

EXTERNAL POWER - MAINTENANCE PRACTICES

1. Description and Operation

- A. The external power system supplies electrical power for starting the engine and for ground operation of the airplane's electrical system. The external power system consists of the following components:
- (1) Receptacle and Shield Assembly - This receptacle is mounted on an engine mount bracket and provides the means to connect external electrical power to the airplane.
 - (2) Ground Power Monitor - This component is mounted in the upper right portion of the electrical power box and has over-voltage and polarity sensing. The external power monitor will open the circuit if any of the following conditions occur:
 - (a) The external power source connected to the receptacle is above 31.5 VDC, +0.5 or -0.5 VDC.
 - (b) The external power source connected to the receptacle is below 24.5 VDC, +0.5 or -0.5 VDC.
 - (c) External power is connected with the external power switch actuated.
 - (d) Polarity is reversed.
 - (3) External Power Contactor - This relay is mounted in the electrical power box and opens or closes to supply external power to the airplane upon command from the control switch.
 - (4) Switch - The external power switch is a three-position switch (OFF/STARTER/BUS) located above the cockpit circuit breaker panel. In the STARTER position, electrical power is supplied to external start contactor, but external start contactor will remain open until starter switch is placed in MOTOR or START position. With external start contactor closed, electrical power is then supplied to starter/generator for starting engine. The external power contactor will not close with external power switch in STARTER position. When the switch is placed in BUS position, the external power contactor will close, supplying electrical power for operation of the airplane's electrical systems.
- NOTE: External power must be plugged in and voltage set before external power switch is actuated.**
- B. Maintenance practices for the external power system consists of removal/installation of components, and ensuring all connections are clean and tight.

2. Components Removal/Installation

- A. Remove External Power Contactor (Refer to Figure 201).
- (1) Open left and right engine cowling. Refer to Chapter 71, Engine Cowling and Nose Cap - Maintenance Practices.
 - (2) Ensure that battery switch is in the OFF position.
 - (3) Disconnect battery.
 - (4) Remove screws securing cover and remove cover from electrical power box.
 - (5) Remove nuts, lock washers, washers, wires, and diode assembly from contactor. Tag wires for identification.
 - (6) Remove bolts securing contactor to electrical power box.
 - (7) Lower contactor down and out of bus bars and remove.
- B. Install External Power Contactor (Refer to Figure 201).
- (1) Position contactor with terminal posts through bus bars and install mounting bolts.
 - (2) Install wires and diode assembly on contactor terminals using, washers, lock washers, and nuts.
 - (3) Remove tags from wires installed for identification.
 - (4) Install cover on electrical power box.
 - (5) Connect battery.
 - (6) Close left and right cowling. Refer to Chapter 71, Engine Cowling and Nose Cap - Maintenance Practices.
- C. Remove Ground Power Monitor (Refer to Figure 201).
- (1) Open left and right engine cowling. Refer to Chapter 71, Engine Cowling and Nose Cap - Maintenance Practices.
 - (2) Ensure battery switch is in the OFF position.
 - (3) Disconnect battery.
 - (4) Disconnect ground power monitor electrical leads where possible. Remaining leads may be cut and spliced on installation.
 - (5) Remove screws and washers securing ground power monitor to electrical power box and remove ground power

monitor.

