

**BELL SYSTEM PRACTICES**  
**Outside Plant Construction**  
**and Maintenance**

**SECTION 686.076.1**  
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**AT&T Co Standard**

## **MEGGER TEST SETS**

### **LOW VOLTAGE TYPES**

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#### **1. GENERAL**

1.01 This section describes the 400-volt Megger Test Sets that are used primarily for measuring the insulation resistance of paper insulated conductors. The Megger 7679S Test Set and the Megger 9679S Test Set are described. If a large number of measurements are to be made and 115-volt ac power is available, the Megger 744 Rectifier described herein can be used to facilitate the work.

1.02 Information on the use of these sets is covered in other sections of the Practices.

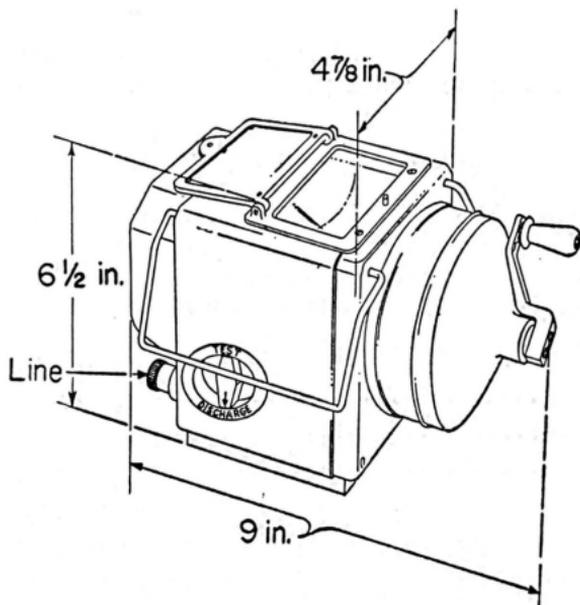
#### **2. PRECAUTIONS**

2.01 These meggers operate at voltages that are hazardous. They must be used only for those tests as indicated in the section covering the use of the meggers.

2.02 The meggers are precision instruments and should be handled with care at all times.

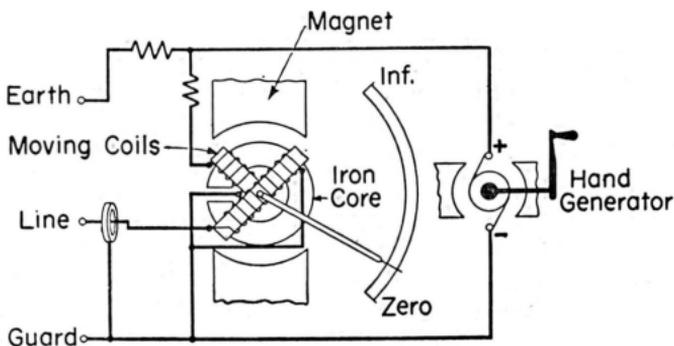
### 3. DESCRIPTION OF MEGGER 7679S TEST SET

3.01 The Megger 7679S Test Set is illustrated. It is contained in a black molded case. Earlier models of this set have die-cast aluminum cases. A lid protects the glass cover over the scale. The driving crank does not fold up but its size and shape are such that it is not in the way. The carrying handles are metal and fit together over the instrument or drop down out of the way when the instrument is in use.



