

DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

A48EU  
Revision 5  
ALPHA AVIATION CONCEPT LTD  
R2160  
May 5, 2010

TYPE CERTIFICATE DATA SHEET No. A48EU

This data sheet, which is a part of Type Certificate No. A48EU, prescribes conditions and limitations under which the Type Certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder: Alpha Aviation Concept Limited  
Ingham Road  
Hamilton Airport  
RD2 Hamilton 3282  
New Zealand

Type Certificate Holder Record: AVIONS PIERRE ROBIN was previous holder of A48EU. Effective July 18, 2002, APEX became TC holder.

APEX Aircraft  
9, rue de l'Aviation  
21121 Darois  
France

transferred TC A48EU to  
Alpha Aviation Design Limited  
Ingham Road  
Hamilton Airport  
R.D.2. Hamilton 2020  
New Zealand  
on June 16, 2006.

Alpha Aviation Design Limited transferred TC A48EU to  
Alpha Aviation Concept Ltd  
on February 8, 2010.

**I. Model R2160, 2 PCLM (Acrobatic and Utility Categories), approved November 15, 1982**

Engine Lycoming O-320 D2A or Lycoming O-320D2A with "Christen" inverted oil system, TCDS E-274

Fuel 100LL minimum aviation grade gasoline.

Engine limits For all operations 2700 rpm (160 HP)  
Maximum normal operating rate 2600 rpm.

Propeller Sensenich 74DM-6S5-2-66 (Serial numbers 001 to 378)  
or 74DM-6S5-2-64 (All serial numbers)  
TCDS P-886

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Propeller limits	Static r.p.m. at maximum permissible throttle setting -- $2200 \pm 50$ Diameter 72 inches. No cutoff permitted. Spinner Robin 5860. (Serial numbers 001 to 378)
Airspeed limits	Never exceed 205 mph (178 kts) Maximum structural cruising 146 mph (127 kts) Maneuvering 146 mph (127 kts) Flaps extended (35°) 112 mph (97 kts) (See Flight Manual for acrobatic maneuver entry speeds.)
Flight Maneuvering Load Factors (G's)	Acrobatic category (1764 lbs MTOW) Flaps up +6.0 -3.0 Flaps down +2.0 0 Utility category (1984 lbs MTOW) Flaps up +4.4 -1.8 Flaps down +2.0 0
C.G. range	Acrobatic category (1764 lbs MTOW) Forward limit 9.0 in. @ 1543 lbs. Intermediate limit 13.0 in. @ 1764 lbs. Aft limit 16.5 in. @ 1764 lbs. Straight line variation between points given: 9.0 in. @ 1543 lbs. to 13.0 in. @ 1764 lbs. 13.0 in. @ 1764 lbs. to 16.5 in. @ 1764 lbs. Utility category (1984 lbs MTOW) Forward limit 9.0 in. @ 1543 lbs. Intermediate limit 13.0 in. @ 1984 lbs. Aft limit 18.9 in. @ 1984 lbs. Straight line variation between points given: 9.0 in. @ 1543 lbs. to 13.0 in. @ 1984 lbs. 13.0 in. @ 1764 lbs. to 18.9 in. @ 1984 lbs.
Datum	Leading edge Rib No. 5.
Leveling Means	Top fuselage spar horizontal.
Empty weight C.G. range	None.
Maximum weight	Acrobatic category Takeoff 1764 lb. Landing 1764 lb.  Utility category Takeoff 1984 lb. Landing 1984 lb.
No. of seats	2 at (+18.0)
Maximum baggage	77 lbs. at (+47.6). None for acrobatic category.