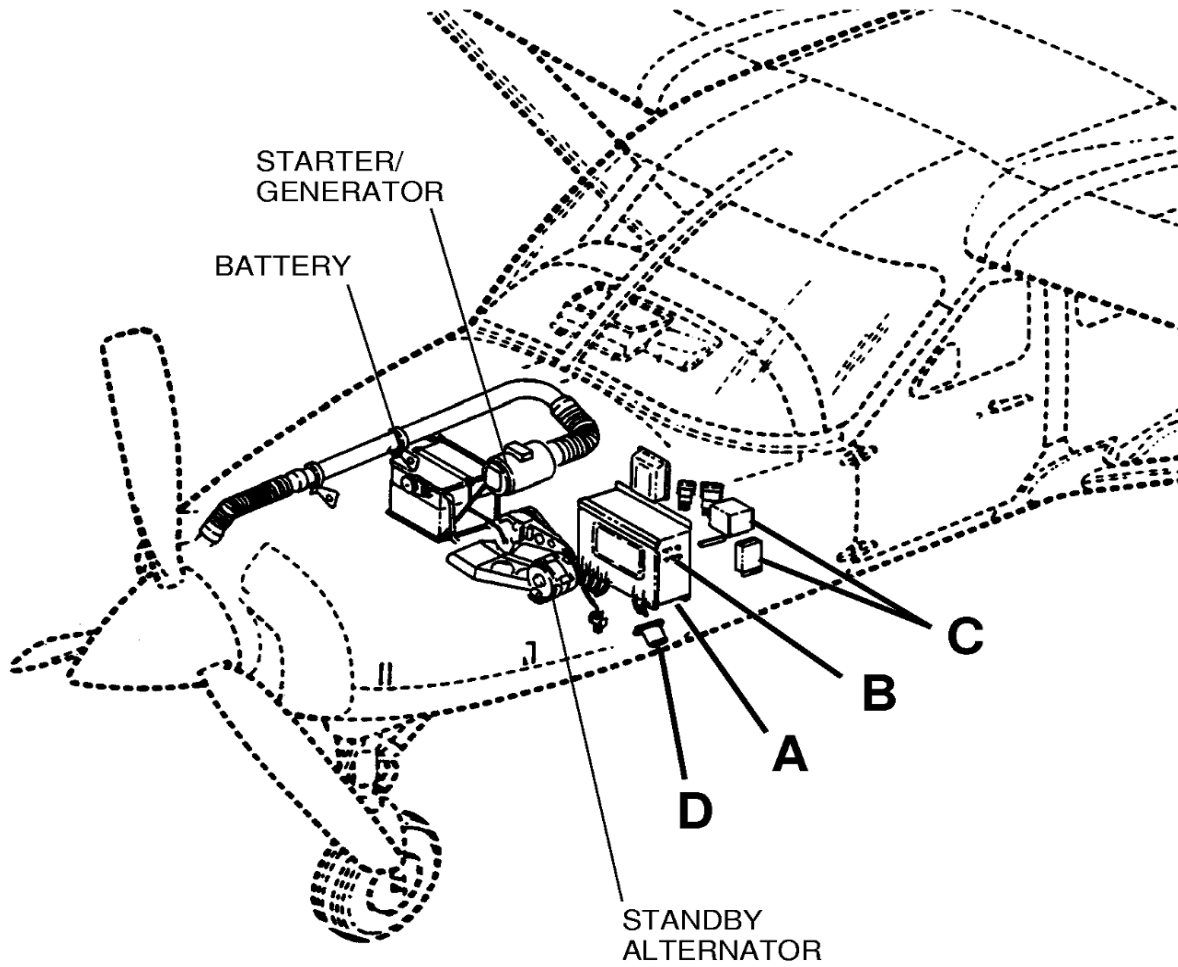
- D. Install Ground Power Monitor (Refer to Figure 201).
 - (1) Position ground power monitor in electrical power box and secure with washers and screws.
 - (2) Connect electrical leads or splice as necessary.
 - (3) Install electrical power box cover.
 - (4) Connect battery.
 - (5) Close left and right cowling. Refer to Chapter 71, Engine Cowling and Nose Cap - Maintenance Practices.
- E. Remove External Power Receptacle (Refer to Figure 201).
 - (1) Open left and right cowling doors. Refer to Chapter 71, Engine Cowling And Nose Cap - Maintenance Practices.
 - (2) Slide protective rubber boot from small terminal and remove hardware securing single wire to terminal. Remove wire from terminal.
 - (3) Remove cover, nut and star washer securing large wires to terminal. Remove large wires from terminal.
 - (4) Remove hardware securing ground strap to terminal.
 - (5) Remove nuts, screws and washers securing shield assembly and external power receptacle to engine mount bracket. Remove from airplane.
- F. Install External Power Receptacle (Refer to Figure 201).
 - (1) Install shield assembly and external power receptacle to engine mount bracket using nuts, washers and screws.
 - (2) Reattach ground strap to terminal.
 - (3) Install large wires to terminal and secure using nut and star washer. Install cover over terminal end to prevent possible arcing.
 - (4) Reattach single wire to terminal terminal using lock washer and nut. Slide protective rubber boot over terminal end to prevent possible arcing.
 - (5) Close left and right cowling. Refer to Chapter 71, Engine Cowling and Nose Cap - Maintenance Practices.

