



FAA- APPROVED
Airplane Flight Manual Supplement
for
Cessna 208B Caravan Landplane
Equipped with Honeywell TPE331-12JR Engine

SUPPLEMENT S2

STANDBY ELECTRICAL SYSTEM

Doc. No. SSL-SES-208B-12JR

Reg. No. _____

Ser. No. _____

This supplement must be inserted into Section 9 of the FAA approved Airplane Flight Manual Supplement for STC **SA10841SC** when the Standby Electrical System is installed.

FAA Approved:


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Date: December 15, 2010

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Use the log of effective pages to determine the current status of this supplement.

Pages affected by the current revision are indicated by an asterisk (*) preceding the page number.

<u>Supplement Status</u>	<u>Date</u>
Original (Rev 0)	November 12, 2008
Revision 1	December 15, 2010

LOG OF EFFECTIVE PAGES

<u>Page</u>	<u>Page Status</u>	<u>Revision Number</u>
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STANDBY ELECTRICAL SYSTEM

SECTION 1 GENERAL

A standby electrical system may be installed for use as a standby power source in the event the main generator system malfunctions in flight. The system includes an alternator operated at a 75-amp capacity rating. The alternator is belt-driven from a drive attached to the accessory section of the engine reduction gear housing. The system also includes a function control module and alternator control module (FCM/ACM), shunt, and current limiters located in the electrical junction box on the left front side of the firewall. There are two control switches on the left sidewall switch (start) panel. The standby system switches are a two-position toggle-type switch, labeled STBY PWR, and a guarded two-position toggle-type switch/breaker, labeled AVIONICS STBY PWR. The guard covering the standby avionics power switch must be lifted in order to select the ON position. Circuit protection and isolation are provided by two 40-amp circuit breakers, labeled STBY PWR, on the left sidewall circuit breaker panel. Field excitation to the alternator control unit is supplied through diode logic from either the CLOCK circuit breaker in the electrical junction box or the alternator bus through a poly-fuse assembly located in the electrical junction box. System monitoring is provided by an amber light, labeled STBY ELEC PWR INOP, in the annunciator panel. Total amperage supplied from the standby electrical system can be monitored on the airplane volt/ammeter with the selector switch in the ALT position.

Any time the standby electrical system is turned on, the alternator will load share approximately 10-20% of the total load with the generator. The alternator will assume the total load if the generator is turned off or the generator trips off line. It may be necessary to load shed if the total load exceeds the 75-ampere capacity. The AVIONICS STBY PWR switch/breaker and AVIONICS BUS TIE switch must be ON to utilize the 75-ampere capacity. Also, the AVIONICS 1 and 2 power switches should be OFF to avoid feeding a possible fault in the primary power system when operating on standby power. The primary power supply system can be completely isolated by pulling the six 30-ampere bus feeder circuit breakers in the event of a fault in the primary power relay box.

