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# OPERATING INSTRUCTIONS

FOR

TRIPLETT MODEL 1183-S  
COMBINATION TESTER



THE TRIPLET ELECTRICAL INSTRUMENT CO.

MANUFACTURERS OF

PRECISION MEASURING INSTRUMENTS

BLUFFTON, OHIO

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# MODEL 1183-S COMBINATION TESTER

## DESCRIPTION

The Model 1183-S Combination Tester can be used for checking tubes, checking a. f. output, and making measurements of a. c. and d. c. voltages, direct current, resistance and capacity. In addition, it can be used as a free-point tester for making voltage and current measurements at tube socket terminals while the power supply to a radio set is turned on, without having to remove the radio set chassis from its cabinet.

Basically, the Model 1183-S Combination Tester consists of a highly accurate 100-microampere current meter which is connected automatically into the correct test circuits by means of clearly-labelled switches and jacks on the panel. When used as a voltmeter, this meter has a sensitivity of 10,000 ohms per volt.

### OFF OR NEUTRAL POSITIONS OF CONTROLS

After completing one type of measurement or after testing a tube, the controls should always be re-set to their OFF or neutral positions. This practice safeguards against damaging the instrument by using it before the controls have been properly set. The correct OFF or neutral positions for the Model 1183-S Combination Tester are as follows:

- A (LINE voltage CONTROL).....OFF
- B (CIRCUIT switch).....Position 1
- C (OHMS ADJ. control)..... 0
- D (Range selector switch).....Position D
- E, F, G, H, I, J, K, L and M (Switch levers).....Position 1

### TESTING TUBES

#### WITH THE MODEL 1183-S COMBINATION TESTER

- a Make sure that all controls are in their OFF or neutral positions.
- b Plug the power cord of the tester into a suitable a. c. power outlet (not over 125 volts a. c.).
- c Rotate LINE CONTROL A clockwise until the pointer of the LINE VOLTS meter is directly over the center line.
- d Locate on the card-type tube chart (on the tester panel) the type number of the tube to be tested.
- e Set the CIRCUIT B switch at position 1 (this position of B is used in the preliminary shorted-electrode test for any tube).
- f Set control C at the position specified in column C on the tube chart.
- g Set control D at the filament voltage value specified in column D on the tube chart.
- h Insert the tube in the correct socket on the tester panel. If the tube has a top cap, plug one end of the top cap lead into the jack located between the meter and the 7-prong socket, and attach the rubber-covered

clip to the top cap of the tube.

- i By referring to the tube chart, determine the first switch lever (starting from E) which is designated by an asterisk (\*), and set this lever to the position specified on the chart. A bright red glow of the neon lamp indicates that the filament of the tube has continuity. No glow means an open or burned-out filament.
- j Now set the remaining asterisk-marked levers to the positions specified on the tube chart, leaving all other levers still at position 1. (Asterisks indicate the levers which should be set before making the shorted-electrode tests). If the tube has a heater-type cathode, the neon lamp will now indicate the amount of filament-cathode leakage. The brighter the glow, the more leakage there is. No glow means negligible leakage.
- k Without disturbing the levers already set, move each of the remaining switch levers in turn from position 1 to position 2 and back again while tapping the tube with a finger and watching the neon lamp. A bright red glow when any of these levers is in position 2 indicates that the tube has shorted electrodes, and should be discarded.
- l If there are no shorted electrodes, proceed with the emission test. First set the remaining switch levers to the positions specified on the tube chart. A dash (—) on the chart means that the lever should be left at position 1, its neutral position.
- m Set the CIRCUIT B control at the position specified on the tube chart.
- n Re-adjust LINE CONTROL A, if necessary, to bring the line pointer back over the center line. The meter will now indicate the condition of the tube.
- o If the tube chart calls for a second or third test, repeat steps f, l, m and n for each extra test.
- p Remove the tube, then return all controls to the OFF or neutral positions.

**NOTES ON STEP d.** The letters G, GT or GT/G at the end of a commercial tube number merely designate the type and size of a glass envelope used on the tube. These letters are disregarded when looking up a tube on the tube chart.

**NOTES ON STEP h.** When inserting or removing a loctal tube from a socket, handle the tube as gently as possible. The tube prongs go directly through the glass seals, and excessive force may crack the glass. A slight sidewise pressure on the tube will release the lock and permit easy removal of the tube from its socket.

The top cap lead can be left in its jack and the clip end merely set aside while testing tubes without top caps, but this lead should always be removed before closing the cover of this tester.

