

PILOT'S OPERATING HANDBOOK
SUPPLEMENT

B&C Specialty Products
Standby Alternator System
Model BC425

FAA APPROVED
AIRPLANE FLIGHT MANUAL
SUPPLEMENT

for
CESSNA AIRCRAFT MODELS
210L, 210M, 210N
T210L, T210M, T210N and
P210N

Equipped with B&C Specialty Products
BC425 Standby Alternator System

MODEL NO. T210N

SERIAL NO. 210-63828

REGISTRATION NO. N2306D

This supplement must be attached to the Approved Airplane Flight Manual when the airplane has been modified by the BC425-1 Standby Alternator System in accordance with B&C Specialty Products STC No. SA00846WI.

The information contained in this supplement supersedes or adds to the basic Approved Airplane Flight Manual only as set forth herein. For limitations, procedures, performance, and loading information not contained in this supplement, consult the basic airplane flight manual.

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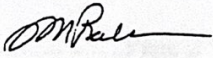
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Section I General

This system includes a standby alternator, regulator, standby alternator master switch and annunciator to permit flight operations to a suitable airport in the event of a primary alternator failure.

Section II Limitations

This system is to be used primarily in the event of primary alternator failure.

The standby alternator system is limited to 20 amps continuous output. However, transient operations of greater than 20 amps for no more than 5 consecutive minutes may be conducted.

Maintain a minimum of 2300 RPM for full output.

Section III Emergency Procedures

OPERATIONAL CHECK LISTS

ENGINE FAILURES

ENGINE FAILURE DURING TAKEOFF RUN/ROLL

Add item at end of procedure to read: STBY ALT master switch — OFF

ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

Add item at end of procedure to read: STBY ALT master switch — OFF

FORCED LANDINGS

EMERGENCY LANDING WITHOUT ENGINE POWER

Change item "Master Switch — OFF..." to read: Master Switch and STBY ALT master switch — OFF when landing is assured.

PRECAUTIONARY LANDING WITH ENGINE POWER

Change item "Avionics Power and Master Switches -- OFF" to read: Avionics Power, Master Switches and STBY ALT master switch — OFF when landing is assured.

FIRES

ENGINE FIRE IN FLIGHT (Except P210)

Change item "Master Switch -- OFF" to read: Master Switch and STBY ALT master switch — OFF

ELECTRICAL FIRE IN FLIGHT

Change item "Master Switch — OFF" to read: Master Switch and STBY ALT master switch — OFF

CABIN FIRE

Change item "Master Switch — OFF" to read: Master Switch and STBY ALT master switch — OFF

ELECTRICAL POWER SUPPLY SYSTEM MALFUNCTIONS

AMMETER SHOWS EXCESSIVE RATE OF CHARGE (Full Scale Deflection)

1. Primary Alternator — OFF
2. Primary Alternator circuit breaker — PULLED (If equipped with pullable breaker)
3. STBY ALT ON annunciator — Check ON or FLASHING
4. Nonessential Electrical Equipment — OFF
5. STBY ALT ON annunciator — Check ON (not Flashing)
6. AMMETER — Check NEAR ZERO (correct rate of charge)
7. Flight — TERMINATE as soon as practical

LOW-VOLTAGE LIGHT ILLUMINATES DURING FLIGHT (Ammeter indicates Discharge)

NOTE

Illumination of the Low-Voltage light may occur during low RPM conditions with an electrical load on the system such as during low RPM taxi. Under these conditions, the light will go out at higher RPM. The master switch need not be recycled since an over-voltage condition has not occurred to deactivate the alternator system.

NOTE

Some aircraft covered by this supplement have a High-Voltage light in lieu of the Low-Voltage light. The High-Voltage light illuminates any time the primary alternator is inoperative regardless of system voltage. The following procedure is also valid for these models.

1. Avionics Power Switch — OFF
2. Primary Alternator circuit breaker — CHECK IN
3. Master Switch (both sides) and STBY ALT master switch — OFF

NOTE

(P210 models only)

If operating in unpressurized flight, the dump valve control handle should be pulled to the dump position prior to shutting off all electrical power, to avoid the possibility of sudden pressurization of the cabin.

4. Master switch — ON
5. Low-Voltage (or High-Voltage) Light — CHECK OFF
6. Avionics Power Switch — ON

If Low-Voltage (or High-Voltage) light illuminates again:

7. Primary Alternator switch — OFF

8. Primary Alternator breaker — PULLED (if equipped with pullable breaker)
9. Battery Master — CHECK ON
10. STBY ALT master switch — CHECK ON
11. STBY ALT SENSE and STBY ALT circuit breakers — CHECK IN
12. STBY ALT ON annunciator — CHECK ON or FLASHING
13. If STBY ALT ON annunciator is flashing — REDUCE ELECTRICAL LOAD
14. STBY ALT ON annunciator -- ON (not flashing)
15. Ammeter — CHECK for normal indications

If STBY ALT ON annunciator does not light:

