Designation: F2483 – 12

Standard Practice for Maintenance and the Development of Maintenance Manuals for Light Sport Aircraft[1]

This standard is issued under the fixed designation F2483; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice provides guidelines for the qualifications to accomplish the various levels of maintenance on U.S.-certificated experimental and special light sport aircraft. In addition, it provides the content and structure of maintenance manuals for aircraft and their components that are operated as light sport aircraft.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

F2241 Specification for Continued Airworthiness System for Powered Parachute Aircraft

F2244 Specification for Design and Performance Requirements for Powered Parachute Aircraft

F2245 Specification for Design and Performance of a Light Sport Airplane

F2295 Practice for Continued Operational Safety Monitoring of a Light Sport Aircraft

F2352 Specification for Design and Performance of Light Sport Gyroplane Aircraft

F2415 Practice for Continued Airworthiness System for Light Sport Gyroplane Aircraft

2.2 *Federal Standards:*[3]

14 CFR Part 21.190 Issue of a Special Airworthiness Certificate for a Light-Sport Category Aircraft

14 CFR Part 43 Maintenance, Preventive Maintenance, Rebuilding, and Alteration

14 CFR Part 65 Certification: Airmen Other Than Flight Crewmembers

3. Terminology

3.1 *Definitions:*

3.1.1 *annual condition inspection*—detailed inspection accomplished once a year on a LSA in accordance with instructions provided in the maintenance manual supplied with the aircraft. The purpose of the inspection is to look for any wear, corrosion, or damage that would cause an aircraft to not be in a condition for safe operation.

3.1.2 *A&P*—airframe and powerplant mechanic as defined by 14 CFR Part 65 in the U.S. or equivalent certification in other countries.

3.1.3 *FAA*—United States Federal Aviation Administration.

3.1.4 *heavy maintenance*—any maintenance, inspection, repair, or alteration a manufacturer has designated that requires specialized training, equipment, or facilities.

3.1.5 *line maintenance*—any repair, maintenance, scheduled checks, servicing, inspections, or alterations not considered heavy maintenance that is approved by the manufacturer and is specified in the manufacturer's maintenance manual.

3.1.6 *LSA (light sport aircraft)*—aircraft designed in accordance with ASTM standards under the jurisdiction of Committee F37 Light Sport Aircraft, for example, Specification F2244 for powered parachutes, Specification F2245 for airplanes, and Specification F2352 for gyroplanes.

3.1.7 *LSA repairman inspection*—U.S. FAA-certificated repairman (light sport aircraft) with an inspection rating as defined by 14 CFR Part 65, authorized to perform the annual condition inspection on experimental light sport aircraft, or an equivalent rating issued by other civil aviation authorities.

3.1.7.1 *Discussion*—Experimental LSA do not require the individual performing maintenance to hold any FAA airman certificate in the U.S.

3.1.8 *LSA repairman maintenance*—U.S. FAA-certificated repairman (light sport aircraft) with a maintenance rating as defined by 14 CFR Part 65, authorized to perform line maintenance on aircraft certificated as special LSA aircraft.

[1] This practice is under the jurisdiction of ASTM Committee F37 on Light Sport Aircraft and is the direct responsibility of Subcommittee F37.70 on Cross Cutting.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401.

Authorized to perform the annual condition/100-h inspection on an LSA, or an equivalent rating issued by other civil aviation authorities.

3.1.9 *maintenance manual(s)*—manual provided by an LSA manufacturer or supplier that specifies all maintenance, repairs, and alterations authorized by the manufacturer.

3.1.10 *major repair, alteration, or maintenance*— any repair, alteration, or maintenance for which instructions to complete the task excluded from the maintenance manual(s) supplied to the consumer are considered major.

3.1.11 *manufacturer*—any entity engaged in the production of an LSA or component used on an LSA.

3.1.12 *minor repair, alteration, or maintenance*— any repair, alteration, or maintenance for which instructions provided for in the maintenance manual(s) supplied to the consumer of the product are considered minor.

3.1.13 *overhaul*—maintenance, inspection, repair, or alterations that are only to be accomplished by the original manufacturer or a facility approved by the original manufacturer of the product.

3.1.14 *overhaul facility*—facility specifically authorized by the aircraft or component manufacturer to overhaul the product originally produced by that manufacturer.

3.1.15 *repair facility*—facility specifically authorized by the aircraft or component manufacturer to repair the product originally produced by that manufacturer.

