

J87346 RECTIFIER
SEMICONDUCTOR-TYPE—AUTOMATIC REGULATION
OPERATING METHODS

1. GENERAL

1.01 This rectifier provides regulated dc power from an ac power source for use with TH-1 radio S-Bar Modulator. The rectifier is rated at 175 mA, -19 volts direct current. The input power requirement is single phase, 230V rms ± 5 percent, 60 Hz ± 3 percent. The rectifier will maintain regulation with a transient input of 230V ± 20 percent restored to ± 10 percent in 0.5 second, to nominal in 2 seconds. The rectifier will withstand a trouble condition input of 285V rms maximum for less than 1 second (508A plant) or 350V rms maximum for less than 0.1 second (520A plant).

Caution: Voltages inside the rectifier cabinet are over 150 volts to ground. Avoid all contact with terminals. Do not allow a test pick to touch two metal parts at the same time, as destructive or dangerous short circuits may occur.

1.02 This section does affect the Equipment Test List.

1.03 This circuit is also designed to provide connecting paths for the Receiver Modulator bias voltages.

1.04 Routine checks should be made during a period when they will cause the least unfavorable reaction to service.

1.05 The instructions are based on circuit schematic drawing SD-81984-01. For detailed description of the operation, see the corresponding circuit description.

1.06 For more detailed information on operation and maintenance of related equipment or apparatus, refer to the appropriate Bell System Practices.

2. LIST OF TOOLS AND TEST APPARATUS

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
—	3-Inch C Screwdriver
TEST APPARATUS	
KS-14510	Volt-Ohm-Milliammeter
KS-14603 L2A, 133	133 Ohm, 10 Watt ± 5 Percent Resistor (or equivalent)

3. OPERATION

3.01 Normal Settings of Controls for Automatic Operation:

- (1) The J2 and J1 connectors are properly connected.
- (2) The VOLTS ADJ (R6) potentiometer is adjusted for an indication of $19.0 \pm 0.1V$.

3.02 The rectifier is completely automatic in the regulation of output voltage and should require no day-to-day adjustment.

4. ROUTINE CHECKS

4.01 Electrolytic capacitors should be maintained in accordance with Section 032-110-701.

Caution: When using a portable instrument, the leads should be carefully examined to make sure the insulation is undamaged. The leads should be properly connected to the instrument before making any contact with the circuit to be tested. If connections are to be changed from one instrument range to another, the power should first be disconnected from the equipment being tested, or if test picks are being used, they

SECTION 169-651-301

should be removed from the equipment under test.

4.02 Periodically perform the following check.

Output Voltage Check

Note: The rectifier will not operate properly with loads less than 120 mA.

- (1) Remove the ac input from the rectifier.
- (2) Disconnect the DC OUTPUT (J3) connector.
- (3) Connect the KS-14510 volt-ohm-milliammeter, set to the 60 VOLTS DC range, to pin 1 and pin 7 of the DC OUTPUT (J3) connector. (Place a 133-ohm, 10-watt resistor across the KS-14510 volt-ohm-milliammeter leads.)
- (4) Connect the ac input to the rectifier.

Requirement: The KS-14510 volt-ohm-milliammeter indicates -19 ± 0.2 volts.

- (5) If the preceding requirement is not met, adjust the VOLTS ADJ (R6) potentiometer for the proper indication.
- (6) Remove the ac input power from the rectifier.
- (7) Remove the KS-14510 volt-ohm-milliammeter from the DC OUTPUT (J3) connector.
- (8) Connect the DC OUTPUT (J3) connector.
- (9) Connect the ac input to the rectifier.

5. TROUBLES

5.01 In general, the only items likely to become defective with use are the electrolytic capacitors and semiconductor stacks or diodes.

5.02 Should any component in the circuit (CP1) become defective, replace the complete circuit pack.

Trouble Chart

5.03 Should any of the following troubles develop, check the possible causes listed. If the trouble is not found, look for loose or open connections, or short circuits due to foreign matter lying across wiring terminals.

TROUBLE	POSSIBLE CAUSE
No direct current output	Failure or disconnection of the input power. Defective circuit pack (CP1).
Low dc voltage	Low input voltage. VOLTS ADJ (R6) potentiometer out of adjustment. Defective circuit pack (CP1).
High dc voltage	VOLTS ADJ (R6) potentiometer out of adjustment. Defective circuit pack (CP1).
Erratic dc current or voltage	Failure or disconnection of output loads. Loose input or output connections. Damaged CP1 card.