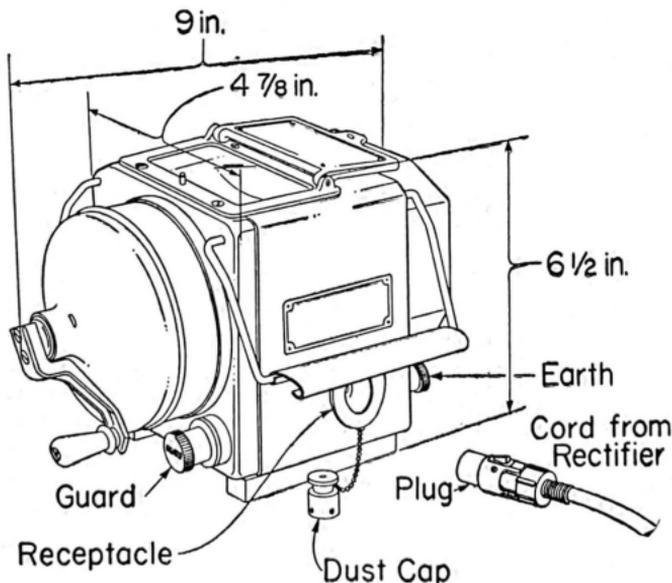
3.02 This is a direct reading megohmmeter calibrated 0-1000 megohms. The internal hand operated magneto generator provides a 400-volt dc potential. A centrifugal clutch connects the hand crank and the generator. Steady potential is obtained when the crank is turned at or above the "slip" speed of the clutch. The megger is equipped with EARTH, LINE and GUARD terminals and a discharge switch.

3.03 The schematic wiring diagram of the megger is shown in the following sketch.



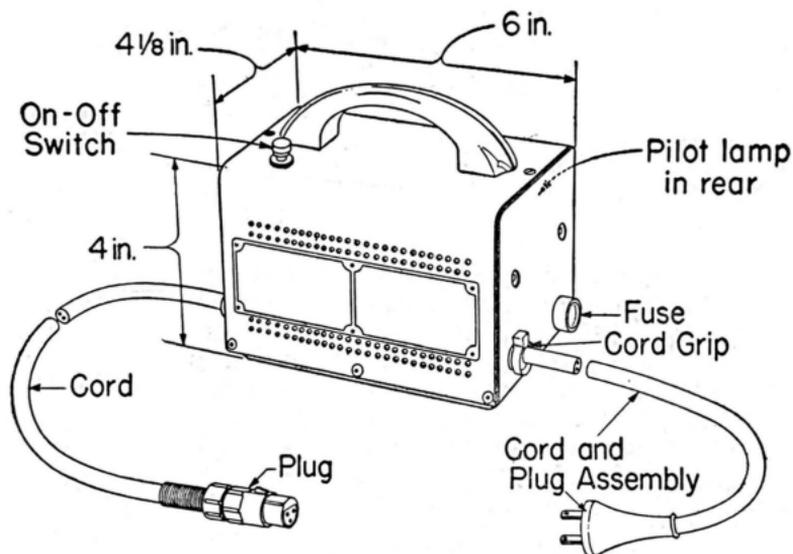
#### 4. DESCRIPTION OF MEGGER 9679S TEST SET

4.01 The Megger 9679S Test Set supersedes the Megger 7679S Test Set and is designed for operation with the Megger 744 Rectifier. In other respects it is similar to the megger described in Part 3. A receptacle is provided for connection to the rectifier plug as illustrated below and the circuit is so arranged that when the rectifier plug is inserted, the megger can be operated from the rectifier. The megger can be operated from its internal magneto-generator by disconnecting the cord and replacing the dust cap in the receptacle.



## 5. DESCRIPTION OF MEGGER 744 RECTIFIER

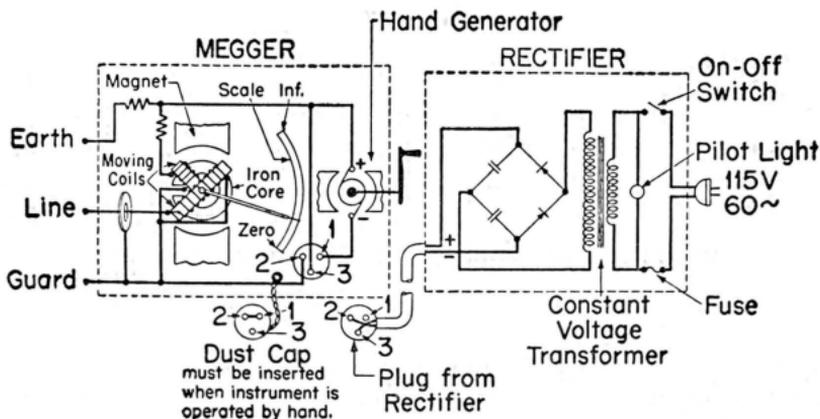
5.01 The Megger 744 Rectifier, illustrated below, is used with the Megger 9679S Test Set. The Megger 744 Rectifier consists of a constant voltage transformer and a half-wave selenium rectifier voltage doubler circuit arranged to deliver approximately .004 ampere at 400 volts dc when connected to a commercial 115-volt 60-cycle source. The rectifier is mounted in a steel case, and is equipped with separate cord and plug assemblies.



