TYPE-CERTIFICATE DATA SHEET

EASA.IM.E.119

for
Lycoming TEO-540 series engines

Type Certificate Holder
Lycoming Engines
An Operating Division of AVCO Corporation
652 Oliver Street
Williamsport, Pennsylvania, 17701, USA

For Models:

TEO-540-C1A

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TABLE OF CONTENTS

I. General

1. Type/ Model

Lycoming TEO-540 / Lycoming TEO-540-C1A

2. Type Certificate Holder

Lycoming Engines
An Operating Division of AVCO Corporation
652 Oliver Street
Williamsport, Pennsylvania, 17701, USA

3. Manufacturer

Lycoming Engines

4. Date of Application

TEO-540-C1A				
14 March 2016				

5. EASA Type Certification Date

TEO-540-C1A				
12 December 2018				

II. Certification Basis

1. State of Design Authority Certification Basis

See FAA TCDS E00009NY

2. Reference Date for determining the applicable airworthiness requirements

4th February 2016 (same as FAA certification reference date)

3. EASA Certification Basis

3.1. Airworthiness Standards

CS-E Amendment 4 dated 12 March 2015

3.2. Special Conditions (SC)

SC E-16 Time Limited Dispatch (TLD) for Piston Engines

3.3. Equivalent Safety Findings (ESF)

CS-E 130 (g) Fireproofness of engine attachment points

3.4. Deviations

none

3.5. Environmental Protection

none (not required for piston engines)

III. Technical Characteristics

1. Type Design Definition

TEO-540-C1A: Engine Parts Catalogue TEO-540-C1A No. PC-TEO-540-C1A and Installation Drawing No. 04D63629

2. Description

The Lycoming TEO-540 engine is an electronically controlled, fuel injected, turbocharged, horizontally opposed, six cylinder, four stroke, spark ignited, aircooled, wet sump engine incorporating provisions for front and rear mounted accessories. The Electronic Engine Control System is single lever controlled.

Displacement:	8.873 dm3 (541.5 cu. in.)
Bore x stroke:	130.175 mm x 111.125 mm (5.125 in. x 4.375 in.)
Compression ratio:	7.3 : 1
Gear ratio:	N/A

3. Equipment

See latest revision of Lycoming Service Instruction No. 1042 and 1154

4. Dimensions

	TEO-540-C1A	
Overall Length	1303 mm (51.32 in.)	
Overall Height	569 mm (22.42 in.)	
Width	871 mm (34.31 in.)	

5. Dry Weight

TEO-540-C1A				
251 kg				
(553.5 lbs)				

(weight without starter, alternator, Engine Control Unit (ECU) and Power Box)

6. Ratings

Rating		TEO-540-C1A		
Power, kW (HP)	Take-off and Maximum Continuous, full throttle at sea level pressure altitude	280 (375) at 2575 rpm		

Note: The performance values specified are defined under the conditions of ICAO and ARDC standard atmosphere. For the tolerance on these values, see the latest revision of the Lycoming Detail Engine Specification for each model.

7. Control System

The Lycoming TEO-540-C1A engine model is equipped with an electronic ignition and injection system. The software of the Electronic Engine Control System Software is verified to level B according to RTCA Document DO-178B.
See latest revision of Lycoming SI 1573 for approved hardware and software versions.

8. Fluids (Fuel, Oil, Coolant, Additives)

Fuel: Aviation Gasoline, minimum grade 100 or 100LL. See latest revision of Lycoming Service Instruction No. 1070