When testing acorn-type tubes, plug type BN acorn tube adapter into the octal socket, then place the acorn tube in the adapter and attach the tester top cap clip to the metal cap on the adapter. If the tube has a top lead, push the adapter connector (attached to a lead coming out of the adapter) over this tube lead.

**NOTES ON STEP k.** A short momentary flash in the neon lamp, occurring while a lever is being moved between positions 1 and 2, is normal



and not to be considered as a short. This flash is due to charging of the condenser in the neon lamp circuit.

**PILOT LAMPS.** To check a pilot lamp or other type of lamp having a miniature base, set switch C to the correct voltage for the lamp, then hold the lamp in the special socket located in the center of the seven-prong socket on the tester panel. If the lamp glows with normal brilliancy now, it is good.

### VOLTAGE, CURRENT AND RESISTANCE MEASUREMENTS WITH THE MODEL 1183-S COMBINATION TESTER

- a Make sure that all controls are in their OFF or neutral positions.
- b Set the CIRCUIT B switch to the V-O-MA position.
- c Set switch D to an appropriate range for the measurement to be made. When in doubt, start with a higher range so as to protect the meter.
- d Plug the short probe of a red test lead into the red V-O-MA jack at the bottom center of the tester panel, and plug the short probe of a black test lead into the black V-O-MA jack.
- e If using the lowest ohmmeter range (500 OHMS), adjust OHMS ADJ. control C until, with the long-handled test probes *apart*, the meter pointer is exactly at 0 on the HI OHMS scale (at the extreme right on the upper ohmmeter scale). After this is done, shorting the test probes by bringing their metal ends together should bring the pointer down to 0 at the left of the LO OHMS scale.  
If using one of the three higher ohmmeter ranges, (150 M, 1.5 MEG. or 15 MEG.), adjust OHMS ADJ. control C until, with the test probes *shorted*, the meter pointer is exactly at 0 on the HI OHMS scale.
- f Hold the long-handled test probes on the terminals at which the measurement is to be made. For clip-on connections, push the alligator clips over the ends of the test probes. If using the free-point tester, plug the probes into the correct *black* free-point tester jacks.  
For d. c. voltage or current measurements, be sure to observe polarity. The red probe should go on the positive terminal, and the black probe should go on the negative terminal.

**CAUTION:** For milliammeter measurements, the tester must always be IN SERIES with the circuit. *Never connect a milliammeter across a voltage source or across a circuit.* Before making ohmmeter measurements, be sure no voltages exist in the circuit under test. External voltages may seriously damage the tester.

Use extreme caution when dealing with high-voltage circuits. Make connections only when the radio set is turned off.

- g Read the meter on the correct scale for the range being used.

### OUTPUT MEASUREMENTS WITH THE MODEL 1183-S COMBINATION TESTER

- a Make sure that all controls are in their OFF or neutral positions.
- b Set the CIRCUIT B switch at the V-O-MA position.
- c Set switch D at one of the lower A. C. voltage positions, such as 50 V

or 10 V.

- d Plug a pair of test leads into the two OUTPUT jacks.
- e Connect the test leads to the radio set terminals at which the a. f. output is to be measured.
- f Turn on the radio set, and proceed with aligning adjustments while watching the meter pointer. Change switch D to lower or higher voltage ranges as required.
- g If the a. f. voltage value is desired, read it on the A. C. scale exactly as for a. c. voltages.

### CAPACITY MEASUREMENTS WITH THE MODEL 1183-S COMBINATION TESTER

**IMPORTANT:** These instructions apply only to paper and mica condensers. Do not attempt to measure electrolytic condensers with this tester.

- a Make sure that all controls are in their OFF or neutral positions.
- b Plug the power cord of the tester into suitable power outlet.
- c Set the CIRCUIT B switch to the CAP. position.
- d Set switch D to any A. C. Voltage range.
- e Estimate the capacity value of the capacitor being measured, and connect between the  $\pm$  and either the .1 MFD., 1 MFD. or 10 MFD. jacks.
- f Adjust LINE CONTROL A until the pointer of the LINE VOLTS meter is at the center line.
- g Read the meter on the 0-10 A. C. scale, then refer to Table below to determine the capacity value corresponding to the meter reading.
- h If the resulting capacity value indicates that greater accuracy is obtainable with a different capacity range, repeat steps, d, f, and g for this new capacity range.

