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Document Number 182SA

**FAA APPROVED  
AIRPLANE FLIGHT MANUAL  
SUPPLEMENT  
for  
CESSNA 182T, T182T, 206H and T206H**

**Equipped with B&C Specialty Products  
BC425 Standby Alternator System**

Airplane Model: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Registration Number: \_\_\_\_\_

This supplement must be attached to the FAA Approved Airplane Flight Manual when the airplane has been modified by the BC425-1 Standby Alternator System in accordance with Supplemental Type Certificate SA00673DE.

The information contained in this supplement supersedes or adds to the basic FAA 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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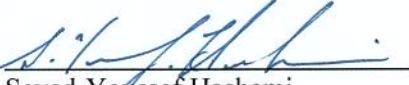
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Airplane Flight Manual Supplement to  
Cessna 182T, T182T, 206H, T206H Airplane Flight Manual  
Installation of a B&C Specialty Standby Alternator

STC SA00673DE

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## **Section 1**

### **General**

Installation of a B&C Specialty Products BC425 Standby Alternator System includes a standby alternator, regulator, standby alternator master switch STBY ALT SENSE and STBY ALT circuit breakers. and a STBY ALT ON annunciator light to permit flight operations to a suitable airport in the event of a primary alternator failure.

## **Section 2**

### **Limitations**

The standby alternator system is limited to 20 amps continuous output.

The engine must be set at a minimum of 2300 RPM for full output of the standby alternator.

## **Section 3**

### **Emergency Procedures**

#### **OPERATIONAL CHECKLISTS**

#### **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**

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 SYSTEMS MALFUNCTIONS**

### **AMMETER SHOWS EXCESSIVE RATE OF CHARGE (Full Scale Deflection)**

1. Primary Alternator – OFF.
2. STBY ALT ON annunciator – Check ON or FLASHING.
3. Non-essential Electrical Equipment – OFF.
4. STBY ALT ON annunciator – Check ON (not Flashing).
5. AMMETER – CHECK for normal indications (correct rate of charge).
6. Flight – TERMINATE as soon as practical.

### **LOW VOLTAGE ANNUNCIATOR (VOLTS) ILLUMINATES DURING FLIGHT (Ammeter indicates Discharge)**

1. Avionics Power Switch – OFF.
2. Alternator Circuit Breakers ALT FLD, STBY ALT SENSE and STBY ALT – CHECK IN.
3. Master Switch (both sides) and STBY ALT master switch – OFF.
4. Master Switch – ON.
5. Low-Voltage (or High-Voltage) Light – CHECK OFF.
6. Avionics Power Switch – ON.

### **If “VOLTS” (or High-Voltage) light illuminates again:**

7. Primary Alternator switch – OFF
8. Battery Master – CHECK ON
9. STBY ALT master switch – CHECK ON
10. STBY ALT SENSE and STBY ALT circuit breakers – CHECK IN
11. STBY ALT ON annunciator – CHECK ON or FLASHING
12. If STBY ALT ON annunciator – is flashing – REDUCE ELECTRICAL LOAD
13. STBY ALT ON annunciator – ON (not flashing)
14. Ammeter – CHECK for normal indications

### **If STBY ALT ON annunciator does not illuminate:**

15. Non-essential Radio and Electrical Equipment – OFF.
16. Flight – TERMINATE as soon as practical.

## **AMPLIFIED EMERGENCY 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 engine driven from an accessory drive pad 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 standby alternator continuous load rating. In this case, turn off unnecessary loads until the annunciator does not blink but remains on steady. The aircraft ammeter indicates battery charge/discharge rate and should be used as a cross-check of the proper electrical 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 “VOLTS” light 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 illuminates continuously. Under low RPM conditions, such as night taxiing operations, it is possible to have a lighted VOLTS annunciator and a lighted “STBY ALT ON” annunciator with both alternators operating correctly. An increase in RPM will return the system to normal and no other pilot action should be 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 wing flaps, landing light, etc. These transient loads will not harm the BC425. Operation with the “STBY ALT ON” annunciator flashing is not allowed. When the “STBY ALT ON” annunciator begins to flash reduce load as soon as possible by shedding all systems not essential for operational conditions. Operation beyond the point where the annunciator begins flashing may deplete the battery or damage the BC425. Use the aircraft ammeter as verification of battery charge/discharge rate. During a night approach using low RPM with 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 power as possible by turning off all non-essential equipment, to allow the standby alternator to regain lost electrical energy.

## Section 4

### 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 - - 1800 RPM”:

- e. Primary Alternator master switch – OFF (Battery remains ON).
- f. STBY ALT ON annunciator – Check ON.
- g. Throttle – 2300 RPM.
- h. Increase electrical load as necessary. Check STBY ALT ON annunciator FLASHING.
- i. Decrease electrical load as necessary. Check STBY ALT ON annunciator – ON (not flashing).
- j. Throttle – 1000 RPM.
- k. Primary Alternator master switch – ON.
- l. STBY ALT ON annunciator – Check OFF.

#### AMPLIFIED NORMAL PROCEDURES

##### **ALTERNATOR CHECK**

Add the following to the existing section:

To verify standby alternator operation, the primary alternator is temporarily switched off with the Alternator half of the Master switch to determine if the standby alternator is operative. With the primary alternator off, the “**STBY ALT ON**” annunciator should be illuminated 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 2300 RPM and the electrical loads increased using landing lights, pitot heat, prop de-ice or other large loads to achieve the flashing “**STBY ALT ON**” annunciator. The annunciator should flash at or above 20 amps. If the “**STBY ALT ON**” annunciator cannot be made to flash at this engine RPM, electrical load and Ammeter reading, consider the standby alternator inoperative until the cause is found.

## **Section 5**

### **Performance**

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

## **Section 6**

### **Weight and Balance**

The BC425 Alternator system adds **6.8** pounds of weight to the aircraft. The BC425 alternator is installed at longitudinal arm **5.0** and weighs **5.8** pounds. The BC203-2D regulator is installed at longitudinal arm **14.5** and weighs 1.0 pounds including the wiring. For current weight and balance data on the aircraft, please see the Weight and Balance section of the Airplane Flight Manual.

## **Section 7**

### **System Description**

The BC425 Standby alternator system consists of an engine driven 20-amp Alternator and a Regulator. The system is automatically engaged when the “**STBY ALT**” master switch is turned on and the system senses that the primary alternator system has failed. The standby alternator is active when the “**STBY ALT ON**” annunciator is illuminated. Should the “**STBY ALT ON**” annunciator be flashing, the pilot should reduce electrical load until the annunciator stops flashing. This system will provide 20 amps of continuous current to the aircraft electrical system.

## **Section 8**

### **Handling, Service, and Maintenance**

This system should be serviced and maintained according to **Virginia Aviation Instructions for Continued Airworthiness**, document number 182ICA.