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EXPERIMENTAL EXHIBITION vs. EAB CERTIFICATION SUMMARY:

# SubSonex Certification: Experimental Exhibition Kit vs. EAB Kit – Which One is Best For You?

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The SubSonex kit can be purchased in one of two configurations. Customers may choose either a kit intended for certification as an experimental amateur-built aircraft or an experimental exhibition aircraft. There are pros and cons to each certification category. What follows is a comparison of the two options.

(NOTE: A customer may choose an amateur-built kit and later decide to switch to exhibition certification, but a kit intended for exhibition certification cannot be made eligible for amateur-built certification as it will be provided too complete for EAB.)

**First, there are some ways in which the two categories are identical:**

- Since the aircraft is originally issued an experimental airworthiness certificate there is no restriction on who performs maintenance, repair, or modification. Anyone, regardless of what (if any) FAA certificate is held, may perform these functions. Thus, there is no need to take the aircraft to an FAA certificated mechanic for general maintenance or repair.
- Since the aircraft holds an experimental airworthiness certificate it may not be operated outside US airspace without specific permission. (More details on this in the "differences" section below.)
- Aircraft may not carry persons or property for compensation or hire. (Since the SubSonex is a single seat aircraft with limited cargo capacity, this restriction should not be an issue.)
- Aircraft will be required to complete a "phase 1" flight test program in a restricted area of operation.
- Since the SubSonex is powered by a turbojet engine, the pilot will need a specific "Letter of Authorization" (LOA) in order to operate the aircraft. The FAA now places LOAs directly on a pilot's certificate, in much the same way as a type rating for standard category aircraft. Issuance of LOAs are handled individually by FAA Flight Standards District Offices on a case-by-case basis.

**Now let's look at the major differences between amateur-built and exhibition certification:**

**Construction:**
For amateur-built certification, the major portion (i.e., greater than 50%) of the construction tasks must be completed by amateur builders. The builder may not hire a professional builder or shop to complete the aircraft. There is no such restriction for exhibition certification. A customer who chooses exhibition certification may hire a professional builder or shop to complete any portion up to and including the entire aircraft.

**Inspection:**
The primary builder of an amateur-built aircraft is eligible for a repairman certificate authorizing the builder to perform the condition inspection on the aircraft each year. There are no repairman certificates for exhibition aircraft, so customers who choose exhibition certification will need to employ an A&P mechanic to perform the condition inspection each year. (The A&P mechanic need not hold an inspection authorization (IA). An A&P certificate is sufficient.)

**Foreign Operation:**
Permission must be obtained in order to operate a US experimental aircraft outside US airspace. In the case of amateur-built aircraft, there are blanket authorizations in place for operating in Canadian or Bahamian airspace, so no individual authorization is needed for those airspaces. Operators of exhibition aircraft need to obtain specific, individual authorization to operate in foreign airspace, including that of Canada or the Bahamas.

**Foreign Certification:**
Many countries outside the US have regulations allowing the certification of amateur-built aircraft. These regulations are typically very similar to US amateur-built certification requirements. Thus, certificating a US amateur-built kit in other countries is common. Exhibition certification has no international standardization, so certification of an exhibition kit in countries outside the US would be handled on a case-by-case basis, and may or may not be possible.

**Program Letter:**
Amateur-built certification requires one program letter, included in the initial certification application package. Exhibition aircraft require a program letter to be submitted annually to the cognizant FAA Flight Standards District Office. This program letter contains information identifying the aircraft, its home base, events that the aircraft plans to attend, and the person responsible for maintenance and inspection of the aircraft (typically the owner).

**Densely populated Areas:**
In general, experimental aircraft are prohibited from operating over densely populated areas and in congested airways except for takeoff and landing. This is especially true during "phase 1" flight testing. Once flight testing is completed, amateur-built aircraft are allowed to operate over densely populated areas so long as "sufficient altitude is maintained to effect a safe emergency landing in the event of a power unit failure, without hazard to persons or property on the ground." Exhibition aircraft are still required to avoid densely populated and congested areas, even after completing "phase 1" flight testing.

