

SUBJECT: Lamar Technologies LLC (Electrodelta) voltage regulator part number VR515GA or VR515GA-1.
(Both regulators are the same except for the connector.)

REASON: To provide general instructions for bench testing and adjustment procedure.

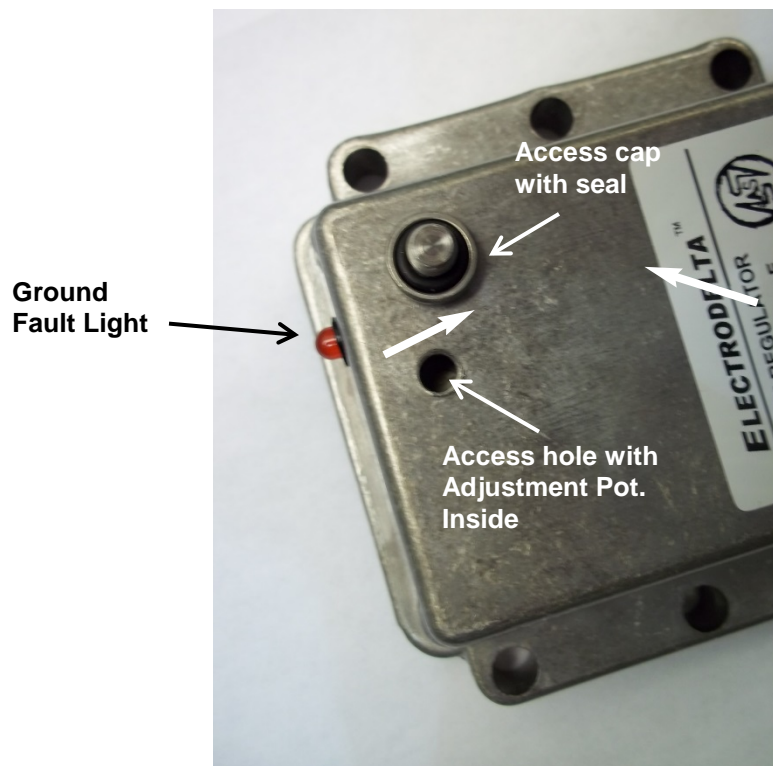
INFORMATION: This document is for reference only. Always refer to the aircraft/rotorcraft manufacturer's service and maintenance manuals concerning Instructions for Continued Airworthiness or test and adjustment information specific to the application.

TEST SET UP:

Voltage Regulator removed from Aircraft:

1. Remove the screw cap to gain access the internal voltage regulator adjustment potentiometer.

Fig. 1



TEST SET UP: (cont'd)

Voltage Regulator Removed from aircraft: (cont'd)

2. Assemble the test setup (harness) as shown in Figure 2. Use 20 to 22 gauge wire, common 28V rated switch and common 28V lamps or LEDs. Use any appropriately sized male or female pin to connect to the voltage regulator connector terminals. Be sure to insulate test connections enough to avoid touching adjacent terminals.
3. Attach an adjustable DC power supply capable of 0 to 34 Volts at 1.5 amps to the power input wires as shown in Fig. 2. Hook up the black ground wire coming from the box (not in the connector) to a grounding point on your test bench.
4. Observe the voltage regulator specifications in Table 1 and proceed to the tests below.
5. Use only a properly calibrated meter for all measurements which has an error tolerance no greater than 1/2% of full scale.
6. Use a **non-metallic**, flat blade, miniature screw driver for adjustments. Adjustment pot is a 360° pot. Do not force past limit as damage will occur.