| METER<br>READING<br>ON 0-10<br>AC SCALE | CAPACITY VALUE IN MICROFARADS |       |                          |       |                          |       |
|---|-------------------------------|-------|--------------------------|-------|--------------------------|-------|
|   | .01 TO<br>.1 MFD.<br>RANGE    |       | .1 TO 1<br>MFD.<br>RANGE |       | 1 TO 10<br>MFD.<br>RANGE |       |
|   | 60 C.                         | 25 C. | 60 C.                    | 25 C. | 60 C.                    | 25 C. |
| 1                                       | .011                          | .011  | .10                      | .11   | .55                      | .75   |
| 2                                       | .022                          | .026  | .21                      | .26   | 1.10                     | 1.5   |
| 3                                       | .033                          | .041  | .31                      | .41   | 1.70                     | 2.3   |
| 4                                       | .045                          | .056  | .41                      | .56   | 2.30                     | 3.2   |
| 5                                       | .056                          | .071  | .51                      | .71   | 3.00                     | 4.0   |
| 6                                       | .066                          | .086  | .61                      | .86   | 3.70                     | 5.0   |
| 6.9                                     |                               | .100  |                          | 1.00  |                          |       |
| 7                                       | .077                          |       | .71                      |       | 4.60                     | 6.1   |
| 8                                       | .087                          |       | .81                      |       | 5.75                     | 7.2   |
| 9                                       | .097                          |       | .90                      |       | 7.20                     | 8.5   |
| 10                                      |                               |       | 1.00                     |       | 10.00                    | 10.00 |

Capacity test chart for use with the Model 1183-S Combination Tester. With testers designed for 60-cycle power, the 25-cycle column can be crossed out. With testers designed for 25-cycle power, the 60-cycle column can be crossed out.

## FREE-POINT TESTER MEASUREMENTS WITH THE MODEL 1183-S COMBINATION TESTER

- a Make sure that all controls are in their OFF or neutral positions.
- b Set all nine switch levers (E, F, G, H, I, J, K, L and M) to position 4, the uppermost position.
- c Remove from the radio set the tube at which measurements are to be made, and insert this tube in a corresponding socket on the panel of the tester. If the tube has a top cap, plug one end of the top cap lead into the jack located between the meter and the 7-prong socket, and attach the rubber-covered clip to the top cap of the tube.
- d Locate the adapter plug corresponding to the base of the tube, and place this plug on the adapter handle. (Aligning slots insure getting the adapter plug properly positioned. A locking catch holds the adapter plug once it is in position. To release this catch, press the metal button on the side of the adapter handle.)
- e Insert the assembled adapter unit into the empty socket in the radio set, and push the top cap clip for this socket (if present) over the button at the end of the green wire coming out of the adapter handle.
- f Locate the socket connection diagram for the tube being measured.
- g For voltage measurements between electrodes, measure between the numbered *black* jacks below the sockets on the tester panel, using the socket connection diagram to determine the correct numbers and the correct polarity for each measurement. For voltage measurements to ground, measure between one of the *black* jacks and the chassis of the radio set. For resistance measurements to ground, measure between one of the *black* jacks and the chassis of the radio set. For current measurements to an electrode, measure between *red* and *black* jacks having the *same* number, using the socket connection diagram to determine the correct polarity. CAUTION—The lead to the black jack should be inserted before and removed after the lead to the red jack. This prevents an open circuit to the electrode under test.