3.1.16 *14 CFR*—Code of Federal Regulations Title 14 Aeronautics and Space also know as the "FARs" or Federal Aviation Regulations.

3.1.17 *100-h inspection*—same as an *annual condition inspection*, except the interval of inspection is 100 h of operation instead of 12 calendar months. This inspection is utilized when the LSA is being used for commercial operations such as flight instruction or rental, or both.

4. Significance and Use

4.1 The purpose of this practice is to provide guidance to owners, mechanics, airports, regulatory officials, and aircraft and component manufacturers who may accomplish maintenance, repairs, and alterations on a light sport aircraft. In addition, this practice covers the format and content of maintenance manuals and instructions for the maintenance, repair, and alteration of an LSA.

5. Aircraft Maintenance Manual

NOTE 1—This practice provides the information needed to comply with the requirement of what the maintenance manual will contain. Manufacturers of SLSA and ELSA Kits for sale in the U.S. are required to provide a maintenance manual for each aircraft in accordance with 14 CFR Part 21.190. These manuals do not require any type of approval from the FAA or other government entity; however, the regulations do require the manual to be developed in accordance with industry consensus standards.

5.1 *Format*—The maintenance manual shall have the following sections:

5.1.1 *General*—Listings of general specifications, capacities, and instructions on ground handling, servicing, and lubrication such as:

5.1.1.1 Equipment list,

5.1.1.2 Sources to purchase parts,

5.1.1.3 List of disposable replacement parts, for example, air filters, fuel filters, oil filters, and tires,

5.1.1.4 Engine specifications,

5.1.1.5 Weight and balance information,

5.1.1.6 Tire inflation pressures,

5.1.1.7 Approved oils and capacities,

5.1.1.8 Recommended fastener torque values,

5.1.1.9 General safety information, and

5.1.1.10 Instructions for reporting possible safety of flight concerns found during inspection/maintenance.

5.1.2 *Inspections*—Instructions on and checklists for the completion of periodic and annual condition/100-h inspections, as appropriate.

5.1.3 *Structures*—A description of and instructions for the maintenance, repair, and alteration of the aircraft primary structures such as:

5.1.3.1 Wing (fixed, rotary, or inflatable),

5.1.3.2 Empennage (or cart),

5.1.3.3 Landing gear, and

5.1.3.4 Structural control surfaces, for example, elevator (if applicable).

5.1.4 *Engine*—A description of and instruction for the maintenance, repair, and overhaul of the aircraft's engine if the aircraft is powered.

NOTE 2—An LSA manufacturer may defer to the engine manufacturer for the required maintenance, repair, and overhaul instructions.

5.1.5 *Fuel System*—A description of the system, schematic diagram, and instructions for the maintenance and repair of the aircraft fuel system, if a powered aircraft.

5.1.6 *Propeller*—A description of and instructions for the maintenance and repair of the propeller, if a powered aircraft.

NOTE 3—An LSA manufacturer may defer to the propeller manufacturer for the required maintenance, repair, and overhaul instructions.

5.1.7 *Utility Systems*—A description of the systems and instructions for the maintenance and repair of utility systems such as heating, vent, and air-conditioning, if installed.

5.1.8 *Instruments and Avionics*—A description of and instructions for the maintenance, repair, replacement, and installation of existing and additional instruments and avionics, as applicable.

5.1.9 *Electrical System*—A description of the system, schematic diagram, and instructions for the maintenance, repair, and alteration, as appropriate.

5.1.10 *Structural Repair*—A description of the structural repairs that are authorized without further consultation with the manufacturer.

5.1.11 *Painting and Coatings*—A description for the repair, replacement, or alteration, or a combination thereof, of paint or coatings used on the aircraft.

5.1.12 *Revisions*—A section, such as a change history table, for the listing of any revisions to the maintenance manual by the manufacturer.

5.1.13 *Feedback Form*—A form for the aircraft owner or maintainer to provide notification to the manufacturer about

issues and anomalies identified during the operation or maintenance of the aircraft or in the content of the manual.

5.2 *Inspection, Repair, and Alterations*—Each of the inspections, repairs, and alterations outlined in the maintenance manual shall specifically list:

(1) Recommended special tools to accomplish the task,

(2) The parts needed to perform the task,

(3) Type of maintenance, for example, line, heavy, or overhaul,

(4) The level of certification needed to accomplish the task, for example, owner, A&P, repairman (light sport aircraft) inspection, and repair station,

(5) Detailed instructions and diagrams as needed to perform the task, and

(6) Method to test/inspect to verify the task was accomplished properly.

