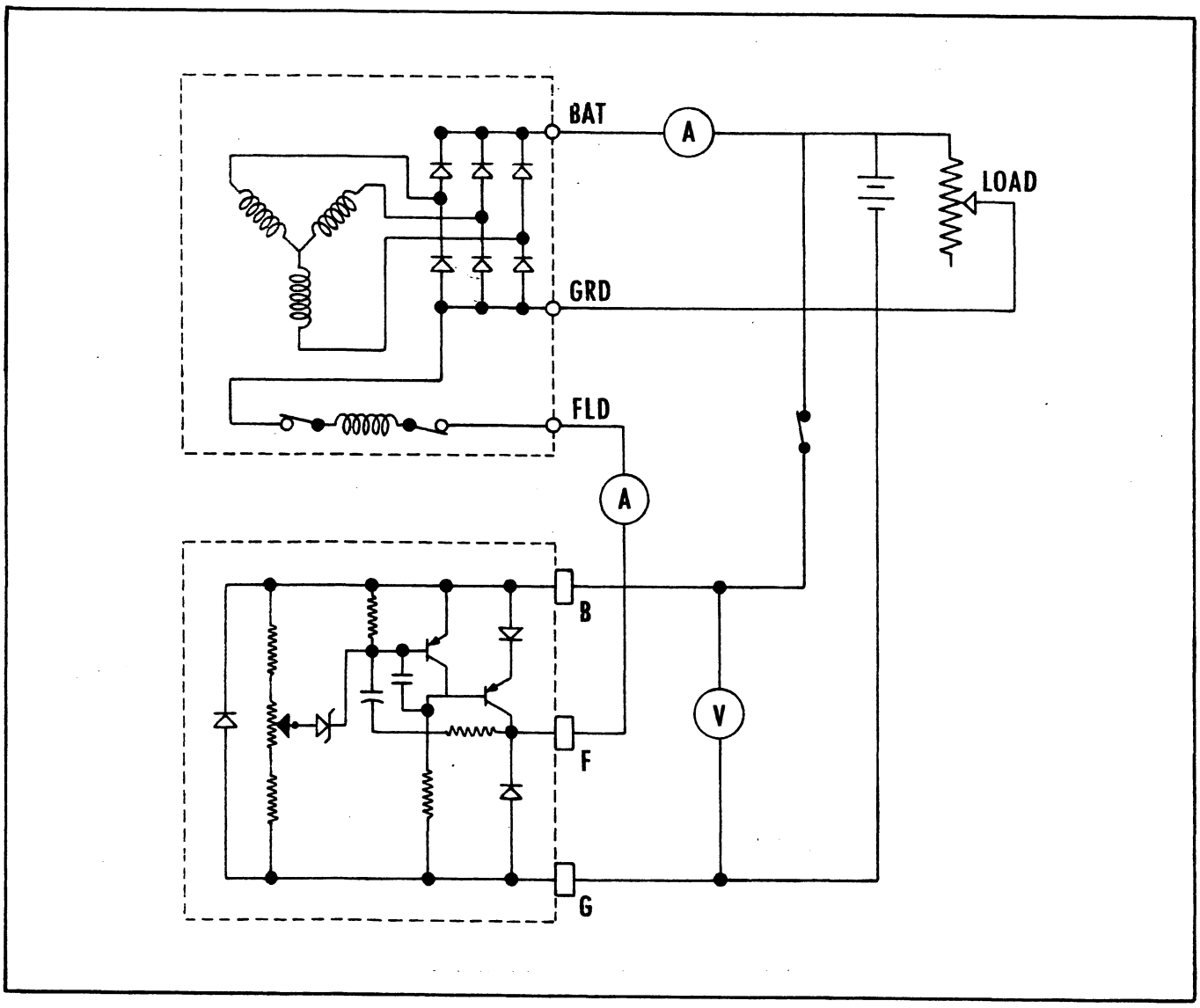

FIGURE 21

SOLID-STATE 28-VOLT VOLTAGE REGULATOR (C611004-0101 or C611004-0102)