5.02 The 115-volt circuit in the rectifier has a power switch, which is depressed to turn the rectifier ON and pulled up to turn it OFF. Also included in the power circuit are the pilot light and the fuse; both light and fuse can be replaced without removing the case.

5.03 If for any reason the Megger 744 Rectifier is used as a source of 400-volt dc supply without the Megger 9679S Test Set, be certain that the .004 ampere current drain is not exceeded. There is **NO SERIES RESISTANCE** in the rectifier circuit **TO LIMIT CURRENT OUTPUT**.

5.04 The schematic wiring diagram of the megger and rectifier is shown in the following sketch.



## 6. OPERATING TESTS

6.01 To test the operation of the Megger 7679S Test Set, connect well-insulated test leads to the terminals of the megger marked "Earth" and "Line." With the lead to the line terminal clear, and the lead to the "Earth" terminal connected to ground or to a cable sheath, turn the crank rapidly until the clutch slips and the crank turns easily without much pressure. This tests the insulation of the leads and the operation of the megger. The megger should read "Infinity" under these conditions.

6.02 To test the operation of the Megger 9679S Test Set, follow the same procedure as outlined above, using the hand cranked magneto generator.

6.03 To test the operation of the Megger 9679S with the Megger 744 Rectifier, with the dust cap in place, connect the rectifier to a 115-volt 60-cycle commercial source and plug the rectifier cord into the receptacle on the Megger 9679S Test Set. Connect the test leads as indicated in Paragraph 6.01 and turn the power on by depressing the switch on the rectifier. The megger should read "Infinity."

## 7. CARRYING AND SHIPPING CASES

7.01 Fabrikoid covered carrying cases and wooden shipping cases may be furnished with both meggers and with the rectifier. The shipping cases are well padded to cushion the sets in their Fabrikoid cases during shipment.

## 8. MAINTENANCE

8.01 The Megger Test Sets are of sturdy construction and should require no maintenance. When repairs are necessary, these sets should be returned in accordance with local routine, except in the case of replacements in the megger rectifier, as noted below.

### Megger 744 Rectifier

8.02 **Power Fuse:** If the 1/2-ampere fuse in the rectifier is blown it can be replaced by inserting a new fuse in the fuse holder. If the new fuse blows immediately after the rectifier is again turned on, the rectifier should be returned for repair.

8.03 **Pilot Lamp:** To remove the neon pilot lamp, unscrew the lamp cover, press the lamp down and rotate it counterclockwise about 1/4 turn, then lift out. Insert the new lamp, press it down and turn clockwise to lock it in place, then replace the lamp cover.

8.04 **Cords:** The **Plug and Cord Assembly** between the rectifier and the 115-volt 60-cycle outlet should be replaced when it is worn. The cord is secured to the rectifier case by a **Cord Grip**. When the interconnecting cord between the rectifier and the megger is worn, Type SJ18-2 Cord should be obtained locally to replace it, or it can be ordered as a replacement part. The **Plug** at the end of this cord should be replaced if necessary.

### 8.05 Replacement Parts:

#### Assembly, Cord and Plug for Megger 744 Rectifier

<b>Cord, Interconnecting</b>	"	"	"	"
<b>Grip, Cord</b>	"	"	"	"
<b>Fuse</b>	"	"	"	"
<b>Lamp, Pilot</b>	"	"	"	"
<b>Plug</b>	"	"	"	"