5.2.1 *Repairs and Alterations*—Manufacturers may refer to other repair and alteration manuals such as the FAA's AC for the detailed instructions to accomplish tasks outlined in the maintenance manual.

5.3 *Level of Certification*—When listing the level of certification needed to perform a task, the manufacturer shall use one of the following descriptors.

5.3.1 *Owner*—Items that can be expected to be completed by a responsible owner who holds a pilot certificate but who has not received any specific authorized training.

NOTE 4—FAA regulations authorize SLSA aircraft owners who hold at least a sport pilot certificate to perform maintenance as outlined in 14 CFR Part 43.

5.3.2 *LSA Repairman Inspection*—Items that can be expected to be completed on an ELSA by a responsible owner, which holds an FAA repairman certificate (light sport aircraft), with an inspection rating or equivalent.

5.3.3 *LSA Repairman Maintenance*—Items that can be expected to be completed on a SLSA by a responsible individual, which holds a FAA repairman certificate (light sport aircraft), with a maintenance rating or equivalent.

5.3.4 *A&P*—Items that can be expected to be completed by a responsible individual who holds a mechanic certificate with airframe or powerplant ratings, or both, or equivalent.

5.3.5 *Task Specific*—Items that can be expected to be completed by a responsible individual who holds either a mechanic certificate or a repairman certificate and has received task specific training to perform the task.

5.3.5.1 When specifying the "task specific" level of certification, the manufacturer must also specify the specific training required.

5.3.6 Multiple descriptors and modifiers may be used. For example, a manufacturer may list under level of certification required for the replacement of a piston engine valve, "A&P or LSA Repairman Maintenance Task-Specific."

6. Line Maintenance, Repairs, and Alterations

6.1 *Authorization to Perform*—The holder of an LSA repairman certificate with either an inspection or maintenance rating is generally considered the minimum level of certification to perform line maintenance of LSA.

NOTE 5—Many of the tasks listed are also authorized by the FAA to be performed by the owner of the SLSA who holds a sport pilot certificate. The examples listed below should not be considered as restrictions against the performance of the tasks by an owner that is authorized to perform said task by the FAA.

6.2 *Typical Tasks Considered as Line Maintenance for LSA's Include:*

6.2.1 100-h inspection,

6.2.2 Annual condition inspection,

6.2.3 Servicing of fluids,

6.2.4 Removal and replacement of components for which instructions are provided in the maintenance manual such as:

6.2.4.1 Fuel pumps,

6.2.4.2 Batteries,

6.2.4.3 Instruments, switches, lights, and circuit breakers,

6.2.4.4 Starters/generators/alternators,

6.2.4.5 Exhaust manifolds/mufflers,

6.2.4.6 Wheel and brake assemblies,

6.2.4.7 Propellers,

6.2.4.8 Sparkplugs, ignition wires, and electronic ignition models/components limited to the use of mechanical connections,

6.2.4.9 Hoses and lines,

6.2.4.10 Sailcloth covering,

6.2.4.11 Ballistic recovery system,

6.2.4.12 Floats, and

6.2.4.13 Skis.

6.2.5 Repair of components and structure for which instructions are provided in the maintenance manual and which do not require additional specialized training, such as:

6.2.5.1 Patching of a hole in a fabric, metal, or composite non-structural component, and

6.2.5.2 Stop-drilling of cracks.

6.2.6 Alterations for which specific instruction are provided in the maintenance manual, such as:

6.2.6.1 Installation of a communications radio, transponder, GPS, and antenna,

6.2.6.2 Installation of a strobe light system, and

6.2.6.3 Compliance with a manufacturer service directive when the repairman is listed as an authorized person to accomplish the alteration.

7. Heavy Maintenance, Repairs, and Alterations

7.1 *Authorization to Perform*—The holder of a mechanic certificate with airframe or powerplant rating(s), or both, or an LSA Repairman maintenance that has received additional task specific training for the function to be performed is generally considered the minimum level of certification to perform heavy maintenance of LSA.