**Summary:**
The major difference between amateur-built and exhibition certification lies in who must construct the major portion of the aircraft. The choice of whether or not the customer wishes to hire a professional builder or shop to complete the aircraft will typically be the deciding factor. For customers outside the US, the certification requirements of amateur-built aircraft as opposed to other experimental aircraft may be a deciding factor. All other differences are relatively minor.

**Experimental Exhibition Operating Limitations for Group 5 Aircraft:**
The following pages are excerpts from current FAA guidance, order 8130.2G Change 1, which defines the operating limitations for experimental exhibition aircraft. We have highlighted and notated the specific sections pertaining to the SubSonex, as a "Group 5 Aircraft," to help customers understand all considerations.

The FAA has defined seven groups of aircraft eligible for experimental airworthiness certification to establish standardized requirements for each of the unique aircraft groups, based on the characteristics of each group of aircraft, and the SubSonex falls-under Group 5 based upon it's design and performance characteristics.

**Note that the following documentation is only intended as an excerpted guide to help customers understand the applicable rules, and does not represent a full copy of the FAA order. The most up-to-date full guidance can be obtained from http://www.faa.gov**

responsibility for operating their aircraft in such a manner as to reduce the environmental impact to the lowest practicable level consistent with safe operation.

**4109. Brokering.** 14 CFR § 21.191(d) was not intended to allow for the brokering or marketing of experimental aircraft. This includes individuals who manufacture, import, or assemble aircraft, and then apply for and receive experimental exhibition airworthiness certificates so they can sell the aircraft to buyers. 14 CFR § 21.191(d) ONLY provides for the exhibition of an aircraft's flight capabilities, performance, or unusual characteristics at airshows, and for motion picture, television, and similar productions. COs must ensure that all applications for exhibition airworthiness certificates are for the purposes specified under 14 CFR § 21.191(d), and are from the registered owners who will exhibit the aircraft for those purposes. Applicants also must provide the applicable information specified in 14 CFR § 21.193.

**4110. Groups of Aircraft.** Aircraft eligible for experimental airworthiness certification are divided into seven groups. This was done in order to establish standardized operating limitations and inspection requirements. Operating limitations for each group are provided in paragraph 4113 of this order. The FAA will determine which group the aircraft will operate in based on the following definitions. An aircraft that meets any one of the criteria falls in that group. An aircraft with an ejection seat is always in group 7. Questions concerning the appropriate group for specific aircraft will be referred to the FAA National Program Office for Vintage and Experimental Aircraft, AFS-800.

**a. Group 1 Aircraft.**

(1) Description of Aircraft.

(a) Gliders, both unpowered and powered.

(b) The aircraft must be in full compliance with the manufacturer's or country of origin's maintenance and/or inspection programs (if provided).

(c) If the State of Manufacture or CAA does not provide an inspection program, the aircraft must have an annual condition inspection that meets the scope and detail of 14 CFR part 43, appendix D.

(d) The aircraft must be in full compliance with manufacturer's or country of origin life limits (if specified).

(2) Type of Aircraft. This group includes gliders; unpowered, self launching, and sustaining.

**b. Group 2 Aircraft.**

(1) Description of Aircraft.

(a) Piston or turbo propeller powered.

(b) Maximum gross takeoff weight not more than 12,500 lb.

**d. Group 4 Aircraft.**

**(1) Description of Aircraft.**

**(a)** Piston- or turbine-powered.

**(b)** Maximum gross takeoff weight in excess of 12,500 lb.

**(c)** Not equipped with an operable ejection seat.

**(d)** Must be maintained in full compliance with manufacturer, country of origin, or FAA-approved maintenance and inspection programs.

**(e)** If the manufacturer or country of origin does not provide an inspection program, the owner/operator must select, establish, identify, and use an inspection program as set forth in 14 CFR § 91.409(f), (g), and (h).

**(f)** The aircraft must be in full compliance with manufacturer or country of origin life limits (if specified).

**(2) Type of Aircraft**. This group includes, but is not limited to, aircraft such as the IL-78; B-29; PB4Y; and OV-1.

**e. Group 5 Aircraft.** SubSonex falls within Group 5 definition

(1) Description of Aircraft.

(a) Piston- or turbine-powered.

