworthiness certification as well. If the primary category aircraft is manufactured under a production certificate or APIS or assembled under the supervision of a production certificate/APIS holder it may be given a special

airworthiness certificate. It also should be noted that aircraft of a design type certificated in the Primary Category with components and parts produced under a PC or APIS that are assembled by a private builder without the manufacturer's supervision, may receive a "Kit-Built" experimental airworthiness certificate. This procedure is applicable even though more than 50 percent of the components and parts are provided to the builder.

b. Persons interested in obtaining a "normal category" type certificate using JAR-VLA, having an engine type certificated under FAR Part 33 and a propeller type certificated under FAR Part 35 should refer to AC 23-11 for more details.

18. WHERE TO OBTAIN THE EUROPEAN JAR. Copies of the JAA Joint Aviation Requirements for Very Light Aeroplanes (JAR-VLA) and Joint Airworthiness Requirements for Sailplanes and Powered Sailplanes (JAR-22), may be purchased from:

Civil Aviation Authority  
Printing and Publication Services  
Greville House, 37 Gratton Road  
Cheltenham, Gloucester GL50 2BN  
England

19. WHERE TO ORDER REFERENCED FAA PUBLICATIONS. All FAR publications referenced in this AC may be obtained from:

Superintendent of Documents  
U.S. Government Printing Office  
Washington, DC, 20402

or from U.S. Government Printing Office book stores located in major cities throughout the U.S.

The cost of AC 23-8A, "Flight Test Guide for Certification of Part 23 Airplanes," Stock Number (SN) 050-007-00817-1 is \$12.00. Send check or money order with your request payable to "Superintendent of Documents."

This AC 21.17-3, AC 23-11, and AC 45-2 may be obtained from the U.S. Department of Transportation, General Services Section, M-443.2, Washington, DC 20590.



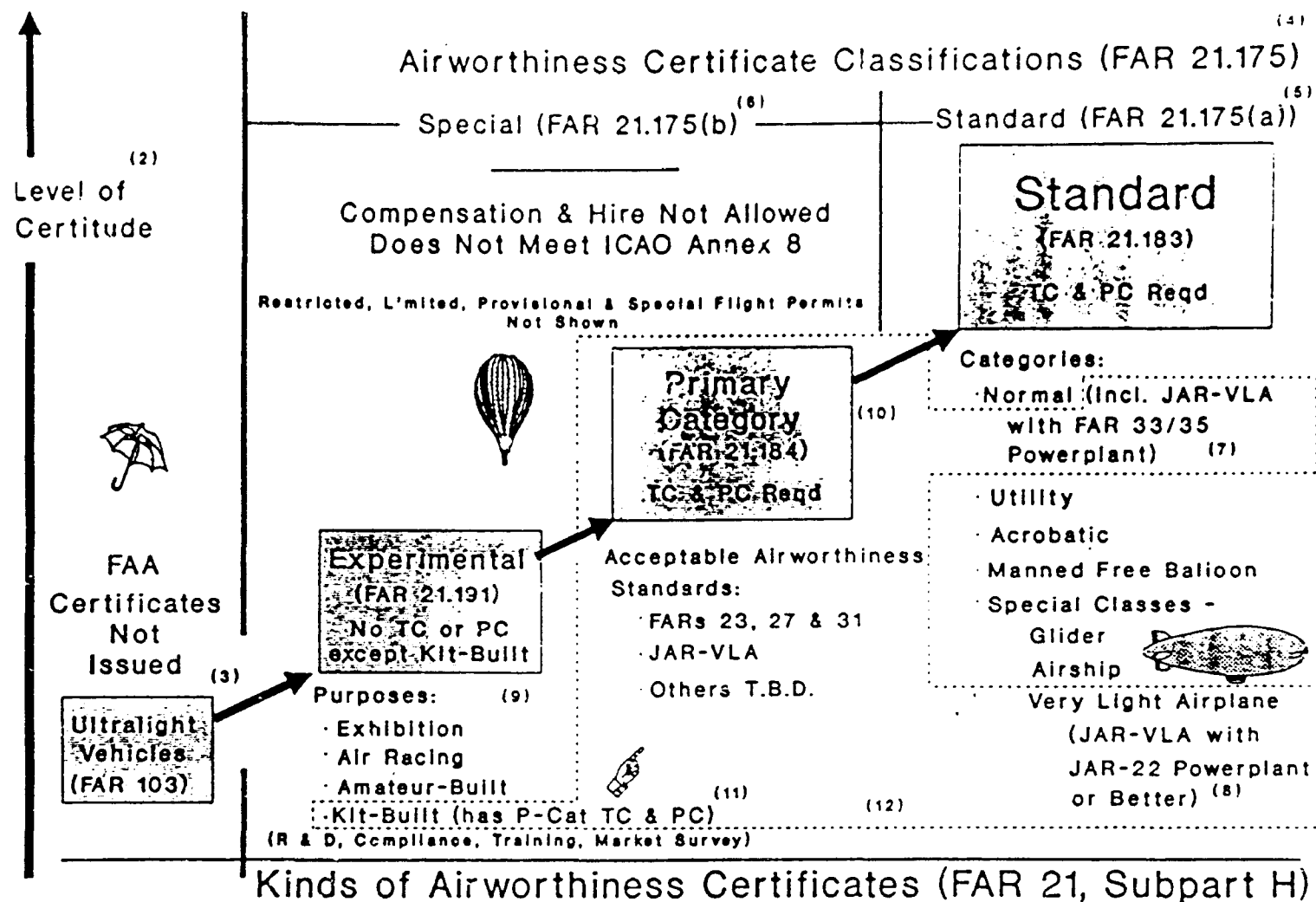
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# AIRWORTHINESS CERTIFICATION OPTIONS