16. Non-essential Radio and Electrical Equipment — Off
17. Flight — TERMINATE as soon as practical

AMPLIFIED PROCEDURES

ELECTRICAL POWER SUPPLY SYSTEM MALFUNCTIONS

The BC425 Standby Alternator System is designed to provide partial electrical power for sustained flight in the event the primary alternator is forced off line by any type of malfunction. The BC425 is spline driven and has an independent over-voltage protected controller. It will not be affected by mechanical or over-voltage faults on the primary system. Activation of the BC425 is automatic and is annunciated to the pilot via the "STBY ALT ON" annunciator. A flashing annunciator indicates the load is more than the BC425's continuous load rating. In this case, turn off unnecessary loads until the annunciator does not blink but remains ON. The aircraft ammeter indicates battery charge/discharge rate and should be used as a cross-check of proper buss loads.

EXCESSIVE RATE OF CHARGE

In the event the primary alternator is disconnected by the pilot or the primary over-voltage sensor the BC425 should automatically produce partial electrical supply to allow flight to continue to a suitable destination. The High-Voltage light (if so equipped) will illuminate upon failure of the primary alternator regardless of system voltage. Check that the "STBY ALT SENSE" and "STBY ALT" circuit breakers are in and make sure the "STBY ALT" master switch is on. Use the STBY ALT ON annunciator to determine standby alternator system status.

INSUFFICIENT RATE OF CHARGE

The BC425 Standby Alternator System monitors the primary electrical system and activates itself in response to a drop in primary system voltage to 26.0 volts. If the "STBY ALT ON" annunciator illuminates, it may be assumed that the primary system has failed. Under conditions of heavy electrical load the BC425 will not be able to supply enough power to maintain system voltage above 25.0 Volts. If this occurs, the "STBY ALT ON" annunciator should be blinking indicating excessive load on the BC425. Reduce electrical load until the "STBY ALT ON" annunciator lights continuously.

Under low RPM conditions with electrical loads such as night taxiing operations it is possible to have a lighted Low-Voltage light (if so equipped), a lighted "STBY ALT ON" lamp and both alternators operating correctly. An increase in RPM will return the system to normal and no other pilot action is required.

During cruise operations with only the standby alternator operating, keep the electrical loads below the point where the "STBY ALT ON" annunciator blinks (20 amps). This will assure that the battery energy will be reserved for transient approach loads such as gear, flaps, landing light, etc.. These transient loads will not harm the BC425. Operation with the "STBY ALT ON" annunciator flashing must be limited to five continuous minutes. Operation beyond the point where the annunciator begins flashing may deplete the battery or damage the BC425. Use the aircraft's ammeter as verification of battery charge/discharge rate. During a night approach using low RPM and the standby alternator only, it would be normal for the battery to support a portion of the approach electrical loads and become partially depleted. Upon execution of a missed approach at night, shed as much electrical load as possible to allow the standby alternator to regain lost energy.

Section IV Normal Procedures

CHECKLIST PROCEDURES

BEFORE STARTING ENGINE or STARTING ENGINE (as applicable)

Change item "Master Switch — ON" to read: Master Switch and STBY ALT master switch — ON

BEFORE TAKEOFF

Add the following procedures after item "Throttle — 1700 RPM":

- e. Primary Alternator master switch — OFF (Battery remains ON)
- f. STBY ALT ON annunciator — Check ON
- g. Throttle — 2000 RPM
- h. Increase electrical load as necessary. Check STBY ALT ON annunciator — FLASHING.
- j. Decrease electrical load as necessary. Check STBY ALT ON annunciator — ON (not flashing).
- k. Throttle — 1000 RPM
- m. Primary Alternator master switch — ON
- n. STBY ALT ON annunciator — Check OFF

AMPLIFIED PROCEDURES

ALTERNATOR CHECK

Add the following to the existing section:

To verify standby alternator operation, the primary alternator may be temporarily switched off with the Alternator half of the Master switch to determine if the standby alternator is operative. If the primary alternator is OFF, the STBY ALT ON annunciator should be ON indicating that the

standby alternator controller has sensed the loss of voltage and has energized the standby alternator. At this point the engine RPM and alternator load should be increased until the STBY ALT ON annunciator flashes. The flashing annunciator indicates the standby alternator is supplying in excess of its rated load (20 amps). This positively verifies the standby alternator operation. The throttle should then be reduced and the primary Alternator switched ON. The STBY ALT ON annunciator should extinguish when the primary alternator is ON. Adjust electrical system loads to normal.

Note

The throttle may have to be increased to approximately 2000 RPM and the electrical loads increased using landing lights, pitot heat, Prop de-ice or other large loads to achieve the Flashing annunciator. The annunciator should flash at or above 20 amps. This 20 amp value cannot be determined by the aircraft's ammeter but must be estimated based on the current requirements of individual items of equipment. If the flashing annunciator cannot be achieved at approximately these values, consider the standby alternator inoperative until the cause is found.

**Section IV
Performance**

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