Fuel capacity	31.7 Gal. at (+43.9) (total)	(Standard for serial numbers 001 to 378)	
	31.0 Gal. at (+43.9) (usable)		
	42.2 Gal. at (+43.9) (total)	(Optional for serial numbers 001 to 378)	
	41.7 Gal. at (+43.9) (usable)	Standard for serial numbers 160A-06001 up)	
	Minimum fuel quantity for acrobatic: 2.6 Gal.		
Oil capacity	Maximum Capacity:	8 qts.	
	Minimum:	8 qts.	
	Maximum oil quantity for acrobatics: 8 qts.		
Control surface movements	Wing Flaps	35° ± 2.0	
	Ailerons	up 20° ± 1.5	Down 15° ± 1.5
	Rudder (L&R)	30° ± 2	
	Elevator	up 10° ± 0.5	Down 12.5° ± 0.5
	Elevator Trim Tab		
	Elevator Up Tab	up 33° ± 3.0	Down 5° ± 3.0
	Elevator Down Tab	up 14° ± 3.0	Down 22° ± 3.0
Serial Nos. eligible	001 through 378	(See Note 4)	
	160A-06001 and up	(See Note 5)	
Import Requirements	A US airworthiness certificate may be issued on the basis of a New Zealand Certificate of Airworthiness for Export signed by a representative of the Civil Aviation Authority of New Zealand, containing the following statement:  "The airplane covered by this certificate has been examined, tested and found to comply to the type design approved under US Type Certificate No. A48EU, and to be in condition for safe operation."  Certificates of Airworthiness for Export signed by a representative of the DGAC of France before June 16, 2006 may be accepted.  For issuance of an airworthiness certificate in accordance with §21.183(c), the Civil Aviation Authority of New Zealand must certify that the aircraft conforms to the type design and is in condition for safe operation. In that regard, the Civil Aviation Authority of New Zealand will certify that the aircraft complies with all applicable mandatory continuing airworthiness information that it has issued, in addition to all other requirements of this type certificate data sheet. For issuance of an airworthiness certificate in accordance with §21.183(d), the certifying inspector, or other authorized person, must find, among other things, that the product is in a condition for safe operation.		
Certification Basis	Code of Federal Regulations (CFR), 14 CFR part 23 effective February 1, 1965, including Amendments 23-1 through 23-9  14 CFR part 36 effective November 18, 1969, including Amendments 36-1 through 36-9  French AIR 2052 Paragraphs 3.3.97 and 3.3.99,  Special Certification Review: "The canopy (forward sliding) must be jettisonable."  Model R2160 serial numbers 001 to 378 approved for day VFR only. Model R2160 serial numbers 160A-06001 and on approved for day-night VFR.		

Certification Basis, contd	Date of application for type certification: October 16, 1980.
Equipment	<p>The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification. In addition the following is required:</p> <p>FAA-approved Alpha Aviation R2160 Flight Manual (AIR 2702) issued June 2006 - (Serial numbers 001 to 378).</p> <p>FAA-approved Alpha Aviation R2160 Flight Manual (AIR 3001) issued June 2006 - (Serial numbers 160A-06001 and up).</p>

NOTES.

NOTE 1. Current weight and balance report, including list of equipment in certificated empty weight, and loading instructions if applicable, must be in each aircraft at the time of original certification. Empty weight must include unusable fuel of 0.7 lbs. at (+43.9). Basic empty weight includes engine oil of 16.5 lbs.

NOTE 2. In addition to the placards required in the approved Airplane Flight Manual the following placards must be installed in the appropriate locations as indicated:

1. In full view of the pilot

Limits of Utilization

Acrobatic Category: Takeoff and landing 1764 lb.  
Load factors +6, -3

No Smoking.  
No objects permitted on floor.  
V<sub>a</sub> = 146 MPH

2. In the Baggage Compartment

In full view on aft bulkhead: Max. weight 77 lbs.  
No luggage allowed during acrobatic flights.

3. On Instrument Panel

For acrobatic category operations, refer to Airplane Flight Manual.

All placards required in the basic approved Flight Manual, installed in the appropriate location.

4. Each individual airplane will be supplied with a placard that specifies the operation as VFR DAY or VFR NIGHT to which the operation of the airplane is limited by the equipment installed.

NOTE 3. Serial numbers 001 to 378 - Aircraft structure life limit of 3008 hours is suppressed provided main wing structure and its fuselage attachment visual check operations recommended in Avions Pierre Robin Service Bulletin Number 123 are completed every 750 hours after life limit time.

Serial numbers 160A-06001 and up - Service Life limits of components are given in Section 3, Time Limits & Maintenance Instructions, Alpha Aviation Service Manual for the R2000 series dated June 2006.

NOTE 4. Aircraft assembled in Canada may have a C in front of the basic serial number.

NOTE 5. Aircraft serial numbers 160A-06001 through 160A-0018 were manufactured by Alpha Aviation manufacturing Ltd under New Zealand Part 148 aircraft manufacturing organization certificate AM 66328 between June 2006 and June 2008.

For serial numbers 160A-06001 through 160A-07014 the following format was used:

XXXX-XXXXX

The first sequence defines the Model.

160A = R2160

The second sequence of five numbers describes the production year (first 2 digits) and the production serial number (final three digits). For serial numbers 160A-0015 and up the production year is deleted from the serial number.

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