7.2 *Typical Tasks Considered as Heavy Maintenance for SLSA's Include:*

7.2.1 Removal and replacement of components for which instructions are provided in the maintenance manual or service directive instructions, such as:

7.2.1.1 Complete engine removal and reinstallation in support of an engine overhaul or to install a new engine,

7.2.1.2 Remove and replacement of engine cylinders, pistons, or valve assemblies, or a combination thereof,

7.2.1.3 Primary flight control cables/components, and

7.2.1.4 Landing gear assemblies.

7.2.2 Repair of components or aircraft structure, or both, for which instructions are provided in the maintenance manual or service directive instructions, such as:

7.2.2.1 Repainting of control surfaces,

7.2.2.2 Structural repairs, and

7.2.2.3 Recovering of a dope and fabric covered aircraft.

7.2.3 Alterations of components or aircraft structure, or both, for which instructions are provided in the maintenance manual or service directive instruction, such as:

7.2.3.1 Initial installation of skis, and

7.2.3.2 Installation of new additional pitot static instruments.

8. Overhaul

8.1 *Authorization to Perform*—Only the manufacturer of an LSA or the component to be overhauled on an LSA may perform or authorize to be performed the overhaul of an LSA component.

NOTE 6—In the U.S., no FAA certification is given to be an LSA approved overhaul facility.

8.2 *Overhaul Manual*—A separate overhaul manual in addition to the manufacturer's maintenance manual is required to perform the overhaul of an LSA or LSA component.

NOTE 7—The form and content of such a manual is not governed by this practice or by any FAA regulation.

NOTE 8—Specific form and content guidelines have not been promulgated here as type-specific training and authorization is required from the manufacturer in order to overhaul an SLSA or component.

8.3 Typical components that are overhauled include:

8.3.1 Engines,

8.3.2 Carburetors/fuel injection systems,

8.3.3 Starters/alternators/generators, and

8.3.4 Instruments.

9. Major Repairs and Alterations

9.1 All major repairs or alterations made to aircraft subsequent to its initial design and production acceptance testing to applicable ASTM standards and sale to a consumer must be evaluated relative to the requirements of the applicable ASTM design and production acceptance specification(s).

9.2 The manufacturer or other entity that performs the evaluation of an alteration or repair shall provide a written affidavit that the aircraft being altered will still meet the requirements of the applicable ASTM design and performance specification subsequent to the alteration.

9.3 The manufacturer or other entity that performs the evaluation shall provide written instructions and diagrams on how, who, and the level of certification needed to perform the alteration or repair.

9.3.1 The instructions must include ground and flight testing that complies with the original ASTM production acceptance testing standard, as appropriate, to verify the alteration was performed correctly and the aircraft is in a condition for safe operation.

9.3.2 The instructions and diagrams provided to the S-LSA owner or mechanic shall be documented on an LSA Major Repair and Alterations (MRA) form as defined in Annex A1.

9.4 The manufacturer or other entity that performs the evaluation shall provide information to the owner of the aircraft for the documentation of the alteration in the aircraft's records.

10. Task-Specific Training

10.1 A manufacturer of a product may require type-specific training in order to accomplish a task in either the maintenance manual or in an authorization for a major repair, maintenance, or alteration. The FAA does not give approval to these task-specific training programs for SLSA. A manufacturer may specify any task-specific training it determines is appropriate to accomplish a task.

10.2 Examples of task-specific training include:

10.2.1 Engine manufacturer heavy maintenance or overhaul school, or both,

10.2.2 EAA Sport Air Fabric Covering School,

10.2.3 Parachute manufacturer repair course, and

10.2.4 Aircraft manufacturer course.

11. Safety Directives

11.1 An SLSA may have a safety directive issued against an aircraft or component part. The original aircraft manufacturer issues the directive as outlined in the applicable ASTM continued airworthiness specification.

NOTE 9—SLSA and components installed on SLSA's do not have airworthiness directives issued against them. If an AD is issued against a type-certificated product that may be incorporated into special light sport aircraft, the manufacturer of the aircraft is required in accordance with Practices F2295 and F2415, and Specification F2241 to issue a safety directive providing instruction on how to address the safety defect outlined in the AD on the specific SLSA.

11.2 The original LSA manufacturer is responsible for providing the applicable instructions to comply with any safety directive, which will include:

11.2.1 A list of the tools needed to accomplish the task,

11.2.2 A list of the parts needed to perform the task,

11.2.3 Type of maintenance, for example, line, heavy, overhaul,

11.2.4 The level of certification needed to accomplish the task, for example, A&P, repairman inspection,

11.2.5 Detailed instructions and diagrams as needed to perform the task, and

11.2.6 Method to test/inspect to verify the task was accomplished properly.

11.3 Service directives are considered as mandatory tasks in order to maintain a condition of safe operation and compliance with the applicable original ASTM design specification.