### MAINTENANCE OF 1183-S COMBINATION TESTER

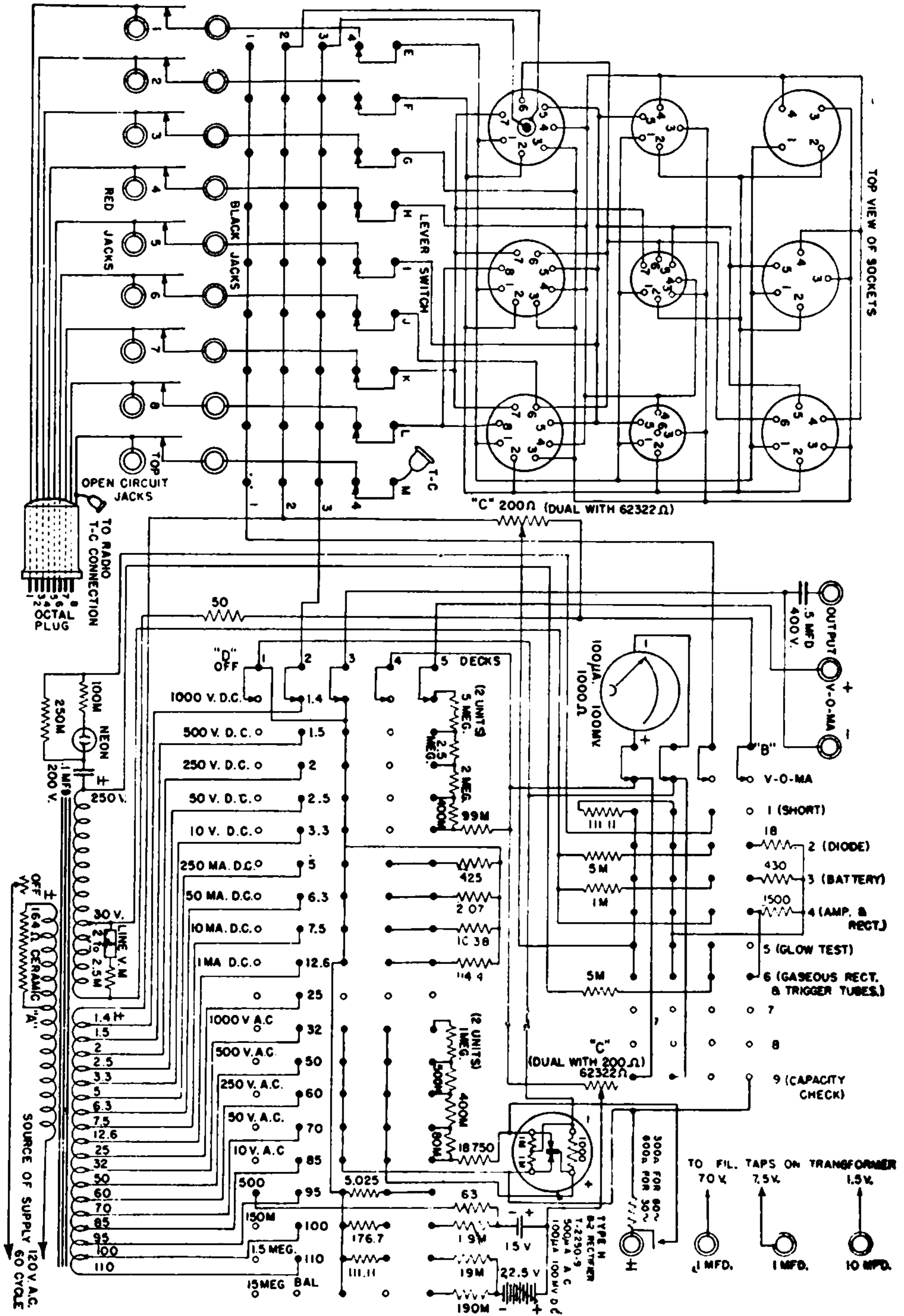
- a The two batteries and the type H plug-in-rectifier which may require replacement in this instrument are made accessible by removing the small panel which is fastened to the bottom of the case with four screws. Instructions for installing replacement batteries are printed directly on this panel. As these batteries drop in potential due to use or shelf depreciation, the OHMS ADJ. control will have to be turned farther clockwise (toward 100) each time the instrument is used. When the meter pointer cannot be brought to 0 on the upper ohmmeter scale by advancing the OHMS ADJ. control (C) all the way to 100 while using one of the ohmmeter ranges, the battery serving that range should be replaced.
- b The 500-ohm ohmmeter range employs a 1½ volt flashlight cell (size D),

which fits between spring brass terminals. Replacement is made simply by pulling out the old battery and pushing a new one into position.

c The three highest ohmmeter ranges (150-M, 1.5 Meg., and 15 Meg.) employ a 22½ volt "B" battery (Burgess No. 4156 or equivalent) which clamps to the back of the removable battery panel and requires soldered connections to its two terminals. To replace this battery, loosen or remove the two screws in the battery strap, remove the old battery, unsolder the battery leads from the terminal strip, and solder the leads of the new battery in place; set the new battery in position and tighten its clamping screws.

d The type H plug-in-rectifier unit is likewise accessible when the battery panel is removed. If the A. C. voltage ranges, the output ranges, and the capacity-testing ranges all fail to operate properly, but other ranges are satisfactory, replacement of the rectifier unit will in most cases clear up the trouble. Simply pull out the old rectifier unit, and plug the new one into the rectifier socket. A standard four-prong socket makes it impossible to insert the rectifier improperly.





1183-S WIRING DIAGRAM