European Aviation Safety Agency

EASA

TYPE-CERTIFICATE
DATA SHEET

Number : E.088
Issue : 01
Date : 17 August 2006
Type : Franklin 6A-350 series engines

Variants
Franklin 6A-350-C1
Franklin 6A-350-C1R
Franklin 6A-350-C1L

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I - General

1. Type / Variants : Franklin 6A-350 / Franklin 6A-350-C1; Franklin 6A-350-C1R; Franklin 6A-350-C1L

2. Type Certificate Holder :

Franklin Sp. z o.o.
ul. Chełmińska 208
86-300 Grudziądz
Poland

EASA ADOA reference: AP196

3. Manufacturer:

Franklin Sp. z o.o.

4. EASA Certification/Validation Application Date:

6A-350-C1	6A-350-C1R	6A-350-C1L
05 Jan. 2005	05 Jan. 2005	05 Jan. 2005

Note : Application date for transfer of Type Certificate

5. Validation Reference Date:

27 Mar, 1962 (E9EA, original application date to FAA)

6. EASA Certification Date:

6A-350-C1	6A-350-C1R	6A-350-C1L
18 June 1976	18 June 1976	18 June 1976

- Validation of FAA TC by CAO-Poland (CB-129) on 18 June 1976
- Transfer of Type Certificate from " Franklin (USA) " to " WSK PZL-RZESZOW (Poland)" on 11 May 1981
-Transfer of Type Certificate from "WSK-PZL-RZESZOW (Poland) to Franklin SP. zo.o. (Poland) on 17 August 2006

II - Certification Basis

1. EASA Certification Basis:

1.1. Airworthiness Standards:

CAR 13, effective June 15, 1956, as amendment by 13-1 to 13-6, inclusive.

The 6A-350-C1R/-C1L engine model complies with FAR 33, effective February 1, 1965, including amendments 33-1 to 33-14, inclusive, for sections 33.17, 33.19, 33.23, 33.25, 33.27, 33.35, 33.43, 33.49.

1.2 Special Conditions (SC): none

1.3. Equivalent Safety Findings (ESF): none

1.4. Deviations: none

1.5 Environmental Standards: none (not required for piston engines)

III - Technical Characteristics

1. Type Design Definition:

As defined by: ILUSTRATED PARTS CATALOG for the variant.

2. Description:

The Franklin 6A-350 series engines is a free aspired, horizontally mounted, opposed, direct drive, six cylinder, four stroke, spark ignited, aircooled, rotation: clockwise facing engine rear.
Displacement: 5.735 dm^3 (350 cu. in.)
Bore x stroke: 117.5 mm x 88.9 mm (4.625 in. x 3.5 in.)
Compression ratio: 10.5 : 1
Gear ratio: N/A

3. Equipment:

See latest revision of: Description, Operation and Service Manual

4. Dimensions:

Overall Length mm (in)	960 (37.8)
Overall Height mm (in)	628 (24.7)
Width mm (in)	792 (31.18)

5. Dry Weight:

6A-350-C1	6A-350-C1R	6A-350-C1L
147 kg	150 kg	150 kg
(325 lbs)	(330 lbs)	(330 lbs)

6. Ratings:

Rating		6A-350-C1	6A-350-C1R	6A-350-C1L
Power, HP (KW)	Take-off and Maximum Continuous, full throttle at sea level pressure altitude	220 (164) at 2800 rpm	205 (153)at 2800 rpm	205 (153) at 2800 rpm

Note: Power tolerance for production engines is +4%, -3% of the Maximum Continuous rating

7. Carburetion

6A-350-C1	6A-350-C1R	6A-350-C1L
Marvel Schebler MA4-5, MA-5 Bendix PS5BD	MA-5	MA-5

When the MA4-5 carburetor is used on 6A-350-C1 engine for improved acceleration the Takeoff and Max. Continuous rating are 215 HP (160 KW) at 2800 rpm.