* (b) Maximum gross takeoff weight of 12,500 lb or less. *

(c) If multiengine, operated at weights or altitudes such that the aircraft is not capable of maintaining a positive rate of climb after failure of the critical engine.

(d) Not equipped with an operable ejection seat.

(e) The aircraft must be in full compliance with the manufacturer, country of origin, or FAA-approved maintenance and inspection programs. If the manufacturer or country of origin does not provide an inspection program, the owner/operator must select, establish, identify, and use an inspection program as set forth in 14 CFR § 91.409(f), (g), and (h).

(f) The aircraft must be in full compliance with manufacturer or country of origin life limits (if specified).

(2) Type of Aircraft. This group includes, but is not limited to, aircraft such as the: L-29; L-39; T-33; and CM-170.

**4111. Special Initial Certification Requirements.** The following provides information and guidance concerning the initial airworthiness certification for experimental aircraft for the purpose(s) of exhibition and/or air racing. These steps are in the normal order of occurrence for the certification of these aircraft.

**a. Demilitarization of Former Military Aircraft.** For demilitarization of former military aircraft, see paragraph 4073 of this order.

**b. Records Inspection.** In addition to the record inspection requirements of paragraph 4002a of this order, the FAA must—

(1) Obtain from the applicant a program letter in accordance with 14 CFR § 21.193, setting forth the purpose(s) for which the aircraft will be used. The program letter must be specific as to the intended use under the purpose request and must include the information as required by limitation #3 found in paragraph 4113b(3) of this order.

(2) Ensure that the applicant has written in or translated into the English language all of the necessary maintenance, inspection, operating, and flight manual(s) required to safely operate the aircraft.

(3) Verify that maintenance records reflect records of inspections, overhauls, repairs, time-in-service on life-limited articles and engines, etc., and that all records are current. In * addition, for Group 4 and 5 aircraft, if appropriate, make an entry in the aircraft logbook showing * the following (or similarly worded) statement: "The inspection program for this aircraft has been approved by the [insert name of FSDO] on [insert approval date] by [insert printed name of ASI], signed by approving Inspector."

> **Note:** The requirements in 14 CFR § 91.409(e) are applicable via an operating limitation issued at the time of certification for all turbojet powered and large aircraft. One of the requirements provides for the replacement of life-limited articles at a time specified in documents approved by the FAA.

(4) For turbine powered and large aircraft (maximum gross take-off weight in excess of 12,500 pounds), aircraft as described in paragraph 4110 of this order, verify that the applicant has an FSDO-approved inspection program that meets the requirements of 14 CFR § 91.409 and complies with the manufacturer's program. Guidance regarding inspection programs can be found in FAA Order 8900.1

> **Note:** A special airworthiness certificate shall not be issued for these * aircraft without a FSDO-approved inspection program, unless issued Group 6 or 7 operating limitations. *

(5) Verify that the appropriately rated FAA-certificated mechanic has made an entry in the aircraft records documenting the applicable inspections as referenced in paragraph 4111d of this order for all aircraft (including new) within 60 days before submitting FAA Form 8130-6.

**c. Aircraft Inspection.** The FAA will perform an inspection to the extent necessary to ensure that a prior inspection of the aircraft and aircraft systems has been accomplished in accordance with the inspection requirements as identified in paragraph 4002b of this order. The FAA will verify that instruments, instrument markings, and placards are as required by the CFR and are identified in the English language. In addition, the FAA will verify that all measurements are converted to standard U.S. units of measure for those instruments necessary for operation in the U.S. air traffic system.

> **Note:** Depending on the intended operation, the applicable reference would be 14 CFR § 91.205(b), VFR (day); 14 CFR § 91.205(c), VFR (night); or 14 CFR § 91.205(d), IFR. Operators should be alerted that there are specific requirements under 14 CFR part 91 for maintenance and inspection of the various aircraft instruments, and that those requirements are applicable for these aircraft if the instruments are installed, for example, 14 CFR §§ 91.173 through 91.187, 91.215, 91.217, 91.219, 91.411, 91.413, etc.