3. Electrical Power Box Fireproof Coating Inspection and Repair

- A. Fireproof Coating Inspection and Repair.
 - (1) Inspect exterior of electrical power box for paint which has peeled, blistered, or seperated.
 - (2) If loose areas are found, repair as follows:
 - (a) Sand out damaged area of coating.
 - (b) Clean sanded area with methyl propyl ketone.
 - (c) Use Scotchbrite pad and roughen surface to improve coating adhesion.
 - (d) Apply No.173 Intumescent paint; 0.030 inch minimum thickness and cover with Gray paint. Refer to Chapter 20, Standard Practices Airframe - General.
 - (e) Finish repair with two coats of Seal Gray modified urethane paint. Refer to Chapter 20, Interior and Exterior Finish - Cleaning and Painting.

Figure 201 : Sheet 1 : Electrical Components Installation

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Figure 201 : Sheet 2 : Electrical Components Installation

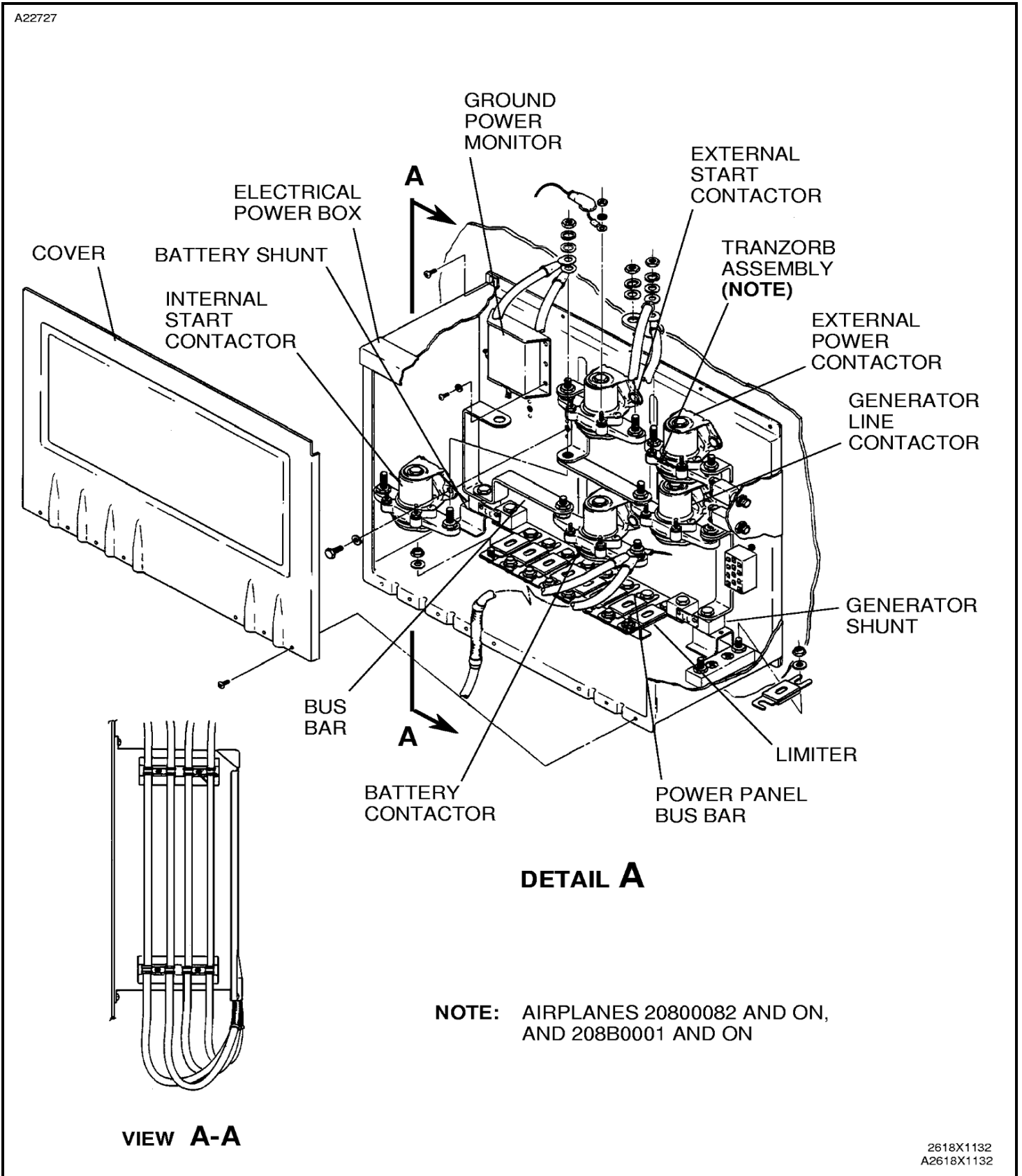
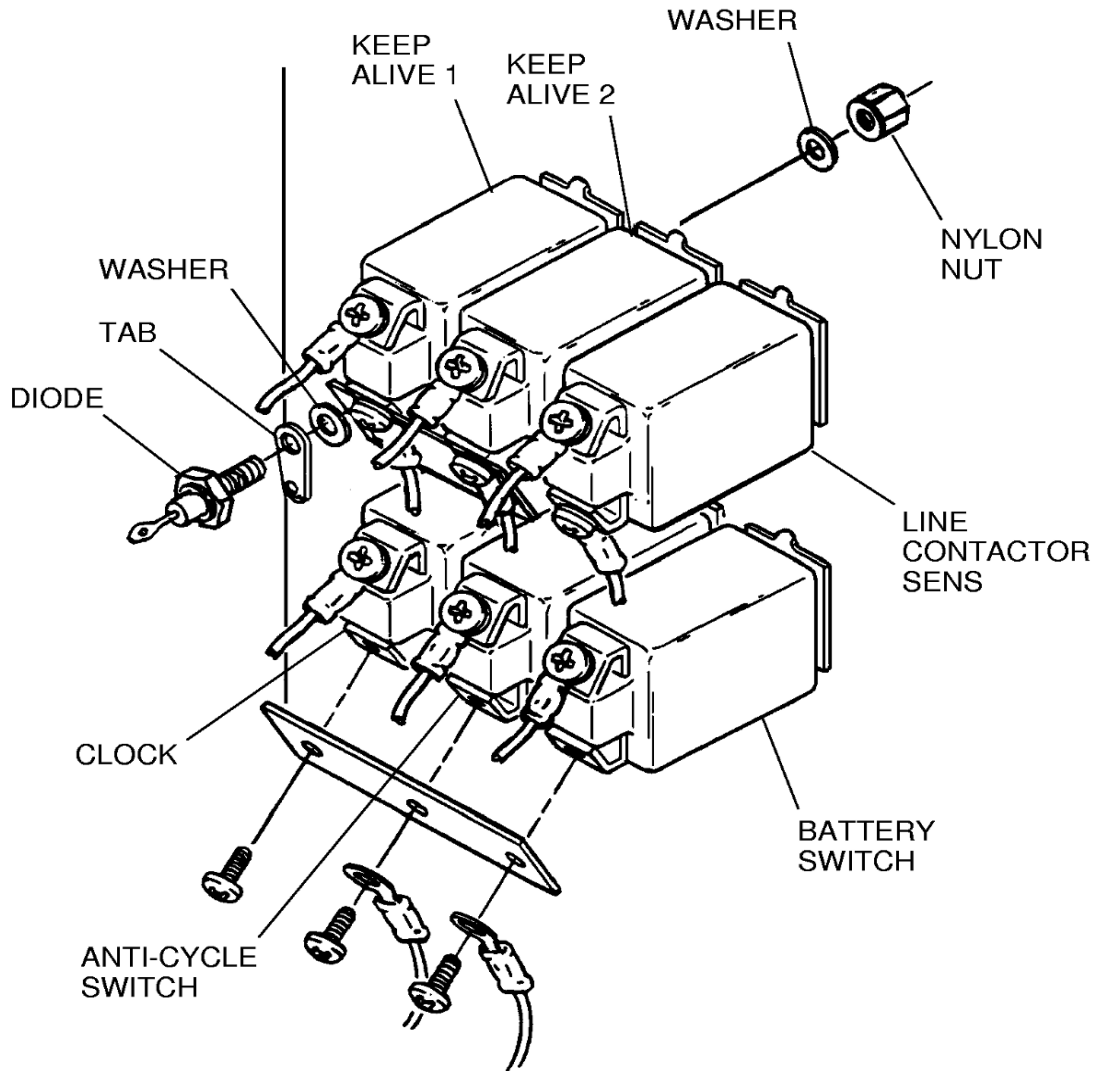


