

*Forced
Aeromotive
Technologies*

Instructions for Continued Airworthiness

FAA-STC SE10233SC

Belt-Driven Supercharger on O-470-L, -R, -S, and -U Engines

NOTICE

This document must be referenced on Block 8 of FAA form 337 and added to the aircraft permanent record as required by 14 CFR Part 91, §91.417(a)(2)(vi) when the reference FAA-STC modification is accomplished on eligible aircraft. This document complies with the requirements of 14 CFR Part 23, §23.1529, in accordance with 14 CFR Part 23, Appendix G.

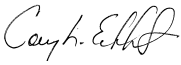
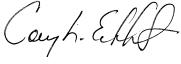

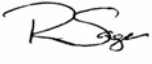
Model No. _____

Serial No. _____

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LOG OF REVISIONS

Revision Number	Revision Date	Approval	Affected Pages	Description of Revision
IR	03/05/2004		All	New
A	01/04/2005		All 4 6, 8	O-470-U engine added to header Cessna 182 Q and R models and O-470-U engines added to section 2. O-470-U added to section 9, 15, engine operation
B	12/21/2008		5	Multi-groove belt replacement
C	10/30/2014		6	Oil change, self oiled superchargers

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1. INTRODUCTION

This document outlines the compliance with 14 CFR 33.4 “Instructions for Continued Airworthiness” for Forced Aeromotive Technologies, Inc. Supplemental Type Certificate (STC) No. SE10233SC.

NOTICE:

Section 15, titled “Airworthiness Limitations” is FAA approved and specifies maintenance required under 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved. To remain in compliance with the STC, the aircraft shall be maintained in accordance with these limitations.

This document supplements or supersedes the Cessna “Service Manual”, part numbers D138-1-13, revision 1, D637-1-13, revision 1, and P2006C3-13, change 3, or later approved revisions and basic Teledyne Continental Motors Overhaul Manual P/N X30586A, October, 1992 only in those areas listed herein.

2. GENERAL DESCRIPTION

STC SE10233SC installs a belt-driven Vortech VS-1 supercharger on the either the Teledyne Continental Motors Model No. O-470-L, -R, -S, and -U engine, alters the aircraft induction system for the supercharger, installs a boost cutoff control valve, and uses the existing oil system for lubrication. This engine STC is in support of STC SA10232SC which installs this altered engine in the appropriate Cessna Models 182E, F, G, H, J, K, L, M, N, Q, and R aircraft.

3. CONTROL, OPERATION INFORMATION, SPECIAL PROCEDURES

Refer to basic Cessna 182 Series Maintenance or Service Manual and basic Teledyne Continental Motors Engine Maintenance Manual.

4. SERVICING INFORMATION

Refer to basic Cessna 182 Series Maintenance or Service Manual and basic Teledyne Continental Motors Engine Maintenance Manual.

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5. MAINTENANCE INSTRUCTIONS

Refer to basic Cessna 182 Series Maintenance Manual and basic Teledyne Continental Motors Engine Maintenance Manual for information other than what is provided below.

5.1 REPLACEMENT OF SUPERCHARGER BELT

1. Loosen the two bolts securing the idler pulley and remove the belt.
2. After placing the new belt on the pulleys, adjust the tension by pressing the idler pulley down against the belt and tightening the adjustment bolts. Tighten the belt until a 9.5 lb. pull on the center of the lower portion of the belt results in a .25 inch of belt deflection.
3. After 2 flight hours re-check belt tension. Tighten the belt until a 8.0 to 9.5 lbs. pull on the center of the lower portion of the belt results in a .25 inch of belt deflection.
4. For aircraft equipped with a 4 groove multi-v belt, after 2 hours, re-tension the belt until a 6.5 to 7.6 lbs. pull on the center of the lower portion of the belt results in .25 inch of belt deflection.

5.2 REPLACEMENT OF ALTERNATOR BELT

1. Loosen the two bolts securing the idler pulley and remove the belt from the supercharger.
2. Remove the SCAT connected to the supercharger airbox and remove the airbox from the supercharger by loosening the clamp and sliding the airbox forward. The carburetor heat control can remain connected.
3. Disconnect the oil line to the supercharger at its connection to the supercharger. Loosen the upper clamp on the supercharger oil drain hose located at the rear of the supercharger and behind the alternator.
4. Remove the two nuts and bolts at the upper rear of the supercharger mount that connect the mount to the L-shaped bracket which is bolted to the left accessory pad.
5. Loosen the one bolt and remove the two metal stop nuts that hold the supercharger to the crankcase.
6. Remove the supercharger by sliding it out from the engine and up, pulling the oil drain from the oil drain hose (the clamp loosened in step 3).
7. Replace the alternator belt with appropriate belts and using procedures outlined in the basic Cessna Maintenance or Service Manual.
8. Replacement of the supercharger is the reverse of the removal procedure.

