REPLACING PAGE ADDENDUM
Filing Instructions:

1. REMOVE FROM THE SECTION THE PAGES NUMBERED THE SAME AS THOSE ATTACHED TO THIS PINK SHEET.
2. INSERT THE ATTACHED PAGES INTO THE SECTION IN THEIR PLACE.
3. PLACE THIS PINK SHEET AHEAD OF PAGE 1 OF THE SECTION.

J86249A, B, AND C RECTIFIERS AND J86249E ELECTRONIC CONTROL OPERATING METHODS

1. GENERAL

1.001 This addendum supplements Section 169-618-303, Issue 4. The attached pages must be inserted in the section in accordance with the filing instructions above.

1.002 This addendum is issued to add a method of calibrating the OUT VOLTS meter in Part 4, ROUTINE CHECKS. This addendum does affect the Equipment Test List.

4. ROUTINE CHECKS

The following change applies to Part 4 of this section.

4.06—added.

Attached:

Page 7 dated October 1971, reissued
Page 8 dated October 1971, revised
Page 8.1 dated October 1971, added

Overload Limit OL Relay

(1) Rotate CUR MAX potentiometer fully cw.

(2) Operate the NORM-TEST 1 switch to TEST 1.

(3) Using the MAN potentiometer, adjust the rectifier output to zero.

Note: Decrease the load to the battery or increase the output of the other rectifiers or charge generators supplying it, as required, to avoid service reaction.

(4) Operate the ON-OFF switch to OFF.

(5) Connect the BAT and GRD terminals of the 35-type test set to terminals 3 and 2 of the AR ammeter relay shunt, respectively.

(6) Adjust the sliders of the 35-type test set for 25 ohms and connect terminals T and R together.

Note: It is important to keep the slider adjusted for a resistance of 25 ohms or more to prevent errors in shunt voltage readings.

(7) Position the high contact of the AR ammeter relay to the extreme right position.

(8) Operate the ON-OFF switch to ON.

(9) Using the MAN potentiometer, adjust the rectifier output current to 90 percent of rated rectifier output, as indicated by the OUTPUT CURRENT (AR) ammeter relay.

(10) Adjust the slider to give an indication of 9 milliamperes on the 15-milliampere scale. Leave the sliders undisturbed; 100 percent of full load will give an indication of 10 milliamperes; 110 percent of full load will give an indication of 11 milliamperes.

(11) Adjust the rectifier output, using the MAN potentiometer, to 110 percent of full load current.

Requirement: The OL relay shall operate and a plant alarm is given.

(12) If the requirement in (11) is not met, adjust the A potentiometer until the OL relay operates.

Maximum Current Limit

(13) Using the MAN potentiometer, adjust the rectifier output to 25 percent of full load, as indicated on the 35-type test set.

(14) Allow the battery to discharge to 90 percent of float voltage, or lower, by manually reducing the output of the other rectifiers or charging generators supplying it, or increasing the load.

(15) Operate the NORM-TEST 1 switch to NORM.

(16) Rotate the CUR MAX potentiometer slowly ccw until the rectifier output current stabilizes at approximately 105 percent of full load when the battery voltage is between 94 and 96 percent of float voltage.

Note: An output of 105 percent of full load is indicated by 10.5 milliamperes on the 35-type test set. As an alternate check, the KS-8039 volt-milliammeter, set to the 1.5 VOLTS DC range, connected to terminals 2 and 3 of the AR ammeter shunt, will indicate 0.263 volt for 105 percent of full load. Disconnect the KS-8039 volt-milliammeter.

(17) Operate the NORM-TEST 1 switch to TEST 1.

(18) Using the MAN potentiometer, adjust the rectifier output to zero and rotate the MAN potentiometer to NORM.

Note: Reduce the load to the battery or increase the output of the other rectifiers or charging generator supplying it, as required, to prevent service reaction.

(19) Operate the ON-OFF switch to OFF.

(20) Disconnect the 35-type test set from terminals 2 and 3 of the AR ammeter relay shunt.

(21) Operate the NORM-TEST 1 switch to NORM.