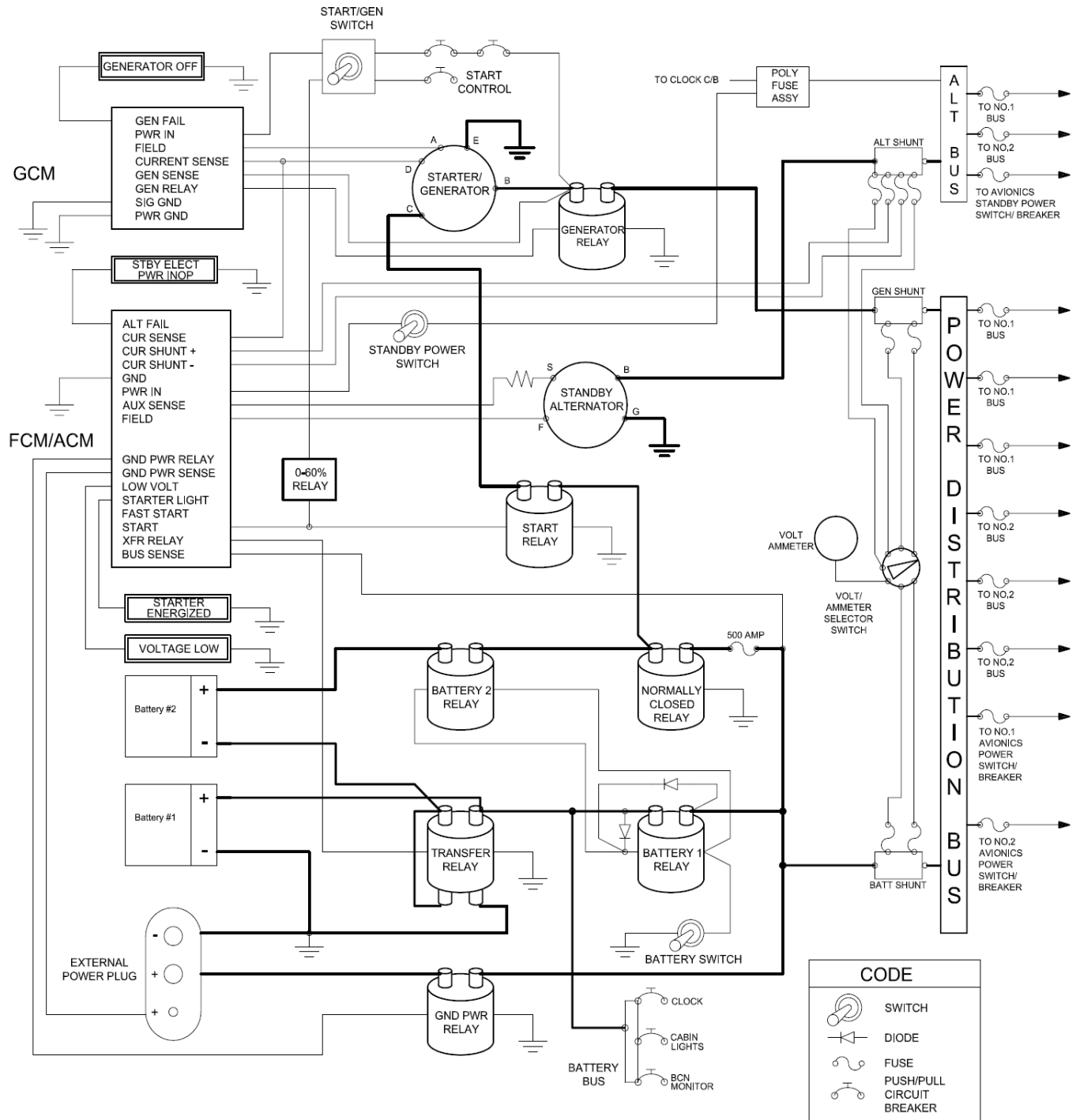


Figure S2-1, Caravan Electrical System with Standby Alternator

SECTION 2 LIMITATIONS

When operating on the standby electrical system, the maximum electrical load is 75 amps from sea level to 21,000 feet. To assure adequate alternator cooling at higher altitudes, reduce maximum electrical load 5 amps per 1000 feet above 21,000 feet up to the maximum operating altitude.

SECTION 3 EMERGENCY PROCEDURES

GENERATOR FAILURE – GENERATOR OFF ANNUNCIATOR ILLUMINATED

1. Generator switch – OFF, then ON.

If primary power is not restored:

2. GEN CONTROL and GEN FLD Circuit Breakers – RESET (if tripped) and repeat step

If GENERATOR OFF annunciator remains illuminated and STBY ELEC PWR INOP annunciator is illuminated:

3. STBY PWR Switch – OFF, then ON. Check STBY ELEC PWR INOP annunciator extinguished and the ALT ammeter showing a positive load and GEN ammeter load a decreased load due to sharing with the alternator.
4. AVIONICS STBY PWR and AVIONICS BUS TIE Switches – ON.
5. AVIONICS 1 and 2 Switches – OFF.
6. Volt/Ammeter – SELECT ALT and verify alternator load is 75 amperes or less. REDUCE LOAD as required to prevent battery discharge.

If GENERATOR OFF annunciator is illuminated and STBY ELEC PWR INOP annunciator is not illuminated:

3. Perform steps 4, 5, and 6 above.

If GENERATOR OFF annunciator is extinguished and STBY ELEC PWR INOP annunciator is illuminated:

3. STBY PWR Switch – OFF, then ON.
4. STBY ELEC PWR INOP Annunciator – CHECK extinguished.

If STBY ELEC PWR INOP annunciator remains illuminated:

5. STBY PWR Switch – OFF.
6. Flight – COMPLETE utilizing primary power.

NOTE

If the STBY ELEC PWR INOP annunciator illuminates, the alternator system may still be operational. A bus voltage surge may have temporarily tripped the ACM (alternator control module). If so, the ACM can be restored by cycling the standby power switch.

SECTION 4 NORMAL PROCEDURES

AFTER ENGINE START

1. STBY ELEC PWR INOP Annunciator – Verify ON.
2. STBY PWR Switch – ON – Note slight decrease in generator load to signal load sharing.
3. STBY ELEC PWR INOP Annunciator – Verify OFF.

BEFORE TAKEOFF

The following functional check of the standby electrical system should be accomplished on the first flight of the day before takeoff, and must be completed prior to any icing flight.

1. Standby Power Switch – ON
2. Generator – LOAD to approximately 30 amps (use taxi lights, if required), but not more than 60 amps.
3. Volt/Ammeter – SELECT ALT position and verify alternator output is approximately 10-20% of the generator load.
4. Start/Gen Switch – OFF.
5. GENERATOR OFF Annunciator- VERIFY ON
6. Volt/Ammeter – CHECK alternator picked up generator load and alternator voltage is approximately 28 volts.
7. STBY ELECT PWR INOP Annunciator – VERIFY OFF.
8. Start/Gen Switch – GEN.
9. GENERATOR OFF Annunciator- VERIFY extinguished.
10. Volt/Ammeter Selector Switch – RETURN to BATT position.

NOTE

The STBY ELEC PWR INOP Annunciator will not illuminate, except in the event of a broken alternator drive belt, an electrical malfunction in the standby electrical system, or the Standby Electrical Switch is OFF.

Engine Shutdown

The standby alternator receives field current from the KEEP ALIVE 2 circuit or the CLOCK Circuit, so in an emergency condition, the standby alternator can be brought on line without turning on the battery switch. Normal engine shutdown procedures call for turning the standby power switch off prior to shutting the engine down and turning the battery switch off. If the standby power switch is inadvertently left on, several of the red lights in the annunciator panel will remain illuminated after the battery switch is turned off. The illuminated annunciators serve as a reminder to turn off the standby power switch and thereby preclude draining the airplane's battery.

SECTION 5 PERFORMANCE

There is no change to the airplane performance when the standby electrical system is installed.