Oil: See latest revision of Lycoming Service Instruction No. 1014

9. Aircraft Accessory Drives

Designation	**Rotation direction** (facing drive pad)	**Speed ratio to crankshaft**	**Max. Torque Nm (in. lbs)**		**Max. Overhang moment Nm (in. lbs)**
			Continuous	**static**	
Prop. Governor	CW	0.947:1	14.12 (125)	248.57 (2200)	2.82 (25)
Starter•	CCW	16.556:1		50.84 (450)	16.95 (150)
Alternator•	CW	3.10:1	6.78 (60)	13.56 (120)	19.77 (175)
Fuel Pump	CW	1.0:1	2.82 (25)	50.84 (450)	2.82 (25)
Accessory 1×	CCW	1.3:1	7.91 (70)	90.39 (800)	2.82 (25)
Accessory 2×	CW	1.385:1	11.30 (100)	90.39 (800)	4.52 (40)
Accessory 3×	CW	3.54:1	4.52 (40)	33.89 (300)	2.82 (25)

"C" - Clockwise, "CCW" - Counter-Clockwise, “Total” - refers to total torque of dual drives

• These accessories are optional, see latest revision of SI 1154 for approved alternates.

× These drives are optional and accessory pads may be cast over.

IV. Operating Limitations

1. Temperature Limits

Cylinder head (well type thermocouple):	260 °C (500 °F)
Oil inlet:	118 °C (245 °F)
Exhaust Gas:	899 °C (1650 °F)

2. Speed Limits

Max. Overspeed (3 seconds, Momentary overspeed): 2833 rpm
See latest revision of Lycoming Service Bulletin No. 369

3. Pressure Limits

3.1 Fuel pressure

Inlet to fuel pump,	minimum:	-13.8 kPa (-2.0 psig)
	maximum:	448.2 kPa (65.0 psig)
Fuel Rail Pressure:		296.5 kPa (43.0 psid, above Manifold pressure)

3.2 Oil pressure

Minimum (idle):	172 kPa (25 psig)
Normal (flight, take-off):	379…655 kPa (55...95 psig)
Maximum (starting, warm-up, taxi)	793 kPa (115 psig)

3.3 Manifold Air Pressure

Maximum	196.07 kPa (57.9 inHg absolute)

3.4 Turbocharger Exhaust Back Pressure

Maximum	1.69 kPa (0.5 inHg)

4. Operating Altitude

Maximum altitude	7620 m (25000 ft)

5. Time Limited Dispatch

The engine is approved for Time Limited Operation (TLO) in accordance with SC E-16. Take-off is prohibited with annunciated NTO (No Take-off) faults shown on the ECU cockpit indications per Airworthiness Limitations Section of the Maintenance Manual MM-TEO-540-C1A.

V. Operating and Service Instructions

Manuals

	TEO-540-C1A		
Operation and Installation Manual	IOM-TEO-540-C1A		

Instructions for Continued Airworthiness

	TEO-540-C1A		
Maintenance Manual	MM-TEO-540-C1A		
Overhaul Manual	OHM-TEO-540-C1A		
Parts Catalogue	PC-TEO-540-C1A		
Service Bulletins and Service Letters	As issued		

Note: See latest revision of Lycoming Service Letter No. L114 for document revisions and supersedures.

VI. Notes

1. The EASA approved Airworthiness Limitations Section of the Instructions for Continued Airworthiness is published in the applicable "Maintenance Manual" document, chapter "Airworthiness Limitations".

2. Maximum flight attitudes for the TEO-540-C1A are 20° nose up or down.

3. The electronic control system for the TEO-540-C1A must be supplied with a secondary 14 or 28 VDC power source via an aircraft essential bus, backed up with the aircraft backup battery. The aircraft backup battery must be serviced and/or replaced at the interval specified in the aircraft or battery Maintenance Manual.

4. Installation and evaluation of the Engine Control Unit (ECU) cockpit indications is subject to the requirements established by the certification basis of the aircraft.

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

n/a

II. Type Certificate Holder Record

n/a

III. Change Record

Issue	Date	Changes	TC issue
Issue 01	12 December 2018	Initial Issue	Initial issue 12 December 2018
Issue 02	23 May 2019	Editorial correction, Increase of Manifold Air Pressure from 176 to 196 kPa (EASA Major Change Approval 10070001)	
Issue 03	06 September 2019	Time Limited Operation (EASA Major Change Approval 10070900)	

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