



# INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

325A Starter/Generator In  
Cessna Caravan 208 Series

Revision A

Document Number 201207-30

**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.

Aircraft Model Number \_\_\_\_\_

Aircraft Serial Number \_\_\_\_\_

Aircraft Registration Number \_\_\_\_\_



## LIST OF EFFECTIVE REVISIONS

Always destroy superseded pages when you insert revised pages

REVISION	DATE	CHAPTERS AFFECTED
IR	August 2014	ALL
A	March 2016	1, 2, 5, 6 & 12



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## 1. INTRODUCTION:

This document provides the instructions for continued airworthiness (ICA) for STC SA02523LA which installs an AMETEK 325 Amp Starter/Generator in the Cessna Caravan 208(B) Series aircraft.

This document supplements or supersedes the basic and applicable Cessna Caravan 208 Series Maintenance Manual, only in those areas listed herein for the appropriate aircraft model and serial number.

## 2. DESCRIPTION:

The original 200A Starter/Generator is replaced by an Ametek model MG94K-1 325A Starter/Generator (325A SG) in Cessna Caravan 208(B) airplanes equipped with Pratt & Whitney PT6A-42A or -140 engines. The starter/generator, battery power supply and ground cable size has been increased to 1/0 cables. The power distribution bus bar was changed within the Electric Power Distribution Box, located on the upper left side of the firewall (a new EPDB cover is supplied). The combined Ammeter/Voltmeter on the pilot's instrument panel is replaced along with the associated generator, battery and (optional) standby alternator shunts. Additionally, the existing 2" diameter SG cooling air tube assembly with SG duct, scat hoses, and nose cowl inlet duct are replaced by a larger 3" diameter cooling air tube, s/g duct, nose cowl inlet duct, and corresponding scat hoses.

## 3. SPECIAL PROCEDURES:

None required.

## 4. SERVICING INFORMATION:

None required.

## 5. MAINTENANCE INSTRUCTIONS:

### A. INSPECTION

1. Examine the starter-generator for condition, security of installation, and signs of overheating.
2. Examine the terminal block and the boot for condition, cracks, and security.
3. Examine the electrical connections at terminal block for cleanliness, signs of heat or arcing, and signs of damage.
4. Examine the quick attach/detach (QAD) mount for condition, cracks, corrosion, and security of installation.
5. Examine the mount V-band clamp for condition, cracks, and security.



## B. Removal

1. Remove all external power from the airplane, make sure the battery switch is in the OFF position, and disconnect the battery from the airplane electrical system.
2. Remove the cover from the terminal block.
3. Put an identification tag on each of the electrical leads for later identification and remove the terminal nuts. Remove the speed sensor circuit connector.
4. Loosen the clamp that holds the cooling air blast hose on the fan cover and remove the hose.
5. Remove the 4 screws attaching the fan cover and remove the fan cover.

NOTE: Two mechanics are required to properly remove or install the SG. One mechanic is to hold the SG in position to keep the mounting surfaces flush with the quick attach/detach (QAD) adapter pad. This keeps the SG aligned while the other mechanic loosens and removes the V-band clamp.

CAUTION: Hold the starter/generator in place to prevent damage to the splined drive shaft before you do the following step.

6. Loosen the V-band that holds the starter/generator to the QAD adapter. Carefully remove the SG from the QAD adapter pad so that the SG drive spline is not put into a bind.
7. Remove the QAD adapter as necessary. Remove the nuts that hold the QAD adapter to the engine accessory gearbox and remove the adapter.

## C. Installation

1. Do the following steps before you install the SG; Make sure:
  - (a) There are no burrs or foreign objects on the SG shaft.
  - (b) The SG guide pins are clean and not bent or damaged.
  - (c) The mounting surfaces of the SG and the QAD adapter pad are clean and do not have any burrs.
  - (d) The QAD adapter is fastened to the engine accessory case correctly.
  - (e) The QAD adapter pad guide pin holes does not have any burrs or foreign objects, and that they are in good condition.
2. Install the QAD adapter onto engine accessory gearbox with a new gasket and nuts as necessary.
3. Install a new O-ring around the groove on the splined drive shaft; not required on a -140 installation.
4. With the T-bolt unlatched, put the V-band on the SG between the mounting flange and the terminal block.

