Kelly Aerospace
Willoughby, OH
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FAA APPROVED
AIRPLANE FLIGHT MANUAL SUPPLEMENT
FOR
CESSNA 182S, 182T AND T182T WITH G1000
BACK-UP ALTERNATOR SYSTEM

Aircraft SN: _____

Aircraft Registration Number: _____

This supplement must be attached to the FAA approved flight manual when the Kelly Aerospace backup alternator system is installed in accordance with **STC SA02605CH**. The information contained in this document supplements or supersedes the basic manual only in those areas listed. For limitations, procedures, performance, and loading information not contained in this supplement, consult the basic FAA airplane flight manual.

TABLE OF CONTENTS **PAGE #**

FAA-Approved for Joseph Mies
Charles L. Smalley, Manager
Systems & Flight Test Branch
Chicago Aircraft Certification Office
ACE-115C, Federal Aviation Administration

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Rev.	Description	Author	Date
A	Initial Release	EP	6/3/08
B	Made additions in Sections 3 and 4 to better coincide with aircraft AFM	EP	7/25/08
C	Added T182T to title blocks and descriptions, split AFMS into two documents one for aircraft with G1000 and one for aircraft without G1000	EP	12/18/08
D	Addition of 182S to title blocks and descriptions	EP	1/5/11

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SECTION 1
GENERAL

This supplement supplies information necessary for the operation of the airplane when the optional Backup Alternator System is installed in accordance with FAA Approved Data, either STC or Original Equipment.

SECTION 2
LIMITATIONS

Back-up Alternator cannot be operated in conjunction with Primary Alternator

SECTION 3
EMERGENCY PROCEDURES

BACK-UP ALTERNATOR IN FLIGHT OPERATION with LOW VOLTAGE ANNUNCIATOR (VOLTS) ILLUMINATES DURING FLIGHT from PRIMARY ALTERNATOR

1) Should Primary Alternator Fail, as described in Section 3 – Emergency Procedures of the POH, move Primary Alternator Master Switch to OFF position. This is identical to Step 7 of the Low Voltage section of the POH. Proceed with these emergency procedures prior to returning to the main POH emergency procedures.
2) Move Back-Up Alternator Switch to Full Up (ON) Position.
3) Verify battery charge shown positive and Low Volts Annunciator not shown.
4) If low voltage annunciation continues move Back-Up Alternator Switch to Full Down (OFF) Position
5) Electrical Load – REDUCE IMMEDIATELY as follows:
    a. AVIONICS Switch (Bus 1) – OFF
    b. PROP HEAT Switch – OFF
    c. PITOT HEAT Switch – OFF
    d. BEACON Light Switch – OFF
    e. LAND Light Switch – OFF (use as required for landing)
    f. TAXI Light Switch – OFF
    g. NAV Light Switch – OFF
    h. STROBE Light Switch – OFF
    i. CABIN PWR 12 V Switch – OFF

j. COM1 and NAV1 – TUNE TO ACTIVE FREQUENCY

k. COM1 MIC and NAV1 – SELECT (COM2 MIC and NAV2 will be inoperative once AVIONICS BUS 2 is selected OFF)

l. AVIONICS Switch (Bus 2) – OFF (KEEP ON if in clouds)

m. Land as soon as practical, Make sure a successful landing is possible before extending flaps. The flap motor is a large electrical load during operation.

NOTE:

When AVIONICS BUS 2 is set to OFF, the following items will not operate:

Autopilot	Audio Panel
COMM2	NAV2
Transponder	MFD

BACK-UP ALTERNATOR IN FLIGHT OPERATION with AMMETER SHOWS EXCESSIVE RATE OF CHARGE or HIGH VOLTAGE from PRIMARY ALTERNATOR

1) Should Primary Alternator Fail, as described in Section 3 – Emergency Procedures of the POH, move Primary Alternator Master Switch to OFF position. This is identical to Step 1 of the high voltage section of the POH. Proceed with these emergency procedures prior to returning to the main POH emergency procedures.

2) Move Back-Up Alternator Switch to Full Up (ON) Position.

3) Verify battery charge is shown positive and excessive rate of charge (Full Scale Deflection) has been removed.

4) Should excessive rate of charge (Full Scale Deflection) still occur Move Back-Up Alternator Switch to Full Down (OFF) Position

5) Electrical Load – REDUCE IMMEDIATELY as follows:

   a. AVIONICS Switch (Bus 1) – OFF

   b. PROP HEAT Switch – OFF

   c. PITOT HEAT Switch – OFF

   d. BEACON Light Switch – OFF

   e. LAND Light Switch – OFF (use as required for landing)

   f. TAXI Light Switch – OFF

g. NAV Light Switch – OFF

h. STROBE Light Switch – OFF

i. CABIN PWR 12 V Switch – OFF

j. COM1 and NAV1 – TUNE TO ACTIVE FREQUENCY

k. COM1 MIC and NAV1 – SELECT (COM2 MIC and NAV2 will be inoperative once AVIONICS BUS 2 is selected OFF)

l. AVIONICS Switch (Bus 2) – OFF (KEEP ON if in clouds)

m. Land as soon as practical, Make sure a successful landing is possible before extending flaps. The flap motor is a large electrical load during operation.

NOTE:

When AVIONICS BUS 2 is set to OFF, the following items will not operate:

Autopilot	Audio Panel
COMM2	NAV2
Transponder	MFD

SECTION 4
NORMAL PROCEDURES

BACK-UP ALTERNATOR BEFORE FLIGHT CHECKLIST

1) Start aircraft as normal with Back-Up Alternator Toggle Switch in the Full Down (OFF) Position. When normal checklist is complete proceed to Back-Up Alternator checklist.

2) Move Primary Alternator Master Switch to OFF position

3) Verify battery charge shown negative

4) Move Back-Up Alternator Switch to Full Up (ON) Position

5) Verify battery charge shown positive and Low Volts Annunciator not shown

6) Move Back-Up Alternator Switch to Full Down (OFF) Position and Close Switch Guard

7) Move Primary Alternator Master Switch to ON position

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SECTION 5

PERFORMANCE

The performance of the aircraft is not affected with the Back-Up Alternator System Installed

SECTION 6

LOADING INFORMATION

Factory installed or aftermarket installed optional equipment is listed in the weight and balance section of this Pilots Operating Handbook, or Aircraft Flight Manual.

SECTION 7
DESCRIPTION AND OPERATION OF THE BACK-UP ALTERNATOR SYSTEM

Description
The Back-Up Alternator System consists of 95 Amp Alternator, 2 relays, drive system, voltage regulator, and switches. The 95 Amp Alternator is mounted to the front pilot side of the engine is identical to the primary 95 Amp Alternator. The alternator is belt driven. The drive pulley is mounted to the starter gear flywheel on the front of the engine.

The 95 Amp Back-Up alternator can be utilized to power the main aircraft bus in the event of a primary alternator failure.

Operation
The Back-Up alternator is always regulated even when it is not in use. The system is setup in a manner that will not allow both alternators to be on the main bus at the same time. To switch the Back-Up alternator onto the main bus the Back-Up alternator switch must be toggled to the Full-Up (ON) position. This in itself will not put the Back-Up alternator on the main bus. The Primary Alternator Master Switch must be toggled to the OFF position to allow the relays to close and move the Back-Up alternator to the Main Bus. Refer to Section 3 for the checklist to operate the Back-Up alternator correctly. There are two fuses in the system, they are mounted in the engine compartment. The 5 amp fuse controls the power to the voltage regulator and the 2 amp fuse controls the power to the change over relay.