NOTE 10—Service directives are not considered mandatory for experimental LSA's in the U.S.

12. Keywords

12.1 airplane; condition inspection; gyroplane; heavy maintenance; inspection; light sport aircraft; line maintenance; maintenance manual; major alteration; major repair; overhaul; powered parachute; repairman; safety directive; special light sport aircraft; weight shift

ANNEX

(Mandatory Information)

A1. LSA MAJOR REPAIR AND ALTERATION (MRA) REQUIREMENTS

NOTE A1.1—Type Certificated (TC) components are not covered by this annex.

A1.1 *Introduction*—Any repair or alteration not contained in the related Aircraft Maintenance Manual (AMM) must be authorized by the Aircraft Original Equipment Manufacturer (OEM). The Aircraft OEM must provide complete information on how to perform the repair or alteration which can include, but is not limited to, the following:

A1.1.1 Aircraft Models and Serial Number(s) that can use the MRA.

A1.1.2 *Replacement Parts*—Assemblies, subassemblies, detail parts, or attaching parts required.

A1.1.3 Consumable or Bulk Materials required.

A1.1.4 Special tools, fixtures, or test equipment required.

A1.1.5 Preparation Instructions.

A1.1.6 Installation Instructions.

A1.1.7 Assembly Instructions.

A1.1.8 Testing Instructions.

A1.1.9 Inspection Instructions.

A1.1.10 Authorization.

A1.1.11 Documentation and Records Requirements.

A1.2 The Aircraft OEM shall also do the following:

A1.2.1 Create, store, and maintain the data in whatever format (electronic, paper, and other) they determine is best for their company.

A1.2.2 Decide whether additional information is required for in-house use and records.

A1.2.3 Decide how the in-house information will be stored (for example, in a database, spreadsheet, or some other form of electronic or paper storage).

A1.2.4 Decide how the information will be incorporated into the maintenance manual and in some cases the Pilot's Operating Handbook (POH).

A1.2.5 Define how the completed form will be provided to the aircraft owner or mechanic (for example, PDF by email, download from the Aircraft OEM website, or another means).

A1.2.6 Define how the aircraft owner or mechanic can return the signed form for the Aircraft OEM's inhouse records (to show the original configuration has been changed).

A1.3 The LSA Major Repair and Alteration (MRA) form:[4]

A1.3.1 Is a standard means for the Aircraft OEM to provide the information to the aircraft owner and mechanic.

A1.3.2 Should not be modified in main blocks sequence, block headlines, block numbering, minimum required blocks and predefined affidavits compared to the block structure definition in A1.4 other than inserting the Aircraft OEM Logo or name, or both, and filling in the individual contents. If a specific block is not required, insert the words: Not Applicable. If formatting varies in details due to the usage of different desktop publishing tools to generate the form, this is permissible as long as the form remains easily recognizable compared to the example MRA form. Further detailing within the individual form is also acceptable when it does not change the sense of the main block.

A1.3.3 IS NOT intended to be provided to an aircraft owner or mechanic to complete and submit to the Aircraft OEM for approval or authorization. If the Aircraft OEM wants to provide this type of request form, it can be created in-house to meet company requirements.

A1.4 *MRA Form Block Explanations*—Unless otherwise defined, all are to be completed by the Aircraft OEM. Text in quote signs is to be used unchanged. See Table A1.1 for details.

[4] An example of the MRA Form in MSWord and PDF can be found at: www.lamasafety.org. It is highly recommended to keep as close as possible to the examples that have been developed by the ASTM Committee F37 on Light Sport Aircraft, to ensure mechanics in the field can recognize the form.

TABLE A1.1 MRA Form Block Explanations

HEADLINE BLOCK:
- Title: 'LSA MAJOR REPAIR AND/OR ALTERATION (MRA)'.
- ID Number: A unique number to identify the task.
- Revision: A unique number, letter, or combination to identify the task revision level.
- Date: Date when this MRA was created or revised.
- Company: Name and/or Logo may be in the headline.

DOCUMENT TITLE: A unique title for the task.

DESCRIPTION OF REPAIR OR ALTERATION: A unique description of the task.