## 4112. Certification Procedures.

**a.** Once it has been determined that the aircraft meets the requirements for the special airworthiness certification requested, the FAA must—

(1) Make an aircraft record entry showing the following, or similarly worded statement: "I find this aircraft meets the requirements for a special airworthiness certificate for the purpose(s) of [identify purpose(s)], and have issued a special airworthiness certificate and operating limitations dated _____. The next inspection is due _____. Signed: John Doe, Aviation Safety Inspector, NM48."

(2) Issue the special airworthiness certificate and appropriate operating limitations in accordance with this order.

**b. Denial.** If the aircraft does not meet the certification requirements and the special airworthiness certificate is denied, the FAA will provide a letter to the applicant stating the reason(s) for denial and, if feasible, identify which steps may be accomplished to meet the certification requirements. Should this occur, a copy of the denial letter will be attached to FAA Form 8130-6 and forwarded to AFS-750, and made a part of the aircraft's record.

**c. Phases.** For the purpose of this section:

(1) Phase 1 means: The initial flight testing period for a newly assembled aircraft, not newly manufactured or newly built. Newly manufactured/built aircraft must complete initial flight testing comparable to experimental amateur-built aircraft.

(2) Phase 2 means: an aircraft that has completed Phase 1 testing and has not been altered from the tested configuration, or flown outside the flight tested envelope. Modifications that invalidate Phase 2 limitations are:

(a) Structural modifications;

(b) Aerodynamic modifications, including externally mounted equipment except as permitted in limitation (15) found in paragraph 4113 of this order; and

(c) Change of engine make, model, or power rating (thrust or horse power).

**Note 1:** The owner/operator may return the aircraft to Phase 1 in order to flight test specific items as required by these limitations without invalidating the issued limitations; however, major modifications such as those listed above may require new operating limitations in accordance with limitation (32) found in paragraph 4113 of this order.

**Note 2:** The FAA may elect to process the aircraft on a one-time certification basis, for example, via the issuance of only one special airworthiness certificate of unlimited duration. In these instances, when issuing the special airworthiness certificate for the purpose(s) of exhibition and/or air racing, the operating limitations will be prescribed in two phases in the same document.

## 4113. Issuance of Experimental Exhibition and Air Racing Operating Limitations.

**a. Operating limitations.** The FAA may impose any additional limitations deemed necessary in the interest of safety, only after coordination with AFS-800 and AIR-200. The FAA must review each imposed operating limitation with the applicant to ensure that the operating limitations are understood by the applicant.

**b. Issuance.** Operating limitations must be issued in accordance with table 4-1 below:

Gray highlight items either not applicable or not relevant to SubSonex

**Table 4-1. Operating Limitations to be Issued**

**R = Required N = Not required P = Prohibited I = If required by Aircraft Type**
**OL = Operating Limitation**

| OL | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GROUP | 1 | R | R | R | R | N | N | N | N | R | R | R | R |
| | 2 | R | R | R | R | N | N | N | N | R | R | R | R |
| | 3 | R | R | R | R | R | N | N | R | R | R | R | R |
| | 4 | R | R | R | R | R | R | R | R | R | R | R | R |
| | 5 | R | R | R | R | R | R | I | R | R | R | R | R |
| | 6 | R | R | R | R | R | R | I | R | R | R | R | R |
| | 7 | R | R | R | R | R | R | I | R | R | R | R | R |

| OL | | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GROUP | 1 | R | R | R | R | R | R | N | N | R | N | N | R |
| | 2 | R | R | R | R | R | R | N | N | R | N | N | R |
| | 3 | R | R | R | R | R | R | N | N | R | N | N | R |
| | 4 | R | R | R | R | R | R | N | N | R | N | N | R |
| | 5 | R | R | R | R | R | P | R | N | R | N | N | R |
| | 6 | R | R | R | R | R | P | P | R | P | R | R | R |
| | 7 | R | R | R | R | R | P | P | R | R | R | R | R |

| OL | | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GROUP | 1 | R | R | R | R | N | N | R | R | R | R | N | R |
| | 2 | N | R | R | R | R | R | R | R | R | R | N | R |
| | 3 | N | R | R | R | R | R | N | N | R | R | N | R |
| | 4 | N | R | R | R | R | R | N | N | R | R | N | R |
| | 5 | N | R | R | R | R | R | N | N | R | R | N | R |
| | 6 | N | R | **P** | R | R | R | N | N | R | R | R | R |
| | 7 | N | R | **P** | R | R | R | N | N | R | R | R | R |

