Designation: F2356 – 05a (Reapproved 2013)

Standard Specification for Production Acceptance Testing System for Lighter-Than-Air Light Sport Aircraft[1]

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1. Scope

1.1 This specification covers production acceptance test requirements for the manufacture of lighter-than-air 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. Terminology

2.1 *Definitions:*

2.1.1 *airship*—engine-driven lighter-than-air aircraft that can be steered.

2.1.2 *balloon*—lighter-than-air aircraft that is not engine-driven, and that sustains flight through the use of either gas buoyancy or an airborne heater, or both.

2.1.3 *lighter-than-air aircraft*—aircraft that can rise and remain suspended by using contained gas weighing less than the air that is displaced by the gas.

2.1.3.1 *Discussion*—Airships may include dynamic lift that derive as much as 30 % lift from other than buoyancy.

3. Significance and Use

3.1 The purpose of this specification is to provide the minimum requirements for the establishment of a ground and flight test program for verifying the initial (first run) production aircraft meets certain operational performance requirement that have been set forth by the manufacturer in its Aircraft Operating Instructions.

3.2 In addition, this specification provides minimum requirements to verify that each subsequent production aircraft has no obvious defects that would prevent the safe operation of the aircraft.

3.2.1 Every production aircraft shall be flight tested to the following minimums:

3.2.1.1 *Lighter-than-Air Airships*—Fifteen minutes flight time, including at least one takeoff and landing, trimming of flight controls, and verification of control for left turn, right turn, ballonet systems (if installed), vectoring systems (if installed), and instrument/indicator operation.

3.2.1.2 *Hot Air Balloons*—Fifteen minute static inflation at gross load/ambient temperature, including operational tests of all vents, valves, burner operation, and suspension system.

3.2.1.3 *Gas/Hybrid (Gas—Thermal Type) Balloons*—Air pressurized inflation to manufacturer's maximum in-flight envelope pressure, including operational tests of all valves, controls, and so forth. Suspension systems will be static tested by suspending at gross load to verify all suspension components.

3.3 *Post Flight Acceptance:*

3.3.1 There shall be a written procedure in effect to perform post flight inspection that will review all flight critical attachments and structures.

3.3.2 The reviewing personnel shall sign all post flight review documents.

3.4 *Documentation*—There shall be a written procedure in effect to properly document and store the production acceptance test results such that they are correlated to the specific aircraft for future reference.

3.5 *Test Failures*—There shall be a written procedure in effect to review the causes for any aircraft failures in the production acceptance tests phases. Aircraft may only be released for retest after manufacturing review of the discrepant articles and written release for retest.

4. Production Acceptance Testing, Ground Testing

4.1 *Inspection Verification*—There shall be a written procedure in effect to verify all top-level inspections have been completed and no discrepancies remain open.

4.2 *Engine Break-in*—There shall be a written procedure in effect to perform the engine break-in. This procedure may include all engine gage verification of operation. All engine readings shall achieve the normal accepted range of readings commensurate with a new engine. If not performed during

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