BLOCK 1 - AIRCRAFT.
- Make
- Model
- Serial Number
- Nationality and Registration Marks

BLOCK 2 – OWNER.
- Name (as shown on the registration card)
- Address (as shown on the registration card)

BLOCK 3 – AIRCRAFT DATA. Must be sufficient to freeze the aircraft and equipment in time when the MRA was declared applicable.
- Airframe: Manufacturer, Type, Model, Total Time Since New, Total Time Since Overhaul.
- Powerplant: Manufacturer, Type, Model, Total Time Since New, Total Time Since Overhaul.
- Propeller: Manufacturer, Type, Model, Total Time Since New, Total Time Since Overhaul.

BLOCK 4 – MRA APPROVAL.
- Affidavit: 'The Aircraft OEM confirms the aircraft being repaired or altered still meets the requirements of the applicable ASTM design and performance specification subsequent to completion of the repair or alteration specified in the MRA'.
- The date indicated is when Aircraft OEM approval is granted for the aircraft identified in BLOCK 1.
- When the MRA is used for different aircraft Serial Numbers, this date may be different than the date when the MRA was originally created.
- Name of the person authorized to sign the MRA.
- Signature of the authorized person and company stamp.

BLOCK 5 – CONFORMITY STATEMENT – RETURN TO SERVICE.
- Affidavit: 'I hereby certify the repair and/or alteration has been completed in accordance wit this MRA and all the referenced documents. Potentially unclear procedures have been clarified with the Aircraft OEM. No issue were observed that might hinder return to service.'
- Check the required qualification of the maintenance person authorized to perform the MRA. When multiple maintenance persons are checked, any can perform the MRA.
- When 'Task Specific" is required as a qualification, this may require additional training for either of the identified qualifications. This must be detailed in BLOCK 7 – PREPARATION.
- The following fields must be made available and are to be completed by the Aircraft Owner or mechanic, as applicable, incorporating the MRA:
  - Certificate Holders Name and Address.
  - Certificate Type and Number.
  - Date.
  - Signature.

TABLE A1.1 MRA Form Block Explanations *(continued)*

BLOCK 6 – CONFIGURATION REQUIREMENTS. In cases where the MRA depends on completion of a previous configuration change or changes, these must be identified here.
Affidavit: 'This MRA is only valid for the aircraft identified in Blocks 1 and 3, when the configuration conforms wit the following definitions. Any listed preceding MRA, Instruction or Notification must be complied with, prior to conducting this MRA.'
• List any preceding MRA, to be identified by ID, Rev, Issue Date and Title.
• List any Notification, Service Bulletin, Safety Alert, Service Instruction, or similar document that must be complied with, to be identified by ID, Rev, Issue Date, and Title.
• List any other information, either by reference to a valid document or by direct description, to be identified by ID, Rev, Issue Date, and Title when applicable (otherwise Not Applicable).

BLOCK 7 – PREPARATION. To include the following information as required:
• Information on task specific training, if any (See BLOCK 5).
• Removal of existing assemblies, subassemblies, detail parts, etc. A reference to a specific procedure(s) in the maintenance manual could also be provided.
• Modification of the existing airframe, assemblies, subassemblies, wiring harnesses, etc.
• Cleaning procedures.
• Priming, painting, or the application of other special treatments that are required as preparation tasks.
• Consumable and Bulk Materials list.
• Information to be added directly, or by reference to other documents including Document Identifier, Revision level, and Issue Date.

BLOCK 8 – ACCOMPLISHMENT INSTRUCTIONS. To include the following information as required:
• Consumable and Bulk Materials List.
• Special Tools, Fixtures, or Test Equipment.
• Installation.
• Assembly.
• Information to be added directly or by reference to other documents including Document Identifier, Revision level, and Issue Date.
• Tic-mark if weight and balance is required, following completion of all tasks, or not.

BLOCK 9 – VERIFICATION. To include the following information as required.
• Ground Procedures.
• Flight Procedures.
• Documentation.
• Information to be added directly, or by reference to other documents including Document Identifier, Revision level, and Issue Date.

BLOCK 10 – ENGINEERING DATA. All data that are required to document the accomplished configuration on customer side, such as:
• System descriptions.
• System Schematics.
• Block Diagrams.
• Wiring Harness Diagrams and/or local manufacture instructions.
• Information to be added directly or by reference to other documents including Document Identifier, Revision level, and Issue Date.