for  
SMALL AIRCRAFT<sup>(1)</sup>



Appendix 1.  
Figure 1

A WALK THROUGH THE  
AIRWORTHINESS CERTIFICATION OPTIONS  
for  
SMALL AIRPLANES

(See Numbers in Figure 1)

- (1) "Small Aircraft" are defined by FAR Part 1 as aircraft (e.g., airplanes, helicopters, gliders, hot air balloons, airships, etc.) having a maximum certificated takeoff weight limitation of 12,500 pounds or less.
- (2) "Level of Certitude" is a term used on the chart to indicate a relative level of sureness (or confidence) in the safety of the aircraft in question as a product of the Federal Aviation Administration's (FAA) aircraft certification process and maintenance requirements. Thus, the level of certitude shown on the chart should be seen as a measure of confidence in the safety of a genre of aircraft (or vehicles) by virtue of the combined effects of: the airworthiness standards or criteria applied for type design approval (type certification); the depth of FAA involvement in evaluating the design during the type certification process, the rigor of the production quality assurance system review for FAA approval purposes, the inspections required of the aircraft during manufacture, and the applicable maintenance performance regulations. The "level of safety" of any particular aircraft or aircraft genre may be greater than the "level of certitude," and often is — depending on the particular aircraft's design attributes (required or not), plus the quality of construction and maintenance actually performed. The level of safety of an aircraft can only be determined by the aircraft's actual safety performance in service.
- (3) Even though shown on the chart, "ultralight vehicles" are not considered to be aircraft by the FAR, and are not issued any form of an FAA airworthiness certificate. Ultralight vehicles are defined by FAR Part 103, and their operations are regulated and highly restricted by that part. Amateur-built ultralight vehicles, including vehicles that exceed the ultralight parameters of FAR 103, may obtain "experimental amateur-built" airworthiness certificates under FAR § 21.191(g). They are then considered to be "aircraft" as defined by FAR Part 1.
- (4) Airworthiness certificates are issued by the FAA under one of two classifications: "standard," or "special."
- (5) "Standard" airworthiness certificates are issued on FAA Form 8100-2 under the standard classification. The "category" designated on a standard airworthiness certificate indicates the category of type certificate (TC) issued to approve the "type design." "Commuter" and "transport" categories are not shown in

