

ORDER

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

8000.84

9/27/04

**SUBJ: PROCEDURES TO ACCEPT INDUSTRY-DEVELOPED TRAINING FOR
LIGHT-SPORT REPAIRMEN**

1. PURPOSE. This order assigns the Light-Sport Aviation Branch, AFS-610, as the responsible office to accept, maintain, and monitor the industry-developed training for light-sport aircraft repairmen. It also provides guidance to AFS-610 for accepting industry-developed training for light-sport repairmen with an inspection and/or maintenance rating.

2. DISTRIBUTION. This order is distributed to the director level in Washington headquarters and the centers; to all regional administrators; to branch level in the Flight Standards Service and the Aircraft Certification Service; to branch level in the regional Flight Standards Divisions; and to all Flight Standards field offices.

3. BACKGROUND. The Flight Standards Service director, AFS-1, has assigned the Regulatory and Support Division, AFS-600, the responsibility for light-sport aircraft and sport pilot/repairman programs. This includes accepting and monitoring required industry-provided training for light-sport aircraft repairmen.

a. The light-sport aircraft rule establishes two new airworthiness certificates: experimental, operating light-sport aircraft and light-sport category. For the purpose of this order, the following definitions will apply:

(1) Experimental light-sport aircraft. These types of aircraft will be identified as ELSA for the purpose of this order. Aircraft issued an experimental certificate under Title 14 of the Code of Federal Regulations (14 CFR) part 21, § 21.191(i).

(2) Light-sport category aircraft. These types of aircraft will be identified as SLSA for the purpose of this order. Aircraft issued a special airworthiness certificate in the light-sport category (or, aircraft issued a special airworthiness certificate under part 21, § 21.190).

b. The rule also establishes a new light-sport aircraft repairman certificate with two new ratings: inspection and maintenance. The specific training requirements for these ratings are as follows:

(1) A repairman (light-sport aircraft) certificate with an inspection rating is issued to an individual upon successfully completing an FAA-accepted inspection rating training course of at least 16 hours in length. This rating will allow the repairman to perform an annual condition inspection on an ELSA owned by him or her and identified on the repairman certificate.

(2) A repairman (light-sport aircraft) certificate with a maintenance rating may perform annual condition inspections on both ELSA and SLSA within the class of light-sport aircraft for which he or she is rated. This rating also allows the repairman to perform maintenance on light-sport category aircraft known as SLSA, in the class of aircraft in which he or she is rated. The required number of training hours is different for each of the five classes of eligible light-sport aircraft. For example, the training required for a non-powered glider rating is 80 hours, and 120 hours of training is required for a powered airplane rating.

4. DISCUSSION. This order contains the policy to be used by AFS-610 for the acceptance and monitoring of industry-developed training for the light-sport aircraft repairman. Circumstances not covered by this order should be referred to AFS-300 for policy determinations.

5. LIGHT-SPORT AIRCRAFT OVERVIEW FOR REPAIRMAN WITH INSPECTION RATING TRAINING COURSE. The light-sport aircraft rule requires a minimum of 16 hours of training for an inspection rating in each class of ELSA. The goal of the 16-hour course is to take an individual with zero knowledge and train that individual to inspect an ELSA to a level of proficiency comparable to a level 3 in 14 CFR part 147 appendix A. Level 3 requirement means that the repairman can make a decision that an aircraft is in a condition for safe operation without additional technical assistance. To ensure a level 3 standard of training, the 16-hour course will be limited to 16 students per instructor for lecture and 8 students per practical project.

a. The Repairman (Light-Sport Aircraft) with Inspection Rating Course. This course will contain at least six elements:

(1) Regulations and other guidance applicable to light-sport aircraft, review of operating limitations, annual condition inspection record entry, a review of FAA Airworthiness Directives (AD) and manufacturer's safety directives.

(2) Inspection procedures in Advisory Circular (AC) 43.13-1B, Acceptable Methods, Techniques, and Practices—Aircraft Inspection and Repair, and use of manufacturer's manuals, technical data, and personal safety in the work environment.