DESCRIPTION

A solid-state voltage regulator (C611004-0101) is available to control 28-volt, negative ground aircraft alternators on all early 1978 152 Series, all 1978 172 and R172 Series and all early 1979 28-volt, 60-amp 188 Series Models. (Refer to the appropriate Parts Catalog for actual serialization.) Voltage regulation is accomplished by comparing the bus voltage to a precision internal reference voltage and supplying current to the field of the alternator in order to keep the bus voltage at its specified value, independent of load, speed and temperature. All components of the regulator are conservatively rated in order to provide the maximum reliability and safety. The C611002-0105 transistorized regulator may be used as an alternate if the C611004-0101 regulator is not available.

Another 28-volt solid-state voltage regulator (C611004-0102) was introduced on all late 1978 152 Series, all late 1978 210 and P210 Series, mid 1979 188 Models and all early 1979 337 Series Models. (Refer to the appropriate Parts Catalog for actual aircraft serialization.) These two solid-state regulators are not interchangeable, the difference between the regulators is the preset voltage settings (see the "REGULATOR SPECIFICATIONS" Section in this manual for preset voltage setting differences).

SERVICE PROCEDURES

The solid-state voltage regulators (C611004-0101 and C611004-0102) are designed to be long lasting, trouble free regulators. The regulators should be considered non-repairable items and with most regulators contain-

ing only an internal voltage limiter adjustment. The following paragraphs define which regulators have a voltage limiter adjustment and which ones do not have.

Solid-state regulators having a regulator manufacturer's date prior to 4-1-78 are equipped with a voltage limiter adjustment pot. These units can be identified by a rubber plug-button installed in the voltage limiter adjustment access hole (See Figure 22).

On regulators with a manufacturer's date of 4-1-78 thru 8-1-78, the voltage regulator cannot be adjusted since the access hole and adjustment pot do not line-up. However, since some of these units were recycled by the manufacturer the access hole and adjustment pot may be lined-up. To determine if the unit can be adjusted, peal-up the manufacturer's decal and see if the access hole and adjustment pot align.

Regulators with a manufacturer's date of 8-1-78 and on, do have an aligning access hole and voltage limiter adjustment pot. Therefore, voltage adjustments can be made on these units. It is also necessary on these units to peel-up the manufacturer's decal to gain access to the adjustment pot.

VOLTAGE LIMITER ADJUSTMENT

To adjust the voltage limiter, refer to Figure 22 and proceed as follows:

1. To gain access to the voltage limiter adjustment screw, remove the rubber plug from the front of the regulator on units manufactured prior to 4-1-78, or carefully peel-up the manufacturer's decal on the front of the regulator on units with a manufacturer's date of 4-1-78 and on.

CAUTION

Use care not to bend the manufacturer's decal any more than necessary since after adjustment, the decal must be replaced to keep out moisture.

2. To adjust the voltage limiter insert a screwdriver, or Allen wrench, in the adjustment access hole and rotate counterclockwise to increase the voltage setting, or clockwise to decrease the voltage setting.

NOTE

The C611004-0101 voltage regulator has been preset at the factory to provide 27.7 $\pm$0.3 volts at 70°F and the C611004-0102 voltage regulator has been preset to provide 28.8 $\pm$0.3 volts at 70°F. Never shift the voltage setting more than 0.3 volts, from previous setting. Always allow an adequate time interval between each new voltage setting.

3. After readjusting the voltage limiter, replace the plug-button or using a good commercial grade of contact cement, reinstall the manufacturer's decal.

CAUTION

Decal should be reinstalled in such a manner to prevent moisture from getting into the adjustment access hole.

