

**DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION**

A00008DE Revision 5 <b>LIBERTY</b> XL-2 March 30, 2010
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**TYPE CERTIFICATE DATA SHEET NO. A00008DE**

This data sheet which is part of Type Certificate No. A00008DE prescribes conditions and limitations under which the product for which the type certificate was issued meets the Airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder: Liberty Aerospace Incorporated  
100 Aerospace Drive  
Melbourne, FL 32901

**I. Model XL-2, 2PCLM (Normal Category), Approved February 19, 2004**

Engine Teledyne Continental IOF-240-B, Type Certificate Data Sheet (TCDS) E7SO. Engines controlled by Full Authority Digital Electronic Control (FADEC).

Fuel 100/100LL minimum grade aviation gasoline  
RH95/130 (China)

Engine Limits For all operations:  
Maximum engine speed 2800 RPM (125 hp)  
Minimum engine speed 825 RPM

Propeller and Propeller Limits Sensenich Corp W69EK7-63G, TCDS P00001NY  
Diameter: 69 inches  
Number of blades: 2

MT Propeller MT175R127-2Ca, TCDS P19BO  
Diameter: 175 centimeters  
Number of blades: 2

Airspeed Limits For serial numbers (S/N) 0007 and 0009 through 0125 without Liberty gross weight increase kit RKI-SIL-08-001 installed:

VNE	Never Exceed Speed	162 KIAS
VNO	Maximum Structural Cruising Speed	125 KIAS
VA	(1653 lbs) Maneuvering Speed	100 KIAS
VFE	Maximum Flap Extension Speed	80 KIAS

For S/N 0007 and 0009 through 0125 with Liberty gross weight increase kit RKI-SIL-08-001 installed, and for S/N 0126 and up:

VNE	Never Exceed Speed	157 KIAS
VNO	Maximum Structural Cruising Speed	122 KIAS
VA	Maneuvering Speed	100 KIAS
VFE	Maximum Flap Extension Speed	86 KIAS

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C.G. Range	<p>For S/N 0007 and 0009 through 0125 without gross weight increase kit RKI-SIL-08-001 installed:</p> <p style="padding-left: 40px;">Forward Limit: 82.20 inches aft of datum up to 1554 lbs. with a straight line taper to 83.48 inches at 1653 lbs.</p> <p style="padding-left: 40px;">Aft Limit: 86.75 inches aft of datum up to 1653 lbs.</p> <p>For S/N 0007 and 0009 through 0125 with gross weight increase kit RKI-SIL-08-001 installed, and for S/N 0126 and up:</p> <p style="padding-left: 40px;">Forward Limit: 81.00 inches aft of datum up to 1598 lbs. with a straight line taper to 83.00 inches at 1750 lbs. (If only operating up to 1653 lbs., 1653 lbs. equates to a point on this forward limit line of 81.75 inches.)</p> <p style="padding-left: 40px;">Aft Limit: 86.75 inches aft of datum up to 1750 lbs.</p>												
Datum	Station 0 (STN 0) is located 70.75 inches forward of vertical rollover hoop (forward face of opening). Water line 0 (WL 0) located 50.0 inches below airplane centerline through nose cone.												
Empty wt. C.G. Range	None.												
Leveling Means	Door sill as defined in AFM												
Maximum Weight	<p>For S/N 0007 and 0009 through 0125 without gross weight increase kit RKI-SIL-08-001 installed: 1653 lbs</p> <p>For S/N 0007 and 0009 through 0125 with gross weight increase kit RKI-SIL-08-001 installed, and for S/N 0126 and up: 1750 lbs.</p>												
No. of Seats	2 at 79.78 inches aft of datum												
Maximum baggage	100 lb. at 118 inches aft of datum												
Fuel Capacity	29.5 US gallons at 101.80 inches aft of datum 28 US gallons usable. (See NOTE 1)												
Oil Capacity	6 quarts at 34.5 inches aft of datum												
Maximum Operating Altitude	12,500 feet												
Control Surface Movements	<table border="0" style="width: 100%;"> <tr> <td style="width: 15%;">Stabilator</td> <td style="width: 35%;">Leading edge Up <math>5^{\circ} \pm 0.5^{\circ}</math></td> <td style="width: 50%;">Leading edge Down <math>13^{\circ} \pm 0.5^{\circ}</math></td> </tr> <tr> <td>Ailerons</td> <td>Up <math>24^{\circ} \pm 1.0^{\circ}</math></td> <td>Down <math>19^{\circ} \pm 1.0^{\circ}</math></td> </tr> <tr> <td>Rudder</td> <td>Left <math>30^{\circ} + 0.5^{\circ}/-1.5^{\circ}</math></td> <td>Right <math>30^{\circ} + 0.5^{\circ}/-1.5^{\circ}</math></td> </tr> <tr> <td>Flaps</td> <td>Up <math>0^{\circ}</math></td> <td>Down <math>29^{\circ} \pm 1.0^{\circ}</math></td> </tr> </table>	Stabilator	Leading edge Up $5^{\circ} \pm 0.5^{\circ}$	Leading edge Down $13^{\circ} \pm 0.5^{\circ}$	Ailerons	Up $24^{\circ} \pm 1.0^{\circ}$	Down $19^{\circ} \pm 1.0^{\circ}$	Rudder	Left $30^{\circ} + 0.5^{\circ}/-1.5^{\circ}$	Right $30^{\circ} + 0.5^{\circ}/-1.5^{\circ}$	Flaps	Up $0^{\circ}$	Down $29^{\circ} \pm 1.0^{\circ}$
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Flaps	Up $0^{\circ}$	Down $29^{\circ} \pm 1.0^{\circ}$											
Additional Limitations:	<p>See NOTE 3</p> <p>FADEC Limitations: Flight is prohibited if any FADEC Health Status Annunciator (HSA) channel lamps (cylinder icons) or annunciators are illuminated.</p>												
Design Data:	The airplane shall be manufactured in accordance with the latest FAA approved revision of Liberty Aerospace, Inc. Master Drawing List, Document Number 135A-900-005, or other FAA approved data.												