(3) Aircraft theory of flight and discussion of aircraft systems, to include proper operation and critical areas that are prone to failure or fatigue for at least the following systems:

- (a) Airframe, including instrumentation, landing gear, brakes, etc.;
- (b) Engine, including fuel and oil systems;
- (c) Propeller and gear reduction unit;
- (d) Accessories, including ballistic parachute; and
- (e) Flight control operation and rigging.

(4) Use of an inspection checklist provided by the manufacturer or found in FAA AC 90-89A, Amateur-Built Aircraft and Ultralight Flight Testing Handbook, appendix A.

(5) Student course evaluation (critique).

(6) A required final test that will contain no less than 50 questions with multiple-choice answers.

NOTE: Applicant must achieve an 80 percent score or higher on the final test to pass the course. If the applicant fails, the course must be retaken in its entirety.

b. Requirements for FAA Acceptance of a 16-Hour Inspection Rating Course. An applicant submitting a 16-hour ELSA repairman inspection rating course must submit the following information to AFS-610.

(1) A letter of request, identification of the person or company, location, telephone number, contact person, and the class of light-sport aircraft the applicant wishes to teach. If instructors are added or removed from the course, the course provider must submit a letter to AFS-610, explaining the change at least 2 weeks before presenting the next course. Included in the applicant's letter of request is a statement that the applicant will allow FAA access to any location where the training is being held.

(2) A disk with Microsoft-compatible files containing the following:

(a) Course outline covering the subjects taught and the length of time each subject is taught. The course should be 75 percent lecture and 25 percent practical training.

(b) Description of the training aids used, copy of the PowerPoint (or similar program) presentations, and a list of the videotapes, parts, tools, etc., used in the course.

(c) Handbooks and hand-out material.

(d) Description on how the training will be provided, and how names of students and each test score result will be maintained for a 2-year period.

(e) A sample certificate of completion, course critique, and course test.

(f) Instructor's qualifications. The instructor must be an individual with at least a mechanic certificate with an airframe and powerplant rating with 3 years experience working on General Aviation (GA) aircraft of 6,000 pounds or less, or a factory representative recommended in writing by the manufacturer of a light-sport, ultralight, or ultralight-like aircraft. The term "factory representative" is defined as a person who is a manufacturer's technical representative and subject matter expert with proven knowledge of airframe, powerplant, and related systems, as demonstrated through aircraft assembly, maintenance and repair; or an individual aircraft dealer who possesses equivalent experience and expertise as a factory representative, and is recommended for the instructor's position in writing by the aircraft manufacturer.

(g) A schedule of where and when the training will be provided over the next 12 months.

(i) If the course will be presented at multiple locations nationwide, the applicant must provide AFS-610 with:

(A) A schedule of classes and locations for the first 12 months.

(B) A schedule of classes and locations for the second 12 months, at least 30 days before the 1 year anniversary date of the letter of acceptance.

(C) A general description of how training is provided at each location.

(ii) If the course will be presented at a fixed location, the applicant must provide AFS-610 with:

(A) A schedule of classes for the first 12 months.

(B) A schedule of classes for the second 12 months, at least 30 days before the 1 year anniversary date of the letter of acceptance.

(C) A description of the facility.

NOTE: The applicant must notify AFS-610 within 7 working days of any change to the schedule (e.g., a course is added or canceled).

(h) A list of the make and models of light-sport aircraft that will be used for the practical portion of the training.

(i) Explanation of how the course provider will assign a proctor to collect the student course critiques, and send them in a self-addressed and postage-paid envelope to AFS-610. A proctor is a student who agrees to perform the task identified above. (See Appendix 1 for a sample student course critique.)

(j) A description of how the course provider will track student attendance and how make-up time will be addressed. All make-up time must be completed within 7 days after the scheduled end of the course.

c. AFS-610's Responsibilities for the 16-Hour Inspection Rating Course.