8. Fluids (Fuel/Oil/Additives):

Fuel: Aviation Gasoline, minimum grade 100/130
up to the standard: ASTM-D-910, MIL-G-5572, DERD.2485, AIR3401, GOST 1012-72

Oil: SAE-J-1966 (MIL-L-6082) DERD.2472 or SAE-J-22851 (MIL-L-22851) DERD.2450

Above 5^0C ambient air temp. SAE 50
Below 5^0C ambient air temp. SAE 30

All ambient air temp. SAE 15W50, SAE 20W50

9. Aircraft Accessory Drives:

The 6A-350-C1 engine model

Designation	Rotation direction	Speed ratio to crankshaft	Max. Torque Nm (in.lbs.) Continuous	static	Max. Overhang moment Nm (in.lbs.)
Tachometer	CCW	0.50:1	0.8 (7.0)	5.6(50)	0.6 (5.0)
Starter	CCW	11.44:1	16.0 (140)	50.8(450)	10.2 (90)
Alternator	CCW	1.60:1	11.3 (100)	90.4(800)	
Fuel Pump	Plunger	1.65:1	11.3 (100)	90.4(800)	3.4 (30)
or Fuel Pump (See Note)	CCW	1.65:1	11.3 (100)	90.4(800)	5.7 (30)
Prop. Governor	CCW	0.847:1	14.1 (125)	93.2(825)	2.8 (25)
Vacuum Pump	CW	0.847:1	14.1 (125)	93.2(825)	2.8 (25)

Note: Plunger fuel pump drive is replaced by slide vane fuel pump drive. See Bulletin PZL-F/72/2002..

The 6A-350-C1R/-C1L engine model

Designation	Rotation direction **C1R/C1L**	Speed ratio to crankshaft	Max. Torque Nm (in.lbs.) Continuous	static	Max. Overhang moment Nm (in.lbs.)
Tachometer	CCW / CW	0.50:1	0.8 (7.0)	5.6(50)	0.6 (5.0)
Starter	CCW / CW	11.44:1	16.0 (140)	50.8(450)	10.2 (90)
Alternator	CCW / CW	2.40:1	11.3 (100)	90.4(800)	-
Fuel Pump	Plunger	1.65:1	11.3 (100)	90.4(800)	3.4 (30)
or Fuel Pump (See Note)	CCW / CW	1.65:1	14.1 (125)	93.2(825)	2.8 (25)
Prop. Governor	CCW / CW	0.847:1	14.1 (125)	93.2(825)	2.8 (25)
Vacuum Pump	CW / CCW	0.847:1	14.1 (125)	93.2(825)	2.8 (25)

Note: Plunger fuel pump drive is replaced by slide vane fuel pump drive. See Bulletin PZL-F/72/2002..

IV - Operational Limitations

1. Temperature limits K (^{0}C, ^{0}F):

	6A-350-C1	6A-350-C1R	6A-350-C1L
Cylinder head (bayonet thermocouple)	473 (200, 392)	473 (200, 392)	473 (200, 392)
Cylinder base	433 (157, 315)	433 (157, 315)	433 (157, 315)
Oil inlet	386 (113, 235)	383 (110, 230)	383 (110, 230)

2. Pressure Limits:

2.1 Fuel Pressure Limits kPa (psig) :

Inlet to carburettor,	minimum	3.45 (0.5)
	maximum	41.0 (6.0)

2.2 Oil Pressure Limits kPa (psig):

Inlet to engine:	
Idle	172 (25.0)
Normal Operation	379 – 552 (55.0 – 80.0)

V - Operational and Service Instructions

	6A-350-C1	6A-350-C1R	6A-350-C1L
ILUSTRATED PARTS CATALOG	26.0.440	26.0.440	26.0.440
DESCRIPTION, OPERATION AND SERVICE MANUAL	26.0.197	26.0.197	26.0.197
INSTALATION INSTRUCTION	26.0.064	26.0.064	26.0.064

VI - Notes