Serial Nos. Eligible	0007, 0009 and subsequent
Certification Basis	<p data-bbox="568 254 1438 346">Part 23 of the Federal Aviation Regulations effective February 1, 1965, as amended by 23-1 thru 23-55 (Normal Category) and FAR 36 as amended thru 36-24, FAR 21 amended thru 21-57</p> <p data-bbox="568 380 1438 472">Special Condition (23-119-SC) for Installation of Full Authority Digital Engine Control (FADEC) and the protection of the system from the effects of High Intensity Radiated Fields (HIRF). See NOTE 6.</p> <p data-bbox="568 506 1438 619">Findings of Equivalent Levels of Safety as follows: ACE-02-06, 14 CFR Part 23.777(d) and 23.781(b), Single Power Lever ACE-03-03, 14 CFR Part 23.1143(g) and 23.1147(b), Throttle and mixture cable failures</p> <p data-bbox="568 653 1438 924">Exemptions: Exemption number 7865 was granted for 14 CFR Part 23.562, Emergency landing dynamic condition and is applicable to S/N 0007 and 0009 through 0125 that have not been modified per Liberty gross weight increase kit RKI-SIL-08-001. This Exemption is not applicable to S/N 0007 and 0009 through 0125 with Kit RKI-SIL-08-001 installed, nor for S/N 0126 and up, because this newer airplane configuration has been tested to meet the requirements of the emergency landing dynamic condition and is in full compliance with §23.562.</p> <p data-bbox="568 957 1438 987">Type Certificate Number A00008DE issued February 19, 2004</p> <p data-bbox="568 1020 1438 1050">Application for Type Certificate dated October 26, 2000</p>
Production Basis	<p data-bbox="568 1083 1438 1197">Production Certificate Number PC344CE was issued to Liberty Aerospace on April 6, 2006 for production of S/N 0017 and subsequent. S/N's 0007 through 0016 were built under Type Certificate A00008DE by Liberty Aerospace with 100% FAA conformity inspections.</p>
Equipment	<p data-bbox="568 1230 1438 1323">The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification.</p> <p data-bbox="568 1356 1438 1407">In addition to the above required equipment, the following equipment are also required:</p> <ol data-bbox="568 1419 1438 1711" style="list-style-type: none"> <li data-bbox="568 1419 1438 1554">1. For S/N 0007 and 0009 through 0125: Airplane Flight Manual, Liberty Aerospace, Inc. Document Number 135A-970-005, Revision D, dated October 31, 2005, or later FAA approved revision, or Document Number 135A-970-300, no revision, dated March 30, 2010, or later FAA approved revision. For S/N 0126 and up: Airplane Flight Manual, Liberty Aerospace, Inc. Document Number 135A-970-200, no revision, dated October 20, 2008, or later FAA approved revision.</li> <li data-bbox="568 1650 1438 1680">2. Stall Warning indicator.</li> <li data-bbox="568 1692 1438 1711">3. Cylinder head temperature gage.</li> </ol>
Note 1	<p data-bbox="381 1745 1438 1864">Current weight and balance report, including a list of equipment included in certificated empty weight, must be provided for each aircraft at the time of the original certification. The certified empty weight and corresponding center of gravity location must include unusable fuel of 1.5 US gallons (9.3 lb) at 101.80 inches aft of the datum.</p>

- Note 2 All placards specified in the FAA Approved Airplane Flight Manual (AFM) must be displayed in the airplane in the appropriate locations.
- Note 3 Instructions for Continued Airworthiness, maintenance information, and replacement times are contained in Liberty Aerospace, Inc. Maintenance Manual Document Number 135A-970-100 which supersedes previous manual number 135A-970-006. See Chapter 04 of the Maintenance Manual for mandatory Airworthiness Limitations which take precedence over any limitations shown in this type certificate data sheet.
- Note 4 Exterior colors are to be limited to those specified in Instructions for Continued Airworthiness Chapter 04 (Liberty Aerospace Inc. Maintenance Manual Document Number 135A-970-006). Registration marks shall be located above the structural bond line and shall be 10 inches in height.
- Note 5 Major structural repairs must be accomplished in accordance with FAA approved Liberty Aerospace repair methods or other methods approved by the FAA.
- Note 6 Installation of additional flight-critical electronic equipment, such as an Electronic Flight Instrument System (EFIS), will require review by the FAA Aircraft Certification Service to determine whether aircraft-level lightning and/or High Intensity Radiated Field (HIRF) testing is required. Aspen Avionics Flight Display(s) System and components installed via FAA Form 337 are acceptable if installed in accordance with an Aspen Avionics Installation Manual(s) referenced in Supplemental Type Certificate (STC) SA10822SC
- Note 7 The second battery is to be utilized as a power source for FADEC and attitude and turn coordinator gyros only.
- Note 8 Any change to the canopy transparency will require review by the FAA Aircraft Certification Service to determine compliance with 14 CFR 23.807(c).

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