Figure 201 : Sheet 3 : Electrical Components Installation

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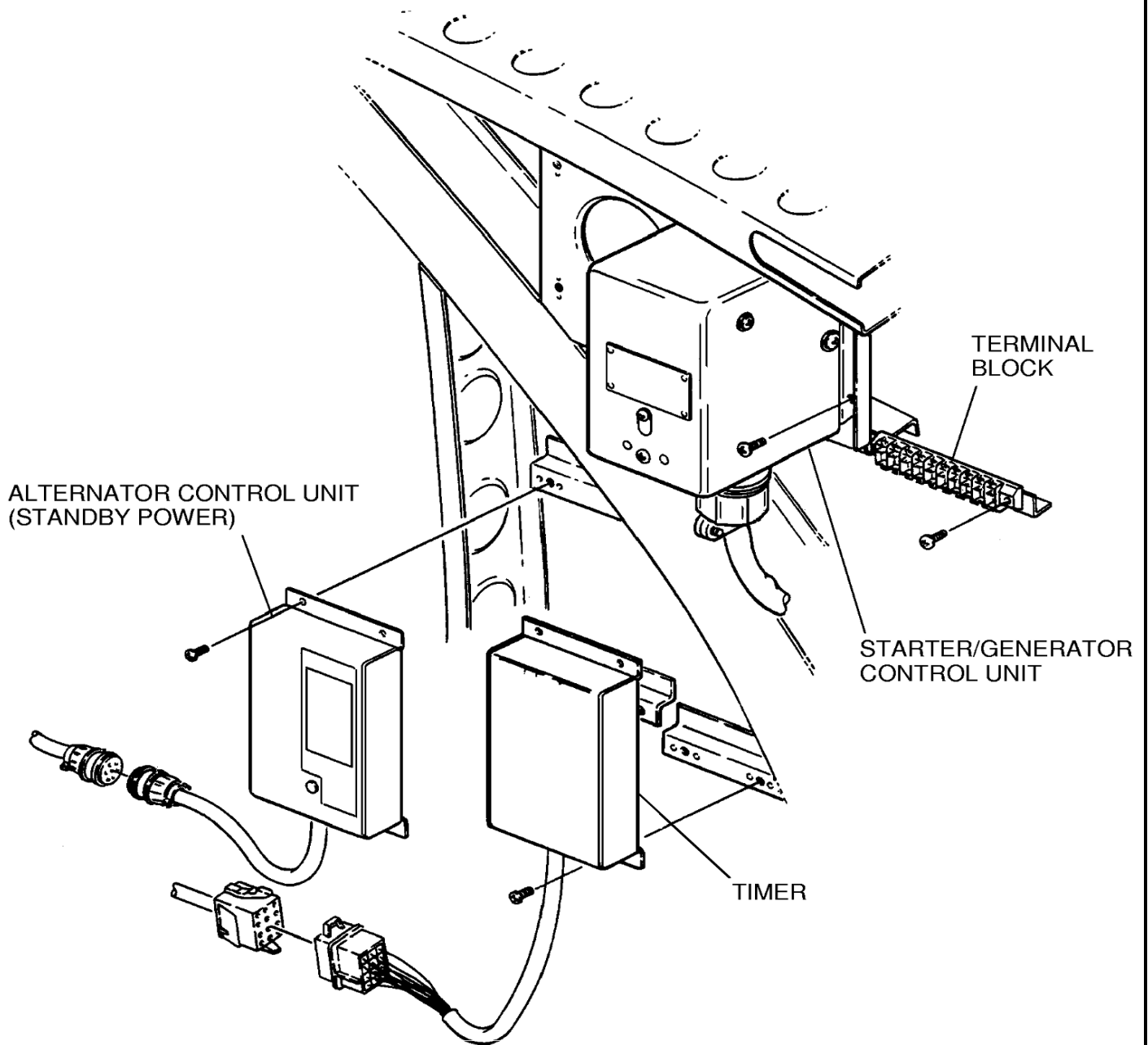


