Designation: F2563 – 06(Reapproved 2010)

Standard Practice for Kit Assembly Instructions of Aircraft Intended Primarily for Recreation[1]

This standard is issued under the fixed designation F2563; 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 covers the instructions a kit producer must provide to a consumer in order to assemble and safely flight-test a recreational aircraft to ensure compliance with applicable ASTM standards.

1.2 The instructions prescribe the necessary mechanical skills or training, or both, required for successful completion of the kit, as well as necessary tooling, fixtures, inspections, measurements, and other pertinent items required for successful completion of the kit. Proof of compliance with these instructions may be vital for obtaining flight authorizations from the applicable CAA.

1.3 *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. Terminology

2.1 *Definitions:*

2.1.1 *consumer*—any person who follows the instructions covered by this practice to assemble the kit.

2.1.2 *operation*—process or action that is part of a series in the assembly of a kit. It is identified by the kit producer as a means to partition the aircraft assembly task into subgroups of tasks or processes that allow the consumer to track progress or completion of portions of the kit in an orderly manner.

2.1.3 *producer*—any person or company who fabricates the kit and authors the instructions covered by this practice.

2.2 *Acronyms:*

2.2.1 *CAA*—Civil Aviation Authority

2.2.2 *CAGE*—commercial and government entity

2.2.3 *KAI*—kit assembly instructions

3. Required Sections

3.1 The KAI shall include at least the following information (preferably in the same sequence as numbered in 3.1.1):

3.1.1 *(1)* Revisions; *(2)* Introduction and instructions for using the KAI; *(3)* Table of Contents; *(4)* Safety Summary; *(5)* Applicable standards and specifications; *(6)* Terminology; *(7)* Required consumer abilities and responsibilities; *(8)* Required equipment and environmental conditions; *(9)* Parts list; *(10)* Assembly operations; *(11)* Final assembly Inspections; *(12)* Flight-test procedures; and *(13)* Additional requirements.

NOTE 1—The required information may be provided in separate books or volumes.

4. Revisions

4.1 The kit provider shall update the KAI when changes of form, fit, or function are identified as needed in the aircraft or its sub-components via a revision to the KAI.

4.2 KAI revisions shall be uniquely identified by date, purpose, and applicable KAI section.

4.3 The KAI shall include a form to be used to provide feedback on the document to the kit producer on errors, anomalies, suggestions, or queries. The form shall identify the source document, user, date, subject, discussion, and returnable acknowledgement sections for each communication as a minimum.

5. Safety Summary

5.1 The KAI shall provide a list of potential hazards associated with kit assembly. It is important to note that no list of potential hazards could ever include every possible hazard. This section is intended to serve as an advisory to all parties to enhance safety.

5.1.1 *Chemicals*—If hazardous chemicals are used in the assembly of the kit, it is advised that information such as Material Safety Data Sheets (MSDS) or equivalent be provided in the KAI.

6. Applicable Standards

6.1 The KAI shall list the title, source, and significance of the aircraft standards applicable to the 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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7. Required Consumer Abilities and Responsibilities

7.1 *Consumer Skills and Training:*

7.1.1 The KAI shall prescribe any specific skills or training necessary to complete each operation.

7.1.2 The KAI shall prescribe any specific responsibilities the producer expects the consumer to assume for completion of the kit.

7.1.3 The KAI shall prescribe the responsibilities of the customer for obtaining a flight authorization from the applicable CAA. Deviation from the instructions or unauthorized modifications may prohibit the assembled aircraft from obtaining a flight authorization. Such information shall be provided in the KAI.

8. Required Equipment and Environmental Conditions

8.1 *Required Equipment and Parts:*

8.1.1 The KAI shall prescribe any specific equipment necessary for completion of each operation such as, but not limited to, tooling, jigs, parts, and fixtures. This list should include specific manufacturers (CAGE codes if applicable), part numbers, quantity, and description if possible.

8.1.2 The KAI may prescribe any specific equipment recommended for completion of each operation.

8.2 *Required Environmental Conditions*—The KAI shall prescribe any specific environmental conditions necessary for completion of each operation such as, but not limited to, temperature range, humidity, wind, dust, and lighting.

9. Parts List

9.1 The KAI shall contain a parts list of all the kit parts (or subassemblies) listing a part number or identifier, description, and quantity.

9.2 A unique part number or identifier shall be assigned to each unique assembly, subassembly, detail part, or consumable material provided in the kit.

9.2.1 A description shall be provided with each identifier for each unique part.

10. Assembly Operations

10.1 This section shall specify the order in which assembly operations should be completed. If operations can be done in random order, this shall also be specified.

10.1.1 Each KAI assembly operation section shall include a space for the builder to log completion date and participation. It is recommended that there be a place for the builder to document time spent performing each operation as well.

10.2 *Pre-Assembly Operations and Checklists*—The KAI shall prescribe any specific pre-assembly operations and checklists necessary for the completion of each operation. At a minimum, it is recommended that the instructions for each operation provide a checklist for the skills, tools, parts, and conditions required to complete that operation.

10.3 *Assembly Operations*—Each assembly operation section shall include information such as text, photos, templates, electrical schematic drawings, or technical drawings sufficient to explain how to perform that operation and ensure compliance with the design criteria.

10.4 *Post-Assembly Inspections and Measurements*—Each assembly operation section shall prescribe any specific inspections, measurements, or criteria necessary for verifying successful completion of that operation.

11. Final Assembly Inspections

11.1 *Systems Inspections*—The KAI shall prescribe specific system inspections necessary for verifying successful operation of each system.

11.2 *Engine Start-Up and Break-In*—The KAI shall prescribe any specific procedures necessary for initial engine start-up and break-in.

11.3 *Pre-Flight Tests and Verifications*—The KAI shall prescribe any specific tests and verifications required prior to initial test flights.

11.3.1 The KAI shall include the Production Acceptance and Quality Assurance procedures that relate to the final assembly checks required to show compliance with the applicable ASTM standards.

11.4 *CAA Documentation and Authorizations*—The KAI shall provide the manufacturers documentation necessary for obtaining all required registration, inspections, and authorizations from the applicable CAA. Check Appendix X2 for information regarding various countries' requirements.

12. Flight-Test Procedures

12.1 *Flight-Test Objectives*—The KAI shall prescribe any specific flight-test objectives necessary for verification of successful operation.

12.2 *Flight-Test Environmental Conditions*—The KAI shall prescribe the environmental conditions for conducting initial flight-tests.

12.3 *Flight-Test Procedures and Maneuvers*—The KAI shall prescribe any specific flight-test procedures and maneuvers necessary for verification that the controls and systems operate within the limits established in the manufacturers published aircraft operating instructions.

12.3.1 The KAI shall include the Production Acceptance procedures that relate to the flight test procedures required to show compliance with applicable ASTM standards.

12.4 *Post Flight-Test Documentation and Notifications*—The KAI shall prescribe any specific flight-test documentation or notifications required for verification of successful operation.

13. Keywords

13.1 assembly; authorization; flight test; instructions; modifications; operation; parts list; registration; verification