| OL | | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + GROUP | 1 | R | R | R | N | R | R | R | R | N | | | |
| | 2 | R | R | R | N | R | R | R | R | N | | | |
| | 3 | R | R | R | N | R | R | R | R | N | | | |
| | 4 | R | R | R | R | R | R | R | R | N | | | |
| | 5 | R | R | R | R | R | R | R | R | N | | | |
| | 6 | R | R | R | R | R | R | R | R | R | | | |
| | 7 | R | R | R | R | R | R | R | R | N | | | |

(1) No person may operate this aircraft for other than the purpose of exhibition, or to * participate in events, in accordance with 14 CFR § 21.191(d) or § 21.191(e). This aircraft must * be operated in accordance with all air traffic and general operating rules of 14 CFR part 91, all limitations herein prescribed, and as described in the owner operator's program letter. These operating limitations are a part of FAA Form 8130-7, and are to be carried in the aircraft at all times and be available to the pilot in command of the aircraft.

(2) No person may operate this aircraft unless FAA Form 8130-7 is displayed at the cabin or cockpit entrance so that it is visible to passengers or flightcrew members, the word "EXPERIMENTAL" is displayed in accordance with 14 CFR § 45.23, and the aircraft contains the placards and markings required by 14 CFR § 91.9. The pilot in command of this aircraft must advise passengers of the experimental nature of this aircraft and that it does not meet the certification requirements of a standard certificated aircraft.

(3) The owner operator must submit an annual program letter to the geographically responsible FSDO where the aircraft is based. All operations must be conducted in accordance with these limitations and the program letter. A copy of the current program letter and any amendments must be carried on board the aircraft any time that the aircraft is being operated. The program letter must include the following information:

(a) The aircraft's home base.

(b) The name of the person responsible for the operation and maintenance of the aircraft.

(c) A list of events at which the aircraft will be exhibited (the list may be amended as necessary).

(d) For Group 6 and Group 7 aircraft, the proficiency area. The proficiency area may be depicted using a map or it may be described by geographic landmarks, airports, or aids to navigation.

(4) The pilot in command of this aircraft must hold an appropriate category and class rating.

(5) In addition to the requirements of limitation (4) of this paragraph; the pilot in command also must hold:

(a) An appropriate type rating (if one has been established), or

(b) An experimental aircraft authorization, by make and model, on their pilot certificate, or

(c) A temporary LOA issued by an FAA Flight Standards Operations Inspector.

**Note:** For the purpose of completing the practical test for the issuance of an experimental aircraft authorization, a qualified instructor may make a logbook endorsement permitting limited local solo operations for a period of not more than 30 days.

(6) In addition to the requirements of limitation (4) of this paragraph, the pilot in command also must hold:

(a) An appropriate type rating (if one has been established), or

(b) An experimental aircraft authorization by make and model, on their pilot certificate, or

(c) A temporary LOA issued by an FAA Flight Standards Operations Inspector, or

(d) For the purpose of completing the practical test for the issuance of an experimental aircraft authorization, a qualified instructor may make a logbook endorsement permitting limited local solo operations (provided that a second in command is not required by 14 CFR § 91.531) for a period of not more than 30 days.

**Note:** An experimental aircraft authorization or temporary LOA is issued in accordance with the procedures described in the FSIMS under the title "Airman Qualification Requirements for Aircraft for Which the Operating Limitations require an FAA-issued authorization to act as pilot in command."

N/A: Single-Place Aircraft

(7) Additional crewmembers such as second in command as required by 14 CFR § 91.531, or flight engineers must hold appropriate airmen certificates. The additional required crewmembers must also meet the qualification, training, and recency of experience requirements of 14 CFR part 61 or part 63 as appropriate.

(8) The pilot in command must have completed a flight review in accordance with 14 CFR part 61 from a qualified instructor in a high performance aircraft. Additionally, if the pilot has not completed three takeoffs and landings within the preceding 180 days in this aircraft make and model or comparable aircraft, the pilot must receive training from a qualified instructor in this aircraft make and model or comparable aircraft.