DETAIL B

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Figure 201 : Sheet 4 : Electrical Components Installation

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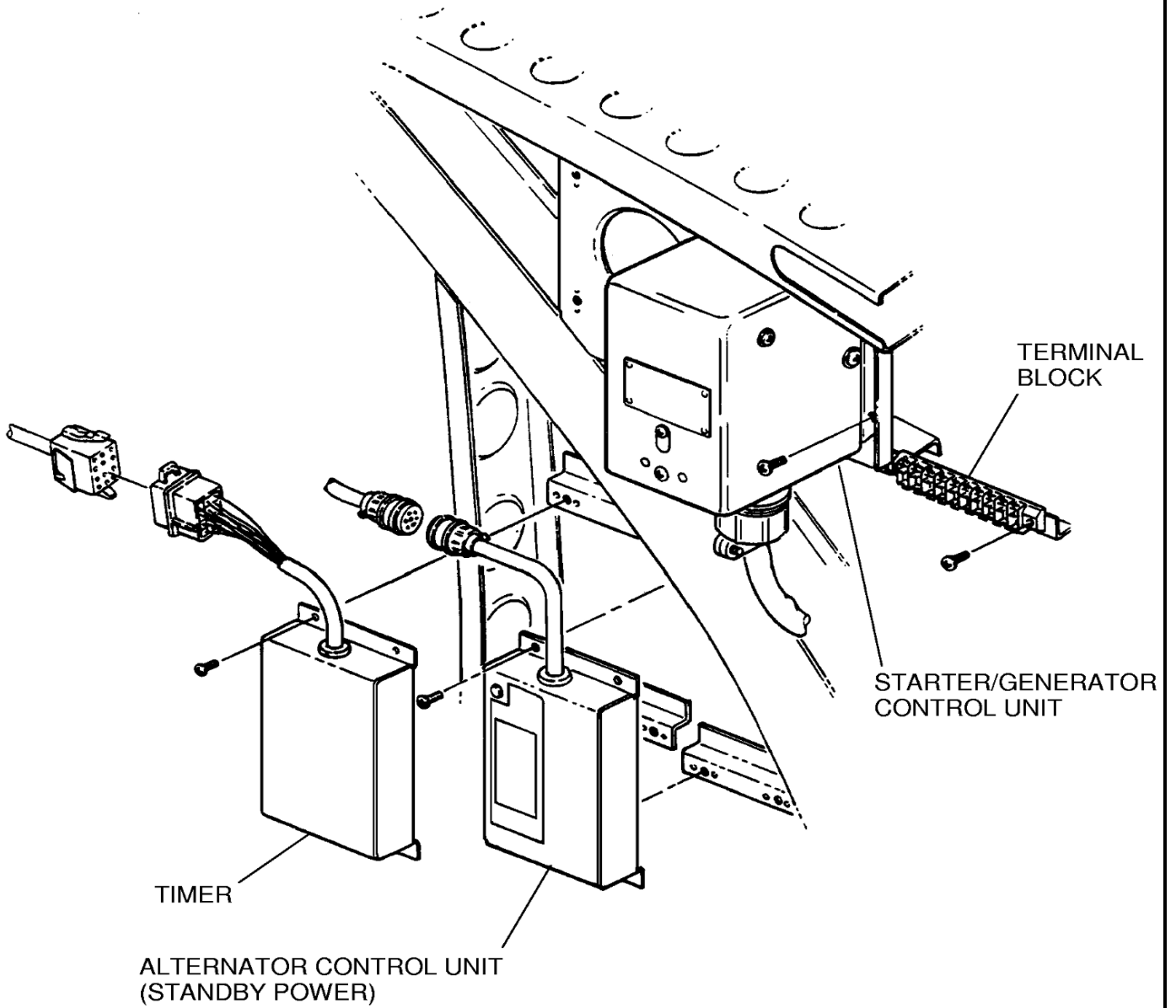
DETAIL C

