

The logo for Kelly Aerospace Thermal Systems. It features a stylized red square icon on the left, composed of several overlapping geometric shapes. To the right of the icon, the word "KELLY" is written in a bold, red, sans-serif font. Below "KELLY", the word "AEROSPACE" is written in a larger, bold, red, sans-serif font. Below "AEROSPACE", the words "Thermal Systems" are written in a bold, red, sans-serif font, with "Thermal" and "Systems" on separate lines.

KELLY AEROSPACE Thermal Systems

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Author	Erik Pederson	Signed Copy On File	9/17/08
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1.0 SECTION: INTRODUCTION

This document identifies the instructions for continued airworthiness for the modification of the above aircraft by installation of the Kelly Aerospace Backup Alternator System.

Applicability: Applies to aircraft altered by installation of Kelly Aerospace Backup Alternator System

Distribution: This document should be a permanent aircraft record.

2.0 SECTION: DESCRIPTION OF THE ALTERATION

The Kelly Aerospace Backup Alternator is identical to the primary alternator and is not connected to the main bus. It is a ASG12000-3 95 amp alternator. The backup alternator is installed on the left front side, below the engine cooling baffling. The installation location for the backup alternator will be a mirror image of the primary right side alternator. The backup alternator is controlled by a Kelly Aerospace VR202A Voltage Regulator and is regulated to 28 volts. The alternator is belt driven, similar to the existing primary alternator. The drive pulley for the backup alternator is mounted to the front of the flywheel.

3.0 SECTION: CONTROL / OPERATION INFORMATION

A switch in the cockpit will allow the selection of the backup alternator. The system is setup such that the primary alternator master switch must be moved to the off position before the backup alternator can be selected. The backup alternator is selected by positioning the backup alternator toggle switch to the on position.

4.0 SECTION: MAINTENANCE / SERVICING INSTRUCTIONS

Note: Before inspections or maintenance are performed it is the responsibility of the owner/operator and maintenance agency to assure that they are in possession of the latest revision of the applicable documentation and drawings.

ALTERNATOR

Every 100 hours or during annual an inspection is required. Ensure that the alternator and its brackets are secure and in good condition. Check the electrical connections and make sure they are secure. Inspect the alternator belt for condition and tension. Make proper adjustments as needed. Refer to Cessna Maintenance Manual Section 24-20-00 for belt tensioning procedures. The belt tension for the back-up alternator should be identical to that of the primary alternator.

ELECTRICAL

Every 100 hours or during annual an inspection is required. Inspect wiring for chaffing, mounting, attachment, proper routing, fraying and arcing. Ensure all connections are tight, verify all components are secure.

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5.0 SECTION: TROUBLESHOOTING

Refer to Kelly Aerospace Drawing AL-00062 for Backup Alternator System wiring diagram.

Failures of the Kelly Aerospace Backup Alternator System can include but may not be limited to the following situations:

- 1) No output voltage from alternator
 - a. Possible Failure of the VR-202A Voltage Regulator. Characterized by unreliable fluctuating voltage output or no voltage output from alternator. Ensure connections are made correctly; may need to replace voltage regulator
 - b. Possible Failure of the alternator. Characterized by no output voltage from alternator. Check connections to alternator. May need to replace alternator.
- 2) Power is output from the alternator but is not making it to the aircraft bus. Characterized by voltage to main DC Contactor but not to the main bus when backup alternator system is turned on.
 - a. Ensure connections are made correctly to DC Contactor and Change Over Relay.
 - b. Possible failure of DC Contactor or Change Over Relay. May require replacement of DC Contactor or Change Over Relay
 - c. Possible failure of Toggle Switch

6.0 SECTION: REMOVAL AND REPLACEMENT INFORMATION

Refer to the Kelly Aerospace Backup Alternator System Installation Manual document NC-08-030.

7.0 SECTION: DIAGRAMS

A list of all applicable diagrams are in document NC-08-025.

All drawings and diagrams will be provided by Kelly Aerospace Thermal Systems. These may be obtained by contacting Kelly Aerospace by calling 440-951-4744 or fax 440-951-4725

8.0 SECTION: SPECIAL INSPECTION REQUIREMENTS

Inspect the system during 100 Hr and/or Annual inspections. There are no servicing requirements for the Back-Up Alternator System outside of normal 100hr/Annual inspection intervals or during routine maintenance.

Remove necessary access covers per the ASM.

During the annual or 100 hr inspections check for the following items:

1. Security of attachment of all components.
2. Loose or missing hardware.
3. Check wires for chaffing, mounting, attachment, proper routing, fraying and arcing.

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4. Check Belt Tension. Set to identical values, listed in the Cessna Maintenance Manual Section 24-20-00, specified for the primary alternator belt.

9.0 SECTION: OVERHAUL PERIOD

No additional overhaul periods required.

10.0SECTION: AIRWORTHINESS LIMITATIONS

The Airworthiness Limitations Section is FAA APPROVED and Specifies maintenance required under FARs parts 43.16 and 91.403 unless an alternate program has been FAA APPROVED. There are no additional Airworthiness Limitations as a result of this alteration.

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