(1) AFS-610 will send a letter to the applicant stating that the course is FAA-accepted for a period not to exceed 24 calendar-months from the date on the letter. Sixty days prior to the end of the 24-month acceptance period, the applicant must reapply to AFS-610 for continuing authority to provide FAA-accepted training. If the training provider fails to reapply, a notification letter will be sent to the provider stating that the course is no longer FAA-accepted, and the provider must stop further training.

(2) AFS-610 will assign an identification (ID) number to each course. The course ID will contain four elements: the prefix “LSRI” for light-sport repairman inspection; the aircraft class identifier (e.g., “PP” for powered parachute); the month and year of acceptance (e.g., 0705 for July, 2005); and a two-digit number assigned by AFS-610 (e.g., 01, 02, etc.). Listed below are sample course ID numbers:

- Light-sport repairman inspection,
airplane: LSRIA070501
- Light-sport repairman inspection,
powered parachute: LSRIPP070501
- Light-sport repairman inspection,
weight-shift-control: LSRIWS070501
- Light-sport repairman inspection,
gyroplane: LSRIGP070501
- Light-sport repairman inspection,
lighter-than-air: LSRIL070501
- Light-sport repairman inspection,
glider: LSRIG070501

NOTE: The course provider is required to display the FAA’s letter of acceptance at each location where the course is given. The original letter of acceptance can be displayed on the wall, or a photocopy can be displayed in the student’s workbook.

(3) AFS-610 will maintain a computer database record on all accepted training providers, including training course ID numbers for each course.

(4) If an applicant does not meet the minimum training course requirements, AFS-610 will mail a letter of denial to the applicant within 30 working days after receipt of the application. If a letter of acceptance has been issued but FAA field surveillance finds the training provider course is substandard, AFS-610 may suspend or revoke the letter of acceptance by notifying the training provider, in writing, within 5 working days and include the date when the suspension or revocation becomes effective. AFS-610 will immediately notify and revoke the light-sport aircraft repairman certificate of any individual who attended any training provider’s course during the period of substandard instruction. No credit will be given to individuals who fail to complete a training course.

6. SLSA REQUIREMENT FOR THE 80/120-HOUR LIGHT-SPORT REPAIRMAN MAINTENANCE RATING TRAINING COURSE. The SLSA repairman maintenance rating training course is designed using modules of instruction that can be customized to the specific class of SLSA the repairman will maintain. There are three required “core” modules, and five elective “class” modules. Five classes of SLSA are eligible for maintenance training. They are

airplane, weight-shift-control, powered parachute, lighter-than-air, and glider. There is no maintenance rating for gyroplane. The modules are designed on 65 percent lecture and 35 percent practical format. To ensure a level 3 standard of training, the 80/120-hour course will be limited to 16 students per instructor for lecture and 8 students per practical project. Each individual module may have a review test but each maintenance course must have a final test of no less than 50 test questions with multiple-choice answers that address each applicable module.

NOTE: The applicant must achieve an 80 percent score or higher on the final test to pass the course. If the applicant fails, the course must be retaken in its entirety.

a. Module 1: (24 hours) Regulatory/Maintenance Overview (Core Module). Contains the following:

- (1) Regulations overview: light-sport rule, and 14 CFR parts 21, 39, 43, 45, 65, and 91.
- (2) Industry-developed consensus standards, including continued airworthiness requirements and inspection practices/techniques, use of hand tools, torque wrench, safetying practices, and identification of aviation hardware.
- (3) Manufacturer's safety directives, FAA ADs.
- (4) Use of manufacturer's manuals and maintenance recordkeeping.
- (5) Personal safety.
- (6) Review.

b. Module 2: (32 hours) Airframe General (Core Module). Applicant must have at least two representative airframes for the practical session.