AIRPLANES 20800001 THRU 20800067

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Figure 201 : Sheet 5 : Electrical Components Installation

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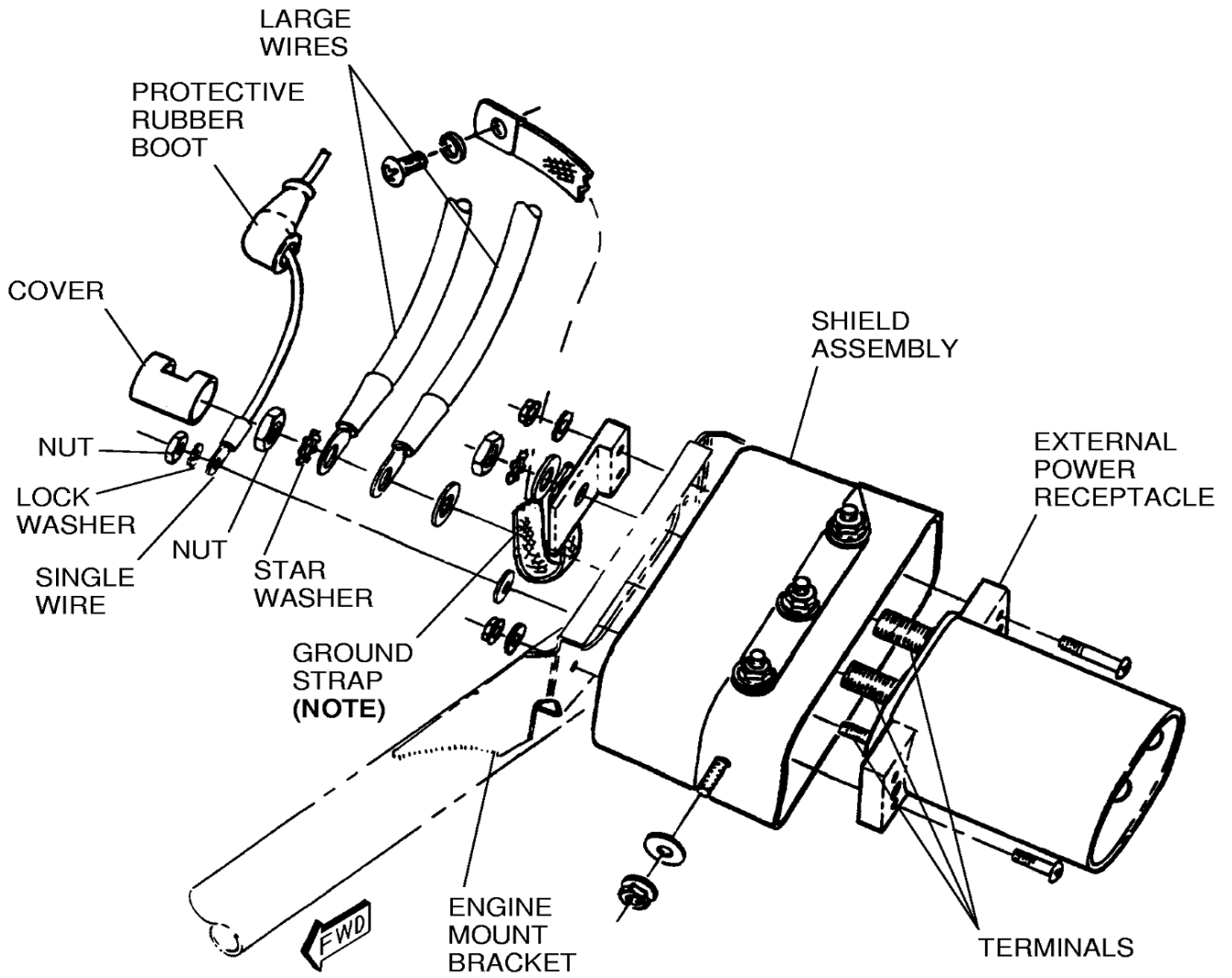
DETAIL C

AIRPLANES 20800068 AND ON,
AND 208B0001 AND ON

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Figure 201 : Sheet 6 : Electrical Components Installation

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DETAIL D

NOTE: AIRPLANES 20800068 AND ON,
AND 208B0001 AND ON

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