(9) During Phase I test flight operations, this aircraft is to be operated under VFR, day only, and no person may be carried in this aircraft during flight unless that person is a required crewmember. The local FSDO must approve if a person is essential for the test flight.

(10) During Phase I test flight operations, no person may flight test an aircraft except over open water or sparsely populated areas having light air traffic.

(11) During Phase I test flight operations, this aircraft may only operate from [identify name of airport(s)] until the requirements of 14 CFR § 91.319(b) have been met.

(12) During Phase I test flight operations, this aircraft must be operated for at least _____hours with at least _____takeoffs and landings (to a full stop), and all operations must be conducted in the geographic area described as follows:

(a) The size of the test flight area must be the minimum required to safely conduct the anticipated maneuvers and tests.

(b) The area must be described by radius, and/or landmarks, or as depicted on an attached chart.

(c) The minimum number of hours and minimum number of takeoffs and landings should be based on the aircraft's condition and records and the total time on the aircraft and its engine(s).

(d) For aircraft other than newly manufactured or built, the number of hours normally should normally be 10 and the minimum number of takeoffs and landings should be five.

> **Note:** For newly manufactured or newly built aircraft, Phase I test flight limitations similar in scope to paragraph 4013b(3) and 4013b(4) of this order will be added to these operating limitations.

(13) During Phase I test flight operations, following satisfactory completion of the required number of flight hours in the flight test area, the pilot must certify in the records that the aircraft has been shown to comply with 14 CFR § 91.319(b). Compliance must be recorded in the aircraft records with the following, or a similarly worded, statement: "I certify that the prescribed flight test hours have been completed and the aircraft is controllable throughout its normal range of speeds and throughout all maneuvers to be executed, has no hazardous operating characteristics or design features, and is safe for operation."

(14) During Phase I test flight operations, aerobatic maneuvers intended to be performed must be satisfactorily accomplished and recorded in the aircraft records during the flight test period. In addition to the requirements of 14 CFR § 91.303, appropriate limitations identifying the aerobatic maneuvers and conditions under which they may be performed shall be included in the aircraft records.

(15) During Phase I test flight operations, if the aircraft will have removable externally mounted equipment, it must be test flown in all configurations. An entry must be made in the aircraft records indicating the configurations flight tested, unless the original manufacturer's flight test data for that equipment is included in the aircraft limitations.

(16) During Phase II operations, this aircraft is prohibited from flight with any externally mounted equipment except in compliance with limitation (15) of this paragraph.

> **Note:** The owner may place the aircraft back into Phase 1 for the sole purpose of flight testing the added external equipment; in this case the owner must comply with limitation (15) requirements of this paragraph.

(17) During Phase II operations, this aircraft is prohibited from flight with any externally mounted equipment unless the equipment is mounted in a manner that will prevent in-flight jettison,

(18) During Phase II operations, except for takeoffs and landings (within class B, C, D, or E surface airspace designated for the airport, or 5 NM, whichever is greater), this aircraft may not be operated over densely populated, or congested areas except in compliance with 14 CFR § 91.119, or in an emergency situation. When exercising this authorization, the pilot in command must avoid densely populated areas and congested areas whenever possible.

(19) During Phase II operations, this aircraft may not be operated over densely populated or congested areas. The pilot in command must operate at altitudes and over routes that ensure compliance with 14 CFR § 91.119(a) at all times and avoid densely populated and congested areas.

(20) During all operations, this aircraft may not be operated over densely populated areas or in congested airways. All operations must be conducted in a manner and in areas that, in the event of a bailout, ejection (unless otherwise authorized by AFS-800), or in-flight structural failure, persons or property on the surface or other aircraft in flight are not endangered.

N/A: Single-Place Aircraft

(21) During Phase II operations, no person may be carried in this aircraft during the exhibition of the aircraft's flight capabilities, performance, or unusual characteristics at airshows, or for motion picture, television, or similar productions, unless essential for the purpose of the flight. Persons may be carried during flights to and from any event or during proficiency/currency flying, limited to the design seating capacity of the aircraft and subject to the regulatory prohibition on compensation. The pilot in command of this aircraft must advise the passenger of the experimental nature of this aircraft and that it does not meet the certification requirements of a standard certificated aircraft.