- (1) Weight and balance.
- (2) Ballistic parachutes, theory, installation, operation, and inspection.
- (3) Theory of fuel systems, operations, and inspection.
- (4) Landing gear and brakes.
- (5) Performing minor repairs and minor alterations.
- (6) Inspection of composite structures and minor repairs.
- (7) Electrical system, theory, inspection, and troubleshooting.
- (8) Instrumentation (flight and engine).
- (9) Inspection and repair to wood, tubing, and sheet-metal structures.

(10) Inspection and installation of floats/repositioning landing gear.

(11) Corrosion, cause and prevention.

(12) Use of manufacturer's manuals and technical data.

(13) Review.

c. Module 3: (32 hours) Engine and Propeller (Core Module). Applicant must cover at least four representative engines (two different 2-cycle, and two different 4-cycle engines, of which one must be an FAA type-certificated engine).

(1) Theory of 2- and 4-cycle engine operation (fuel and lubrication).

(2) Theory, inspection, and maintenance of propellers.

(3) Service, inspection, and maintenance of engines and propellers.

(4) Use of manufacturer's manuals and technical data.

(5) Troubleshooting of 2- and 4-cycle engines.

(6) Proper engine run-up techniques.

(7) Service, inspection, and maintenance of feathering or folding propellers used on gliders.

(8) Review.

d. Module 4: (32 hours) Airplane Class (Elective Module). Applicant must have at least two representative airframes.

(1) Theory and operation of flight controls.

(2) Aircraft rigging including flight controls, landing wires, flying wires.

(3) Removal and installation of fabric covering on wings and tail surfaces.

(4) Disassembly and assembly of wings, flight controls, accessories.

(5) Removal and installation of the engine, including fuel system, instrumentation, and accessories.

(6) Use of manufacturer's manuals and technical data.

(7) Identification and inspection of critical areas.

(8) Review.

e. Module 5: (16 hours) Weight-Shift-Control Class (Elective Module). Applicant must have at least two representative aircraft.

- (1) Theory and operation of flight controls.
- (2) Assembly and disassembly of the aircraft.
- (3) Aircraft rigging.
- (4) Use of manufacturer's manuals and technical data.
- (5) Inspection, removal, and installation of fabric covering material.
- (6) Inspection, removal, and installation of the engine and accessories.
- (7) Review.

f. Module 6: (16 hours) Powered Parachute Class (Elective Module). Applicant must have at least two representative aircraft.

- (1) Theory and operation of flight controls.
- (2) Assembly and disassembly of the aircraft.
- (3) Aircraft rigging and safetying practices.
- (4) Inspection of the parachute, including removal and replacement.
- (5) Inspection, removal, and installation of the engine and accessories.
- (6) Use of manufacturer's manuals and technical data.
- (7) Review.

g. Module 7: (56 hours) Lighter-Than-Air Class (Elective Module). Applicant must have at least one representative aircraft).

- (1) Theory and operation of lighter-than-air aircraft.
- (2) Inspection of fabric and minor repairs.
- (3) Inspection of the burner assembly, basket, and fuel tanks.
- (4) Removal and installation of baskets and burners.
- (5) Cleaning of burners and nozzles.
- (6) Use of manufacturer's manuals and technical data.

(7) Review.

h. Module 8: (24 hours) Glider Class (Elective Module). Applicant must have at least one representative aircraft. If an applicant wishes to be rated on gliders with a retractable or fixed engine with a feathering propeller installed, module 3 must also be completed.

- (1) Theory and operation of glider flight controls.
- (2) Assembly and disassembly of the wings and tail surfaces.
- (3) Inspection of the wing folding/removal mechanism.
- (4) Use of manufacturer's manuals and technical data.
- (5) Review.

i. The Maintenance Rating Modular Training System. For a maintenance rating for each class of SLSA, an applicant must complete the following modules:

- (1) Airplane. Modules 1, 2, 3, and 4 for a total of 120 hours of instruction.
- (2) Weight-Shift-Control. Modules 1, 2, 3, and 5 for a total of 104 hours of instruction.
- (3) Powered Parachute. Modules 1, 2, 3, and 6 for a total of 104 hours of instruction.
- (4) Lighter-Than-Air. Modules 1 and 7 for a total of 80 hours of instruction.
- (5) Glider. Modules 1, 2, and 8 for a total of 80 hours of instruction. If the repairman will maintain powered gliders, module 3 must also be taken for a total of 112 hours of instruction.

