TEO-540 series engines

Date: 23 May 2019

TYPE-CERTIFICATE
DATA SHEET

No. 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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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

<table>
<thead>
<tr>
<th>TEO-540-C1A</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>14 March 2016</td>
<td></td>
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5. EASA Type Certification Date

<table>
<thead>
<tr>
<th>TEO-540-C1A</th>
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<tbody>
<tr>
<td>12 December 2018</td>
<td></td>
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</table>

II. Certification Basis

1. State of Design Authority Certification Basis
See FAA TCDS E00009NY

2. Reference Date for determining the applicable airworthiness requirements
4 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)

none

3.3. Equivalent Safety Findings

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

<table>
<thead>
<tr>
<th></th>
<th>TEO-540-C1A</th>
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</thead>
<tbody>
<tr>
<td>Overall Length</td>
<td>1303 mm (51.32 in.)</td>
</tr>
<tr>
<td>Overall Height</td>
<td>569 mm (22.42 in.)</td>
</tr>
<tr>
<td>Width</td>
<td>871 mm (34.31 in.)</td>
</tr>
</tbody>
</table>
5. Dry Weight

<table>
<thead>
<tr>
<th>TEO-540-C1A</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>251 kg</td>
<td>(553.5 lbs)</td>
<td>(weight without starter, alternator, Engine Control Unit (ECU) and Power Box)</td>
<td></td>
</tr>
</tbody>
</table>

6. Ratings

<table>
<thead>
<tr>
<th>Rating</th>
<th>TEO-540-C1A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power, kW (HP)</td>
<td>Take-off and Maximum Continuous, full throttle at sea level pressure altitude</td>
</tr>
</tbody>
</table>

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

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

*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 psig, 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 (TLD)

The engine is not approved for Time Limited Dispatch/Time Limited Operation. Take-off is prohibited with annunciated NTO (No Take-off) faults shown on the ECU cockpit indications.
V. Operating and Service Instructions

Manuals

<table>
<thead>
<tr>
<th>TEO-540-C1A</th>
<th>IOM-TEO-540-C1A</th>
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Instructions for Continued Airworthiness

<table>
<thead>
<tr>
<th>TEO-540-C1A</th>
<th>MM-TEO-540-C1A</th>
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<tbody>
<tr>
<td>Overhaul Manual</td>
<td>OHM-TEO-540-C1A</td>
</tr>
<tr>
<td>Parts Catalogue</td>
<td>PC-TEO-540-C1A</td>
</tr>
</tbody>
</table>

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 4 "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

<table>
<thead>
<tr>
<th>Issue</th>
<th>Date</th>
<th>Changes</th>
<th>TC issue</th>
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<tbody>
<tr>
<td>Issue 01</td>
<td>12 December 2018</td>
<td>Initial Issue</td>
<td>Initial issue 12 December 2018</td>
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<tr>
<td>Issue 02</td>
<td>23 May 2019</td>
<td>Editorial correction, Increase of Manifold Air Pressure from 176 to 196 kPa (EASA Major Change Approval 10070001)</td>
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