DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

A00008DE
Revision 7
DISCOVERY
XL-2
May 18, 2015

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: Discovery Aviation, Inc.
100 Aerospace Drive, Unit 4
Melbourne, FL 32901

Type Certificate Holder Record: Liberty Aerospace Incorporated transferred TC A00008DE to Liberty XL2 Holdings, LLC December 13, 2013
Liberty Holdings, LLC transferred TC A00008DE to Discovery Aviation, Inc. May 4, 2015

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

C.G. Range

For S/N 0007 and 0009 through 0125 without gross weight increase kit RKI-SIL-08-001 installed:

Forward Limit: 82.20 inches aft of datum up to 1554 lbs. with a straight line taper to 83.48 inches at 1653 lbs.

Aft Limit: 86.75 inches aft of datum up to 1653 lbs.

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:

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.)

Aft Limit: 86.75 inches aft of datum up to 1750 lbs.

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

For S/N 0007 and 0009 through 0125 without gross weight increase kit RKI-SIL-08-001 installed:	1653 lbs
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.

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 regarding unusable fuel)

Oil Capacity

6 quarts at 34.5 inches aft of datum

Maximum Operating Altitude

12,500 feet

Control Surface Movements

Stabilator	Leading edge Up 5° ± 0.5°	Leading edge Down 13° ± 0.5°
Ailerons	Up 24° ± 1.0°	Down 19° ± 1.0°
Rudder	Left 30° + 0.5°/-1.5°	Right 30° + 0.5°/-1.5°
Flaps	Up 0°	Down 29° ± 1.0°

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	14 CFR Part 23 effective February 1, 1965, as amended by Amendment 23-1 thru 23-55 (Normal Category) and Part 36 as amended thru Amendment 36-24. 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 regarding electronic equipment. 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 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. Type Certificate Number A00008DE issued February 19, 2004 Application for Type Certificate dated October 26, 2000
Production Basis	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.
Equipment	The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification. In addition to the above required equipment, the following equipment are also required: 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. 2. Stall Warning indicator. 3. Cylinder head temperature gage.

Note 1 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. This is in accordance with 14 CFR 23.23, §23.25, and §23.29. 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.

Note 2 All placards required by the FAA Approved Airplane Flight Manual (AFM), the applicable operating rules, or the Certification Basis must be displayed in the airplane in the appropriate locations.

Note 3 Airworthiness Limitations for mandatory retirement life or mandatory inspection are included in the Maintenance Manual (Instructions for Continued Airworthiness) Document Number 135A-970-100, Chapter 04 Airworthiness Limitations Section.

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-970-100). 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 Liberty Aerospace repair methods in 135A-970-100 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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