j. Applicant Requirements for the Maintenance Rating Training Course. The applicant requesting a letter of acceptance for an SLSA repairman maintenance rating training course will supply the following information to AFS-610: A letter of request, identification of the person or company, location, telephone number, contact person, and what class and repairman rating of SLSA the applicant wishes to teach. If instructors are added or removed from the course, the course provider must submit a letter to AFS-610 explaining the change and the new instructor's qualifications, if applicable, at least 2 weeks before presenting the next course. Included in the applicant's letter of request is a statement that the applicant will allow FAA access at any time to the room/facility where the training is being provided and a disk with Microsoft-compatible files that contains:

- (1) Course outline covering the subjects taught and the length of time each subject is taught. (Class work equates to 65 percent of the course material, 35 percent practical training.)
- (2) Description of the training aids used, PowerPoint (or similar) presentations, videotapes, handouts, parts, tools, etc.

- (3) Handbooks and handout material.
- (4) Description on how the training provided, names of students, and tests scores will be maintained for a 2-year period.
- (5) Sample certificate of completion, course critique, and course test.
- (6) Instructor's qualifications. The instructor must be an individual with at least a mechanic certificate with an airframe and powerplant rating with 5 years experience working on GA aircraft of 6,000 pounds or less, or a factory representative recommended in writing by the manufacturer of a light-sport, ultralight, or ultralight-like aircraft. A factory representative is defined as a subject matter expert with 5 years experience with proven knowledge of airframe, powerplant, and related systems, as demonstrated through aircraft assembly, maintenance, and repair; or an individual aircraft dealer who possesses equivalent experience and expertise as a factory representative and is recommended in writing by the aircraft manufacturer. An aircraft manufacturer is a corporation or a privately-owned company that has produced at least 20 flyable aircraft with in the previous 5 years.
- (7) A schedule of where and when the training will be provided over each 12 months of the certificate. (See paragraph 5b(2)(g).)
- (8) A description of the training facilities and number of students per class.
- (9) A list by make and model of the light-sport aircraft that will be used in the practical portion of the training.
- (10) A description of how the course provider will assign a proctor to collect the student course critiques and send them to AFS-610. (See Appendix 1 for a sample student course critique.)
- (11) A description of how the course provider will track student attendance and how make-up time will be addressed. All make-up time must be completed within 7 days after the scheduled end of the course.

k. AFS-610 Duties and Responsibilities for the Maintenance Rating Training Course.

- (1) AFS-610 will provide a letter of acceptance to the applicant stating that the course is FAA-accepted and that the course will be listed in the FAA database for a period not to exceed 24 calendar-months from the date on the letter. At least 60 days prior to the end of the 24 calendar-months the applicant must reapply in order to continue to provide FAA-accepted training.
- (2) AFS-610 will assign a course ID number. Like the inspection rating training course (see paragraph 5c(2)), the course ID will contain four elements: the prefix "LSRM" to indicate light-sport repairman maintenance; the aircraft class identifier (e.g., "L" for lighter-than-air); the month and year of acceptance (e.g., 0305 for March, 2005); and a two-digit number assigned by AFS-610 (e.g., 01, 02, etc.). Listed below are sample course ID numbers:

- Light-sport repairman maintenance,
airplane: LSRMA030501
- Light-sport repairman maintenance,
powered parachute: LSRMPP030501
- Light-sport repairman maintenance,
weight-shift-control: LSRMWS030501
- Light-sport repairman maintenance,
lighter-than-air: LSRML030501
- Light-sport repairman maintenance,
glider: LSRMG030501

NOTE: The course provider is required to display the FAA's letter of acceptance at every location where the course is given. The original letter of acceptance can be displayed on the wall, or a photocopy can be displayed in the student's workbook.