Fig. 2 – Test Set Up

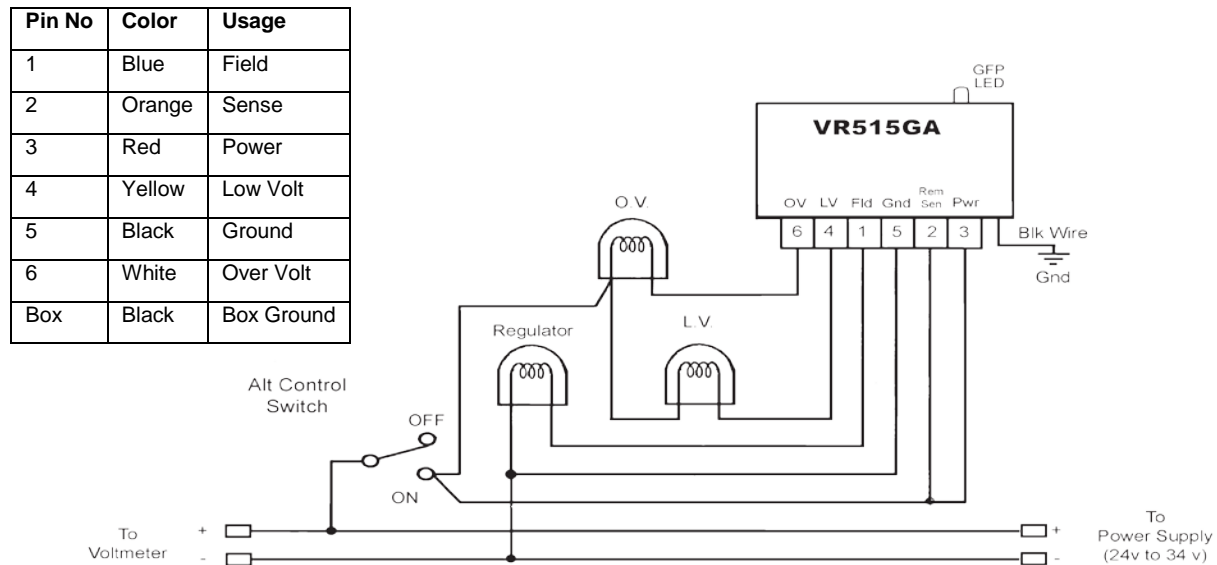


Table 1 - Specifications

Voltage Setting	28.7 volts ±.05 volts
Voltage Regulation Window	.25 to 1.00 volt width (not a limit) 28.25 to 28.75 volt midpoint (not a limit)
Field Current	4.0 amps continuous
Over Volt Trigger Point	32.0 to 33.4 volts
Low Volt Setting	At or below 24 volts (Low volt light on) At or above 25 volts (Low volt light off)

TEST AND ADJUSTMENT:

Voltage Regulator Removed from aircraft:

CAUTION:

WHILE PERFORMING THESE TESTS, DO NOT CONNECT OR DISCONNECT THE UNIT UNDER TEST WITHOUT FIRST TURNING OFF THE POWER SUPPLY OR DAMAGE MAY RESULT TO THE VOLTAGE REGULATOR AND POWER SUPPLY.

1. **Voltage Regulator:** Set Main Power Supply to 28.8 Volts (V). Adjust until the regulator light is approximately half illuminated. Adjust input voltage upward until the regulator light just goes **OUT**. This should be at approximately 29.5V. Readjust input voltage downward until the regulator light just goes to full **ON**. This should be at approximately 28V. This completes the checkout of the voltage regulation portion.
2. **Reset:** Momentarily turn the alternator control switch **OFF** then **ON** again. The regulator light should illuminate indicating a reset. Use this procedure for reset whenever necessary.
3. **Overvoltage:** With input power supply set to 28.8V, adjust it slowly up to 31.0V. The regulator light shall be **OFF**. Wait 10 seconds and reduce input voltage to 28.0V. The regulator light should go back **ON** indicating the unit did not trip.
4. **GFP and Overvoltage:** Raise input voltage to 33.4V. The regulator light shall go **OFF** and both the ground fault protection (GFP) and overvoltage (OV) lights should illuminate. Wait five seconds; reduce main supply voltage to 28.0V. The regulator light should remain **OFF** and GFP and OV lights should remain **ON** signifying trip. **Reset.** The regulator light should be back **ON** and the GFP and OV light should be **OFF**.
5. **Low Voltage Indication:** With input power supply set to 28.8V, observe the Low Voltage (LV) indicator light. It should be **OUT**. Reduce input voltage to 24V. The LV light should go **ON**. Return input voltage slowly back to 28.8V the LV light should go **OUT** at approximately 25.5V to 26.5V. This completes check out of the Low Voltage function.
6. **Output Ground Fault Protection (GFP):** With the main power supply set to 28.8V, (regulator light half illuminated) while monitoring the current output meter of the power supply, momentarily apply a short circuit from ground to the field output lead, (Blue). The regulator light should go **OUT** with no continuous indication of over current on the meter and the GFP indicator light on the unit should illuminate. Remove the short. The unit should remain **OFF** with the GFP indicator light illuminated. **Reset.** The GFP indicator light should go out and the regulator light should come back **ON** at half brilliance as before the test. This completes check out of the GFP function.
7. Inspect moisture seal on the screw cap and replace if necessary. Install the screw cap.