(22) Operate the ON-OFF switch to ON and restore the rectifier to normal float operation.

Anti-Hunt

(23) If a cyclic increase and decrease of the rectifier output current is observed while completing the routine check and adjustments, adjust the ANTI-HUNT potentiometer slowly until the hunting decreases to a minimum.

Note: In general, after the checks and adjustments are completed, the ANTI-HUNT potentiometer will operate most satisfactorily when left in the midrange position for a calcium battery load and in the three-fourths full cw position for a lead-antimony battery. If the ANTI-HUNT potentiometer is incapable of eliminating cyclic hunting of the rectifier output, use option A shown in SD-81129-01, if provided.

Overcharge Voltage

(24) Disconnect the external short circuit, located in the connecting circuit, across the OVER CHG potentiometer.

Requirement: The rectifier output voltage shall increase to the value obtained in 3.06.

(25) Connect the external short circuit, located in the connecting circuit, across the OVER CHG potentiometer.

4.05 ***OUTPUT CURRENT (AR) Ammeter Relay:*** Periodically check the setting of the high and low contacts of the AR ammeter relay as given in 3.04. To check the calibration of the OUTPUT CURRENT (AR) ammeter, proceed as follows:

(1) Operate the NORM-TEST 1 switch to TEST 1.

(2) Using the MAN potentiometer, adjust the rectifier output to zero.

Note: Decrease the load to the battery or increase the output of the other rectifiers or charging generators supplying it, as required, to prevent service reaction.

(3) Rotate the MAN potentiometer to NORM.

(4) Operate the ON-OFF switch to OFF.

(5) Operate the NORM-TEST 1 switch to NORM.

(6) Connect the KS-8039 volt-milliammeter, using the 1.5 VOLTS range, to terminals 2 and 3 of the AR ammeter shunt or to the SH+ and SH− jacks, if provided.

(7) Operate the NORM-TEST 1 switch to TEST 1.

(8) Operate the ON-OFF switch to ON.

(9) Rotate the MAN potentiometer slowly cw until the KS-8039 volt-milliammeter indicates 225 millivolts (0.225 volts).

Note: Increase the load to the battery or decrease the output of the other rectifiers supplying it, as required, to prevent service reaction.

Requirement: The OUTPUT CURRENT (AR) ammeter relay shall indicate 90 $\pm$3 amperes for the 100-ampere rectifiers or 180 $\pm$6 amperes for the 200-ampere rectifiers.

(10) Rotate the MAN potentiometer to NORM.

Note: Decrease the load to the battery or increase the output of the other rectifiers or charging generators supplying it, as required, to prevent service reaction.

(11) Operate the NORM-TEST 1 switch to NORM.

(12) Adjust the rectifier to assume the normal office load.

4.06 ***OUT VOLTS Meter:*** Periodically check the calibration of the OUT VOLTS meter as follows.

(a) Connect the KS-8039 volt-milliammeter, set to the 300 VOLT scale, across the OUT VOLTS meter terminals.

(b) Compare the indications of the OUT VOLTS meter and the KS-8039 meter. If they are not in agreement, adjust the OUT VOLTS meter to agree with the KS-8039 meter using the zero adjusting screw on the plant voltmeter. Place masking tape over the adjusting screw with a notation that an adjustment has been made and the date.

(c) Disconnect the KS-8039 meter.

5. TROUBLES

5.01 This rectifier consists of a main power circuit controlled through an electronic regulating circuit whose input is the output voltage of the main unit. In addition, the drop in voltage across the output ammeter relay shunt is introduced into the regulating circuit for the purpose of current limitation. The output of the regulating circuit is introduced into the main power circuit to effect the desired corrections in the power output. In the maintenance of intricate equipment, trouble must be localized in an orderly way. This is difficult in the case of a circuit having this feedback or loop arrangement because trouble anywhere in the loop will give faulty operation of other parts of the loop which may be trouble free. In this rectifier, provision has been made for opening the loop by means of switches which permit checking the performance of each major subdivision of the equipment until the trouble is located (see 4.03).

Caution: The MAN potentiometer should always be rotated completely ccw before operating a test switch to avoid excessive voltage and current.