NOTE: Two mechanics are required to properly remove or install the SG. One mechanic is to hold the SG in position to keep the mounting surfaces flush with the



QAD adapter pad. This keeps the SG aligned while the other mechanic installs and tightens the V-band clamp.

**CAUTION:** The spline drive shaft must stay aligned with and concentric to the armature. If the SG is allowed to be installed with the drive shaft out of position, excessive vibration and damage may develop during operation.

5. Carefully look at the spline drive shaft and the armature shaft interface plates. If the drive shaft looks to be out of position, lightly tap on the spline drive shaft with a plastic mallet to move it to a full concentric position. Carefully engage the spline drive shaft with the engine spline.
6. Make sure the dowel pins are engaged. Put the V-band over the mating flanges and latch.
7. Tap the V-band at several places with a rubber mallet to make sure that there is correct alignment of the spline drive shaft and the armature shaft, and tighten the T-bolt nut to two-thirds the recommended torque.
8. Tap the V-band repeatedly, around its circumference, with the rubber mallet, to properly seat the band, tighten the T-bolt nut to the recommended torque. 70 inch-lbs or value stamped on the V-band.
9. Install the fan cover and secure with the 4 attachment screws. Install the cooling air blast hose with the clamp on the fan cover. To prevent damage to the fan cover do not over tighten the clamp, snug tight is all that is required.
10. Install the electrical cables in the same relationship to the terminal posts as you tagged them during the removal procedure, and install the nuts. Put the cover in place over the terminal block. Connect the speed sensor cable connector.
11. Reconnect the battery to the airplane electrical system.

#### D. DC Power Adjustment

Adjust the generator DC power output per the Cessna 208 Maintenance Manual section 24-00-01

#### E. Volt Meter Adjustment (Refer to Starter Generator Electrical Installation drawing 201207-002)

To adjust the voltage indication of the volt/ammeter:

1. Attach an accurate volt meter to either bus system 1 or 2, to monitor the actual bus voltage.
2. On the volt/ammeter selector switch, select VOLTS. Energize the battery master switch and allow the meter to warm-up.
3. Find the 20k $\Omega$  potentiometer located in the wire harness from the volt/ammeter selector switch.
4. Adjust the potentiometer so the ships volt meter indicates the bus system voltage.
5. De-energize the battery master switch and remove the volt meter monitoring the bus system voltage.



## F. Troubleshooting

Trouble shoot the DC power generator per the Cessna 208 Maintenance Manual section 24-00-00.

Trouble shoot the starter system per the Cessna 208 Maintenance Manual section 80-10-00.

## G. Overhaul

The 325A SG has a “No Touch” TBO of 1,500 hr.

Aircraft operating with no special mission equipment requiring a DC power supply in excess of the standard Part 91 IFR equipped aircraft can continue to operate the SG an additional 500 hrs if the brushes are inspected and found to be 0.9” long minimum.

Aircraft with special mission equipment installed which requires a total power draw of >200 amps must overhaul the SG at 1,500 hrs.

The SG should be returned to the manufacturer for overhaul and/or replacement.

## 6. PARTS AND ADDITIONAL REFERENCES:

For parts and additional STC installation information refer to the following Blackhawk STC drawings:

201207-000 Master Drawing List

201207-001 Starter Generator Installation

201207-002 Starter Generator Electrical Installation

201207-003 Starter Generator Inlet Nipple Installation

AFMS 201207 Airplane Flight Manual Supplement

## 7. APPLICATION OF SPECIAL TREATMENTS:

None required.

## 8. SPECIAL TOOLS:

None required.

## 9. ADDITIONAL INFORMATION FOR COMMUTER CATEGORY AIRCRAFT:

None required.



## 10. 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.

## 11. REVISION:

Each time this ICA is revised or reissued, the revised ICA will be distributed to operators using a Service Letter/Bulletin by Blackhawk Modifications, Inc. This revision will include a new Log of Revisions page along with the revised pages. The upper left 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 inside margin of a page. Revision bars show only the information changed within the latest revision.

## 12. ASSISTANCE:

For assistance with ICA issues not addressed herein, contact Blackhawk at the following address:

**Blackhawk Modifications, Inc.**  
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