Figure 1 because these do not normally qualify as small aircraft. The "airworthiness standards" (i.e., the design standards) used during the type certification of aircraft are provided in FAR Parts 23, 25, 27, 29, 31, and 34. The airworthiness standards of the engines and propellers installed on these aircraft are provided by FAR Parts 33 and 35 respectively. Also, FAR § 21.17(b) provides a procedure for the FAA to specify acceptable airworthiness criteria for type certification of special classes of aircraft in the event that appropriate airworthiness standards have not been codified in the FAR for the class. Gliders (sailplanes), airships, and very light airplanes (VLA) have been designated as "special classes" of aircraft. Aircraft having standard airworthiness certificates are those produced under an FAA approved production quality assurance system, e.g., a production certificate (PC); or are imported with an export certificate of airworthiness issued by a recognized aircraft certification authority of another country. It is important to note that aircraft of a type design certificated as a special class are eligible to receive standard airworthiness certificates. Thus, there is no connection between aircraft having a "special classification" of airworthiness certificate and aircraft having been type certificated as a "special class," e.g., "VLA-Special Class", for the purpose of defining the applicable airworthiness certificates.

(6) Several kinds and "categories" of airworthiness certificates are issued under the special classification of airworthiness certificates including experimental, restricted category, limited category, provisional category, special flight permit, and primary category airworthiness certificates. (Experimental and special flight permits are not referred to in the regulations as "categories"). Only the experimental and primary category airworthiness certificates are emphasized on the figure. Aircraft having special airworthiness certificates (issued on a pink FAA Form 8130-7) are not intended for commercial operations (compensation or hire), do not meet the requirements of ICAO Annex 8 for international operations, and may not (depending on the particular certificate category) be required to meet the same maintenance requirements as aircraft having standard airworthiness certificates. The operating limitations for aircraft having special airworthiness certificates are more restrictive than for those having standard airworthiness certificates.

(7) Airplanes of a design meeting the following requirements may be issued a standard airworthiness certificate in the "normal category:"

(i) Be type certificated under FAR Part 23 using JAR-VLA to show equivalency plus additional FAR Part 23 requirements as necessary; and

(ii) Have an engine and propeller installed of a design type certificated under FAR Parts 33 and 35 respectively.

These airplanes may be operated at night and/or under the instrument flight rules (IFR) of FAR Part 91.

(8) "Very light airplanes" (VLA) have been introduced as a new "special class" of aircraft under FAR 21.17(b), and are eligible for standard airworthiness certification under FAR 21.183. The European "Joint Aviation Requirements (design standards) for Very Light Aeroplanes (JAR-VLA)," dated April 26, 1990, have been determined by FAA to be an acceptable airworthiness criteria for type Certification of airplane designs that meet the applicability provisions of the JAR-VLA. VLA as envisaged by JAR-VLA are single or two place, single reciprocating engine (spark- or compression-ignition) airplanes, having a take off weight of not more than 750 kg (approx. 1654 pounds) and a landing configuration stall speed of not more than 45 knots. VLA are not intended to operate at night or under instrument flight rules (IFR). JAR-VLA provides for the use of powered sailplane engine and propeller (powerplant) airworthiness requirements of JAR-22, Subparts H and J respectively, for type certification of the engines and propellers designs installed on VLA. Use of JAR-22 powerplant requirements are also accepted by the FAA when the engine and propeller are type certificated as an integral part of the airplane design. These airplane design, when type certificated by the FAA, are eligible for a standard airworthiness certificate in the "VLA-Special Class" category, but are limited to day/visual flight rules (day/VFR) operations only.

(9) Experimental airworthiness certificates are only issued for the purposes specified under FAR § 21.191. The purposes of exhibition, air racing, amateur-built, and kit-built are emphasized in Figure 1. Experimental airworthiness certificates may also be issued for the purposes of: research and development (R&D), showing compliance with the regulations, crew training, and market surveys. There is very little FAA involvement in assessing the design or quality of construction of aircraft when issuing experimental airworthiness certificates for those purposes listed in Figure 1, with the exception of the new "experimental kit-built" aircraft. Aircraft having an experimental kit-built airworthiness certificate are of a design type certificated in the primary category and the kit components are produced under an FAA approved production quality assurance system.