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5.3 OIL CHANGE, SELF LUBRICATED SUPERCHARGERS

Oil should be changed every 100 hours. Oil level should be checked every 50 hours. Self oiling superchargers can be identified by the lack of oil lines going into and out of the supercharger and by the presence of the oil dipstick at the top of the supercharger for checking the oil level.

Checking the oil level:

1. Ensure that the .06" copper washer is located on the dipstick base.
2. Thread the clean dipstick into the unit until it seats.
3. Once the dipstick has seated, remove the dipstick from the unit. Fluid should register in the crosshatched area on the dipstick.
4. **DO NOT OVERFILL.** Drain excess fluid from the unit if it is above the maximum level on the dipstick.

Changing the oil:

Empty the supercharger of oil by opening the drain at the bottom. When completely drained refill the supercharger with 4 ounces of oil. Verify proper oil level by using the dipstick. Do not overfill. **USE ONLY APPROVED OIL SUPPLIED BY**

Forced Aeromotive Technologies, Inc.

7161 S. Peoria Street 18E

Englewood, CO 80112

www.forcedaeromotive.com

6. TROUBLESHOOTING INSTRUCTIONS

For troubleshooting guidance contact Forced Aeromotive Technologies, Inc. for assistance.

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7. REMOVAL AND REPLACEMENT INFORMATION

Remove and replace as specified in Forced Aeromotive Installation Drawing EI-182, Rev. -, dated 01/28/03 or later FAA approved revision. For replacement parts contact Forced Aeromotive at the following address.

DOCUMENT NO. 22002-05

REV C, October 30, 2014

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8. DIAGRAMS

Refer to basic Cessna 182 Series Maintenance or Service Manual, basic Teledyne Continental Maintenance Manual, and Forced Aeromotive Installation Drawing EI-182, Rev. -, dated 01/28/03 or later FAA approved revision.

9. SPECIAL INSPECTION REQUIREMENTS

Conduct routine inspections on the O-470-L, -R, -S, and -U engines in accordance with appropriate basic Teledyne Continental Maintenance Manual and basic Cessna 182 Series Maintenance Manual except as noted below.

9.1 INSPECTION OF SUPERCHARGER AND ALTERNATOR BELTS

For every flight 100 hours, conduct routine inspections on the alternator and supercharger belts for wear.

9.2 INSPECTION OF SUPERCHARGER OIL NOZZLE

At each annual inspection, remove the supercharger oil inlet line and remove the oil nozzle. Clean the nozzle with compressed air and replace it and reconnect the oil line.

There are no mandatory replacement times on any new components.

10. APPLICATION OF SPECIAL TREATMENTS

None

11. DATA

None

12. SPECIAL TOOLS

None Required

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13. ADDITIONAL INFORMATION FOR COMMUTER CATEGORY AIRCRAFT

Not Applicable

14. RECOMMENDED OVERHAUL PERIOD

Engine: 1400 Hours after STC installation, or next required overhaul per Continental Motors O-470 series Overhaul Manual, P/N X30586A, which ever comes first.

Supercharger: 1400 Hours after STC installation

15. AIRWORTHINESS LIMITATIONS

NOTICE:

This section is FAA approved and specifies maintenance required under 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved. To remain in compliance with the STC, the aircraft shall be maintained in accordance with these limitations.

There are no changes to the airworthiness limitations of the O-470-L, -R, -S, and -U engines from those, which are listed in basic Teledyne Continental Engine Maintenance Manual, or basic Cessna 182 Series Maintenance Manual except for the following:

ENGINE OPERATION

Manifold Pressure 28 inHg
Propeller Speed(O-470-L, -R, -S engines).....2600 RPM
.....(O-470-U engines).....2400 RPM

FUEL

Minimum Fuel Grade 100LL (Blue)

There are no changes to the airworthiness limitations of the propeller from those which are listed in the basic Cessna 182 Series Maintenance Manual or basic Hartzell Propeller Maintenance Manual.

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16. REVISION

Each time this ICA is revised or reissued, the revised ICA will be distributed to operators using a Service Letter/Bulletin by Forced Aeromotive Technologies. This revision will include a new Log of Revisions page along with the revised pages. The lower right hand corner of each revised page will reflect the revision letter. That portion of text or an illustration, which has been revised by the addition of, or change in, information is denoted by a solid revision bar located adjacent to the area of change, and placed along the outside margin of a page. Revision bars show only information changed within latest revision.

17. ASSISTANCE

For assistance with ICA issues not addressed herein, contact Forced Aeromotive Technologies at the following address or phone number.

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