BLOCK 11 – OPERATING INSTRUCTIONS. To include the following information as required:
• Begin block 11 with the statement: 'This MRA shall be copied and placed in the back of the POH. The POH Record of Revisions page shall note the date the changes were incorporated into the POH.'
• Reference to POH Supplement, including Document Identifier, Revision Level, and Issue Date, with a requirement to attach the MRA to the POH as applicable.
• Reference to POH Supplement, including Document Identifier, Revision level, and Issue Date, with a requirement to attach the MRA to the POH as applicable.
• Information must include at a minimum:
  • Changes to Airworthiness Limitations.
  • Operating Instructions.

BLOCK 12 – INSTRUCTIONS FOR CONTINUED AIRWORTHINESS.
• Begin block 12 with the statement: 'This MRA shall be copied and placed in the back of the Maintenance Manual. The Maintenance Manual Record of Revisions page shall note the date the changed were incorporated into the Maintenance Manual.' Followed by check boxes for Yes and NO. Check mark as applicable.
• Reference to Maintenance Manual Supplement, including Document Identifier, Revision level, and Issue Date, with a requirement to attach the MRA to the Maintenance Manual as applicable.
• Information to be included are, when applicable:
  • Servicing Information.
  • Scheduled Inspections, Maintenance Information.
  • Troubleshooting Information.
  • Removal and Installation Information.
  • Special Inspections.

APPENDIXES

(Nonmandatory Information)

X1. EXAMPLE OF THE FORM AND CONTENT OF A SLSA MAINTENANCE MANUAL

4. WING

4.1 Wing removal

4.1.1 Required Tools: ½ in. socket wrench, #2 Philips screwdriver, Jack stands (3) with 12 to 30 in. range of support

4.1.2 Parts required: None

4.1.3 Level of maintenance: Heavy

4.1.4 Certification required: A&P Mechanic or LSA Repairman Maintenance (Note: Depending on the complexity of the aircraft this task may or may not require additional task-specific training. Each manufacturer must make this decision for their own product.)

4.2 Remove outer wing fairing (Fig. 4.1)

Remove fairing attach screws (3)

Lower flaps and remove upper retaining bolt (2)

Raise flaps and remove lower retaining bolt (2)

Identify electrical connections for lights and disconnect (Fig. 4.2)

Caution master switch must be off

4.3 Remove inner wing fairing strip attachment screws (15)

4.4 Remove lower inspection plates

4.5 Drain fuel from wing tank

4.6 Disconnect fuel line at wing fuselage junction (Fig 4.3)

4.7 Disconnect flap cable at bellcrank. (Fig. 4.4)

4.8 Remove nut (1) and bolt (1) and disconnect flap, push pull tube at wing fuselage junction (Fig 4.5)

4.9 Support flap and remove hinge pins (3), remove flap (Fig. 4.6)

4.10 Support wing at three hard points as shown in Fig 4.7

4.11 Remove inner wing spar, attach bolt (2) for front and rear spar located in fuselage (Fig. 4.8)

4.12 Remove outer wing spar, attach bolts (2)

4.13 Carefully remove wing with assistance of an additional person or overhead hoist (Note: Wing weight approximately 80 lbs.)

X2. EXAMPLE OF THE FORM AND CONTENT FOR AN INSPECTION PROCEDURE IN A SLSA MAINTENANCE MANUAL

Condition Inspection Checklist Compiled from FAR 43, Appendix D
Aircraft Make/Model: _____ (Super duper II)_____ S/N: _____
Engine Make/Model: _____ (Rotax 912 or 914 as appropriate)____ S/N: _____
Date of Inspection: _____ TT Airframe: _____
TT Engine: _____

Scope and Detail of Items (As Applicable to the Particular Aircraft) to be Included in Annual and 100-Hour Inspections

(a) Each person performing an annual or 100-hour inspection shall, before that inspection, remove or open all necessary inspection plates, access doors, fairing, and cowling. He shall thoroughly clean the aircraft and aircraft engine after initial visual inspection for oil, exhaust, or other leaks as applicable is completed.

(b) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the fuselage and hull group:
____Pass ____Fail (1) Fabric and skin-for deterioration, distortion, other evidence of failure, and defective or insecure attachment of fittings.
____Pass ____Fail (2) Systems and components-for improper installation, apparent defects, and unsatisfactory operation.