SHOP NOTES:

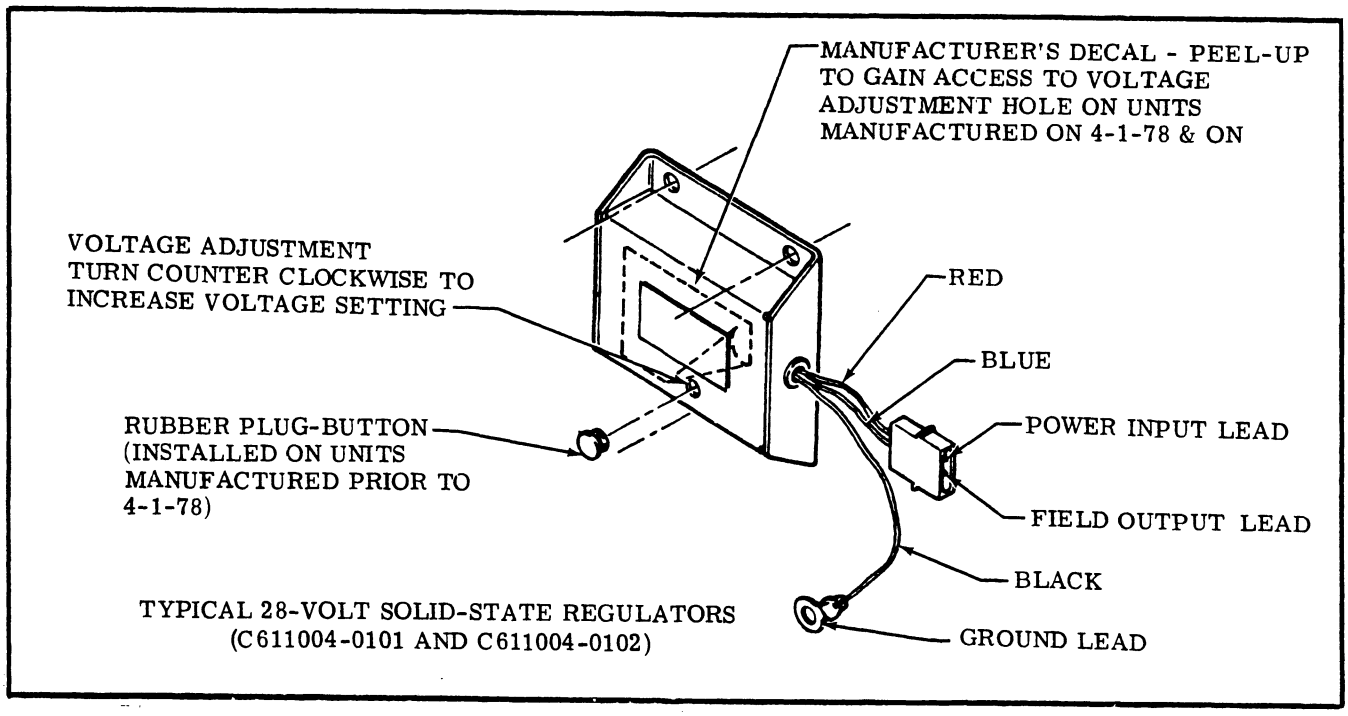

FIGURE 22

EXTERNAL FAULT ANALYSIS OF THE 28-VOLT SOLID-STATE VOLTAGE REGULATOR (C611004-0101)

The following table provides a pin-by-pin trouble shooting chart for circuit checking.

SYMPTOM	PROBABLE CAUSE
POWER INPUT LEAD (RED)	
a. Alternator will not put out. b. Alternator will not put out. c. Normal.	Open circuit. Short to ground. Short to bus.
FIELD OUTPUT LEAD (BLUE)	
a. Alternator will not be excited. b. Alternator will not be excited and regulator will be damaged. c. Alternator will be overexcited.	Open circuit. Short to ground. Short to bus.
GROUND LEAD (BLACK)	
a. Alternator will receive limited excitation, may cause overvoltage at light load. b. Normal c. Alternator will overexcite.	Open circuit. Short to ground. Short to bus.
Footnote: a. and c. will result in normal operation if the case is grounded.	