(3) AFS-610 will maintain a database on all training providers assigned numbers and the results of training provider surveillance by FAA field offices.

(4) If an applicant does not meet the minimum training course requirements, AFS-610 will send the applicant a letter of denial within 30 days after receipt of the application. If FAA field surveillance of the training determines that training is substandard after the letter of acceptance has been issued, AFS-610 will suspend or revoke the letter of acceptance and notify the training provider immediately in writing and include the date of that suspension or revocation. AFS-610 will immediately revoke the light-sport aircraft repairman certificate of any individual who attended the training provider course during the period of substandard instruction. No credit will be given to individuals who fail to complete a training course.

(5) AFS-610 will be primarily responsible for the acceptance of training courses, and FAA field offices will perform surveillance of providers of light-sport repairman training as needed.

7. DIRECTIVE INFORMATION AND FEEDBACK. For additional information, clarification, or to suggest improvements to this order, contact the Aircraft Maintenance Division, AFS-300, at (202) 267-3546.

/s/ John M. Allen for
James J. Ballough
Director, Flight Standards Service

**APPENDIX 1.
LIGHT-SPORT AIRCRAFT REPAIRMAN TRAINING COURSE EVALUATION**

Course Name: _____ **Course Number:** _____
Instructor: _____ **Instructor:** _____
Instructor: _____ **Instructor:** _____
Date: _____ **Name (Optional):** _____

Rate the quality of the items below based on the following rating scale.

1	2	3	4	NA
POOR (Provide comment on the next page)	FAIR (Provide comment on the next page)	GOOD	EXCELLENT	NOT APPLICABLE

INSTRUCTION (Overall)

- | | | | | | |
|--|---|---|---|---|----|
| 1. Preparation | 1 | 2 | 3 | 4 | NA |
| 2. Presentation | 1 | 2 | 3 | 4 | NA |
| 3. Knowledge of Instructors | 1 | 2 | 3 | 4 | NA |
| 4. Effectiveness of teaching technique | 1 | 2 | 3 | 4 | NA |

TRAINING CONTENT

- | | | | | | |
|---------------------------------------|---|---|---|---|----|
| 1. Course well-organized | 1 | 2 | 3 | 4 | NA |
| 2. Course easy to follow | 1 | 2 | 3 | 4 | NA |
| 3. Course outcome explained | 1 | 2 | 3 | 4 | NA |
| 4. Course exercise(s) effective | 1 | 2 | 3 | 4 | NA |
| 5. Course objectives clear | 1 | 2 | 3 | 4 | NA |
| 6. Course objectives achieved | 1 | 2 | 3 | 4 | NA |
| 7. Course application to personal job | 1 | 2 | 3 | 4 | NA |

SEMINAR REGISTRATION

- | | | | | | |
|--|---|---|---|---|----|
| 1. Effectiveness of registration personnel | 1 | 2 | 3 | 4 | NA |
| 2. Effectiveness of registration process | 1 | 2 | 3 | 4 | NA |
| 3. Receipt of seminar confirmation | 1 | 2 | 3 | 4 | NA |

TIME MANAGEMENT

- | | | | | | |
|--|---|---|---|---|----|
| 1. Adequate time for lectures/instructions | 1 | 2 | 3 | 4 | NA |
| 2. Adequate time for exercises | 1 | 2 | 3 | 4 | NA |
| 3. Adequate time for lunch/breaks | 1 | 2 | 3 | 4 | NA |

PHYSICAL ENVIRONMENT

- | | | | | | |
|--|---|---|---|---|----|
| 1. Lighting | 1 | 2 | 3 | 4 | NA |
| 2. Temperature | 1 | 2 | 3 | 4 | NA |
| 3. Comfort of chairs/table | 1 | 2 | 3 | 4 | NA |
| 4. Room arrangement | 1 | 2 | 3 | 4 | NA |
| 5. Equipment Operation (sound, video, audio) | 1 | 2 | 3 | 4 | NA |