(22) During Phase II operations of Group 6 and Group 7 aircraft, all proficiency/practice flights must be conducted within the geographical area described in the applicant's program letter and any modifications to that letter, but that area will not be more than one-half the range of the aircraft from the aircraft's home base airport. An exception is permitted for proficiency flying outside of the area stated above for organized formation flying, training, or pilot checkout in conjunction with a specific event listed in the applicant's program letter (or amendments).

(23) During Phase II operations of Group 6 and Group 7 aircraft, flights for maintenance of the aircraft are permitted outside the defined proficiency area, provided the maintenance facility airport is listed in the required program letter. (Maintenance, as defined in 14 CFR § 1.1, is the reference for the purpose of these flights.) The maintenance performed in connection with the flight must be recorded in the aircraft records in accordance with 14 CFR part 43.

(24) During Phase II operations, aerobatic maneuvers that were not satisfactorily accomplished and recorded during the Phase I flight test time period may not be performed.

**Note:** The owner may place the aircraft back into Phase 1 for the sole purpose of adding additional aerobatic maneuvers to the aircraft authorized maneuvers. In this case, the owner must comply with limitation (13) requirements of this paragraph.

(25) During Phase II operations, the following placard, pertaining to gliders and sailplanes having experimental certificates, must be displayed in the cockpit in full view of the pilot in addition to the requirements of 14 CFR § 91.9. "NOTE: No person may exceed the designer's or builder's recommended limitations as follows: maximum gross weight _____; CG limits _____; airplane tow speed _____; maximum airspeed in smooth air _____; and maximum airspeed in rough air _____."

(26) This aircraft must not be used for glider towing, banner towing, or recreational/sport parachute jumping.

(27) During Phase II operations, night and/or instrument flight is approved, provided the aircraft is equipped as described in 14 CFR § 91.205. Instruments and equipment installed for night and/or instrument flight must be inspected and maintained in accordance with the applicable requirements of 14 CFR part 91. All maintenance or inspection of this equipment must be recorded in the aircraft maintenance records.

(28) Equipment installed to meet regulatory requirements must be inspected and maintained in accordance with the applicable requirements of 14 CFR part 91. Any maintenance or inspection of this equipment must be recorded in the aircraft maintenance records.

(29) All large airplanes, turbojet airplanes, turbopropeller-powered multiengine airplanes, or turbine-powered rotorcraft must be maintained in with accordance an FAA-approved inspection program meeting the scope and content as described in 14 CFR § 91.409(f). Completion of these inspections must be recorded in the aircraft maintenance records.

(30) Inspections for all large airplanes, turbojet airplanes, turbopropeller-powered multiengine airplanes, and turbine-powered rotorcraft must 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 [identify applicable inspection program] and found to be in a condition for safe operation."

(31) No person may operate aircraft other than those described in limitations (29) and (30) of this paragraph unless within the preceding 12 calendar months it has had a condition inspection performed in accordance with the scope and detail of 14 CFR part 43, appendix D, or other FAA-approved programs, and was found to be in a condition for safe operation. This inspection will be recorded in the aircraft maintenance records.

(32) Condition inspections for aircraft other than those described in limitations (29) and (30) of this paragraph must 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 14 CFR part 43, appendix D, and found to be in a condition for safe operation." The entry will include the aircraft's total time-in-service and the name, signature, certificate number, and type of certificate held by the person performing the inspection.

(33) Only FAA-certificated mechanics with appropriate ratings as authorized by 14 CFR § 43.3 may perform inspections required by these operating limitations.

(34) The cognizant FSDO must be notified, and its response received in writing, prior to flying this aircraft after incorporation of a major change as defined by 14 CFR § 21.93 in order to determine whether new operating limitations will be required. The FSDO response should be entered in the aircraft's records and a copy sent the FAA Aircraft Registration Branch, AFS-750, P.O. Box 25504, Oklahoma City, Oklahoma 73125 for recording in the aircraft's permanent records.