(10) The "primary category" airworthiness certificate was recently introduced to fill the "level of certitude" gap between the genre of aircraft usually operated as "experimental amateur-built" aircraft and aircraft that are eligible for a standard airworthiness certificate. Thus, the new primary category amendments to FAR Parts 21, 43, and 91 should be seen as a new system of type certification, original airworthiness certification, and maintenance performance regulations applied for a category of small, simple aircraft intended for private use. The level of certitude is not intended to be as high as that for aircraft having standard airworthiness certificates; however, it represents a considerable increase over that of the large number of experimental amateur-built aircraft in wide-spread operation today. The new primary category regulations provide for:

(a) Application of existing FAA airworthiness standards, acceptance of other countries' airworthiness standards, or acceptance of

(b) A less burdensome (reduced FAA involvement) type certification process;

(c) Giving greater credit to certification statements made by the applicant;

(d) Manufacturer-supervised pilot/owner participation in the construction and manufacturing inspection process; and

(e) Greater eligibility for pilot/owners to participate in the maintenance of their own aircraft under FAR Part 43.

(11) Kit-built aircraft type certificated under primary category may be issued an airworthiness certificate in either the primary category or experimental category. On the special airworthiness certificate-primary category side, if the airworthiness standards codified in the FAR, i.e., FAR Part 23, 27, 31, 33, and 35, are used for type certification of an aircraft in the primary category, it should be easier for some primary category aircraft designs to be type certificated in one of the standard categories at a later date. Because the only difference in the type certification process between aircraft receiving primary category airworthiness certificates and aircraft receiving standard airworthiness certificates is the level of FAA involvement. On the experimental airworthiness certificate side, a builder assembling an aircraft of a design type certificated in the primary category, but not under the prime manufacturer's quality assurance supervision, may qualify for an experimental kit-built airworthiness certificate under FAR § 21.191(h) providing the components used were manufactured under an FAA approved production quality assurance system. The purchaser or owner of the kit is not required to assemble nor fabricate any specific portion of the kit; assistance for some or all of the work may be obtained from other sources, such as the production holder or some other fabricator.

(12) As indicated, within the area defined by the dashed line, the European JAR-VLA may be utilized in four (4) different ways in the U.S. aircraft certification system for very light airplanes:

(a) They may be used as a part of the certification basis to obtain a "normal" category type certificate under FAR Part 23. The JAR-VLA are considered equivalent to the corresponding FAR Part 23 requirements for VLA type certification. Therefore, the JAR-VLA requirements plus certain additional FAR Part 23 requirements may be used as the certification basis for very light airplanes provided the engine and propeller installed have been type certificated by the FAA under FAR Parts 33 and 35, respectively. Operation at night and under IFR conditions would be acceptable provided the additional FAR Part 23 requirements include those related to night and IFR operations.

(b) They may be applied to obtain a type certificate as a special class aircraft, under FAR 21.17(b), utilizing engines and propellers found to comply with JAR-22, or better. These airplanes will be eligible

for standard airworthiness certificates in the "VLA-Special Class" category but will be limited to day/VFR flight only.

(c) They may be used to obtain a "primary category" type certificate under the new procedures of FAR § 21.24 ; and, a special airworthiness certificate in the primary category under new FAR §21.184 - provided the airplane is produced under an FAA approved production quality assurance system (including P.C holder supervised pilot/owner construction and inspection), or is appropriately certified to the FAA by a recognized airworthiness authority of another country.

(d) Experimental kit-built airworthiness certificates may be issued for pilot/owner assembled kits of a design type certificated by the FAA using primary category procedures and the JAR-VLA, provided the kit components were manufactured under an FAA approved quality assurance system.