(c) Each person performing an annual or 100-h inspection shall inspect (where applicable) the following components of the cabin and cockpit group:
____Pass ____Fail (1) Generally/for uncleanliness and loose equipment that might foul the controls.
____Pass ____Fail (2) Seats and safety belts/for poor condition and apparent defects.
____Pass ____Fail (3) Windows and windshields/for deterioration and breakage.
____Pass ____Fail (4) Instruments/for poor condition, mounting, marking, and (where practicable) improper operation.
____Pass ____Fail (5) Flight and engine controls/for improper installation and improper operation.
____Pass ____Fail (6) Batteries/for improper installation and improper charge.
____Pass ____Fail (7) All systems/for improper installation, poor general condition, apparent and obvious defects, and insecurity of attachment.

(d) Each person performing an annual or 100-hour inspection shall inspect (where applicable) components of the engine and nacelle group as follows:
____Pass ____Fail (1) Engine section/for visual evidence of excessive oil, fuel, or hydraulic leaks, and sources of such leaks.
____Pass ____Fail (2) Studs and nuts/for improper torquing and obvious defects.
____Pass ____Fail (3) Internal engine/for cylinder compression and for metal particles or foreign matter on screens and sump drain plugs. If there is weak cylinder compression, for improper internal condition and improper internal tolerances.
____Pass ____Fail (4) Engine mount/for cracks, looseness of mounting, and looseness of engine to mount.
____Pass ____Fail (5) Flexible vibration dampeners/for poor condition and deterioration.
____Pass ____Fail (6) Engine controls/for defects, improper travel, and improper safetying.
____Pass ____Fail (7) Lines, hoses, and clamps/for leaks, improper condition and looseness.
____Pass ____Fail (8) Exhaust stacks/for cracks, defects, and improper attachment.
____Pass ____Fail (9) Accessories/for apparent defects in security of mounting.
____Pass ____Fail (10) All systems/for improper installation, poor general condition, defects, and insecure attachment.
____Pass ____Fail (11) Cowling/for cracks, and defects.

(e) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the landing gear group:
____Pass ____Fail (1) All units/for poor condition and insecurity of attachment.
____Pass ____Fail (2) Shock absorbing devices/for improper oleo fluid level.

___Pass ___Fail (3) Linkages, trusses, and members/for undue or excessive wear fatigue, and distortion.
___Pass ___Fail (4) Retracting and locking mechanism/for improper operation.
___Pass ___Fail (5) Hydraulic lines/for leakage.
___Pass ___Fail (6) Electrical system/for chafing and improper operation of switches.
___Pass ___Fail (7) Wheels/for cracks, defects, and condition of bearings.
___Pass ___Fail (8) Tires/for wear and cuts.
___Pass ___Fail (9) Brakes/for improper adjustment.
___Pass ___Fail (10) Floats and skis/for insecure attachment and obvious or apparent defects.

___Pass ___Fail (f) Each person performing an annual or 100-hour inspection shall inspect (where applicable) all components of the wing and center section assembly for poor general condition, fabric or skin deterioration, distortion, evidence of failure, and insecurity of attachment.

___Pass ___Fail (g) Each person performing an annual or 100-hour inspection shall inspect (where applicable) all components and systems that make up the complete empennage assembly for poor general condition, fabric or skin deterioration, distortion, evidence of failure, insecure attachment, improper component installation, and improper component operation.

(h) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the propeller group:
___Pass ___Fail (1) Propeller assembly/for cracks, nicks, binds, and oil leakage.
___Pass ___Fail (2) Bolts/for improper torquing and lack of safetying.

(i) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the radio group:
___Pass ___Fail (1) Radio and electronic equipment/for improper installation and insecure mounting.
___Pass ___Fail (2) Wiring and conduits/for improper routing, insecure mounting, and obvious defects.
___Pass ___Fail (3) Bonding and shielding/for improper installation and poor condition.
___Pass ___Fail (4) Antenna including trailing antenna/for poor condition, insecure mounting, and improper operation.

___Pass ___Fail (j) Each person performing an annual or 100-hour inspection shall inspect (where applicable) each installed piece of optional equipment on this listing for improper installation and improper operation.
___Pass ___Fail Option number one
___Pass ___Fail Option number two
___Pass ___Fail Option number three
___Pass ___Fail Option number four

___Pass ___Fail (k) Each person performing an annual or 100-hour inspection shall remove and inspect the ELT installed for proper operation of the “G” switch and calendar date currency of the batteries installed in accordance with FAA Advisory Circular 91-44 current revision.

Notes and explanation of unairworthy items found:

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