(35) Aircraft equipped with live ejection seats must be clearly externally marked to ensure that emergency personnel are aware of the hazard presented by the system. The ejection seat system must be maintained in accordance with the manufacturer's procedures and inspected in accordance with the inspection program applicable to this aircraft. In addition, the ejection seat system must be mechanically secured to prevent inadvertent operation of the system any time the aircraft is parked or out of service.

(36) The special airworthiness certificate and attached operating limitations for this aircraft have no expiration date.

(37) When an aircraft's home base is changed or there is a transfer of ownership, the new owner/operator will take any or all of the following actions within 30 days:

(a) Submit a new program letter to the geographically responsible FSDO.

(b) If an approved inspection program is specified in these operating limitations, submit a copy to the geographically responsible FSDO. The gaining FSDO will not change the previously approved program unless it can be substantiated that the previously approved program no longer meets FAA requirements.

(c) The gaining FSDO will not require the aircraft's airworthiness certificate or operating limitations to be reissued, unless the aircraft requires Phase I test flight operations.

(38) 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. The owner/operator of this aircraft must obtain written permission from another country's CAA before operating this aircraft in or over that country. That written permission must be carried aboard the aircraft together with the U.S. airworthiness certificate and, upon request, be made available to an ASI or the CAA in the country of operation.

(39) Application must be made to the geographically responsible FSDO for any revision to these operating limitations.

N/A: Not Capable

(40) Supersonic flight (true flight Mach number greater than 1) is prohibited unless specifically authorized under 14 CFR §91.817(a) by the FAA Office of Aviation Policy Planning and Environment (AEP).

(41) The special airworthiness certificate and attached operating limitations for this aircraft have no expiration date. New proficiency areas must be described for Group 6 or 7 aircraft.

Note: no area restriction for proficiency flying exists for Group 5.

(42) FAA approval of maintenance and inspection interval extensions requires that the owner operator submit documentation and data justifying the extension to the local FSDO for elevation for concurrence.

N/A: no life limit specified for SubSonex airframe.

(43) Approval of life limit extensions may be approved by the FAA only if the original manufacturer approves and provides documentation supporting the extension. In the case that original manufacturer data is not available, an appropriately qualified DER may provide data to substantiate life limit extension, but the FAA must concur with the results of the data.

N/A for SubSonex

(44) Aircraft originally incorporating fatigue life recording systems must maintain the system and comply with the original manufacturer fatigue limits. If the fatigue life system is removed, or is inoperative, the aircraft cannot be operated in any group other than Group 6.

(45) Operations are limited to minimum required crew. The carriage of passengers is prohibited at all times.

* **Note:** For fat ultralight vehicles and ultralight-like vehicles not meeting the provisions of 14 CFR § 103.1, add limitation (45) to these operating limitations and delete limitation (21). *

**4114.-4124 Reserved.**

## Section 11. Certification and Operation of Aircraft Under the Experimental Purpose(s) of Research and Development, Showing Compliance with Regulations, Crew Training, Market Surveys, and Operating Kit-Built Aircraft

**4125. General.** Under the provisions of 14 CFR § 21.191(a), R&D aircraft are defined as aircraft that test new design concepts, aircraft equipment, installations, operating techniques, or new uses for aircraft. Under the provisions of 14 CFR § 21.191(b), show compliance aircraft are defined as aircraft that conduct flight tests and other operations to show compliance with the regulations. This includes flights to show compliance for the issuance of TCs and STCs, major design changes, and function and reliability requirements. Under the provisions of 14 CFR § 21.191(c), crew training aircraft are defined as aircraft involved in the training of the applicant's flightcrews. Under the provisions of 14 CFR § 21.191(f), market survey aircraft are defined as aircraft that are used for conducting market surveys, sales demonstrations, and customer crew training as provided for in 14 CFR § 21.195. Under the provisions of 14 CFR § 21.191(h), operating kit-built aircraft is defined as operation of a PCA that meets the criteria of §14 CFR 21.24(a)(1) that was assembled by a person from a kit manufactured by the holder of a PC for that kit, without the supervision and quality system of the PC holder under 14 CFR § 21.184(a). Unless further defined in paragraphs 4125a through e of this order, the