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TM 11-2648

WAR DEPARTMENT TECHNICAL MANUAL

U.S. Dept. of Army

VIBRATOR PACK

PP-68/U



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WAR DEPARTMENT

9 JANUARY 1945

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WAR DEPARTMENT,
WASHINGTON 25, D. C., 9 January 1945

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DESTRUCTION NOTICE

WHY —To prevent the enemy from using or salvaging this equipment for his benefit.

WHEN—When ordered by your commander.

- HOW**
1. Smash—Use sledges, axes, handaxes, pickaxes, hammers, crowbars, heavy tools.
 2. Cut —Use axes, handaxes, machetes.
 3. Burn —Use gasoline, kerosene, oil, flame throwers, incendiary grenades.
 4. Explosives—Use firearms, grenades, TNT.
 5. Disposal —Bury in slit trenches, fox holes, other holes. Throw in streams. Scatter.

USE ANYTHING IMMEDIATELY AVAILABLE FOR DESTRUCTION OF THIS EQUIPMENT.

- WHAT**
1. Smash—Vibrator unit, transformer, sockets, battery clips, switches, panel, chassis, cover, capacitors, resistors, etc.
 2. Cut —All wiring in electrical circuits, battery cable, etc.
 3. Burn —All instruction books, circuit diagrams, insulation, etc.
 4. Bend —Chassis, cover, switch levers, vibrator unit prongs, etc.
 5. Bury or scatter—All remaining parts of equipment.

DESTROY EVERYTHING

SAFETY NOTICE

Voltages as high as 142 volts alternating current are present at the output of Vibrator Pack PP-68/U when no load is present. This voltage is dangerous to life.

Do not change vibrator units or make adjustments inside the set with the ON-OFF switch turned to the ON position.

When making voltage checks in the output circuit of this equipment, always have present another person capable of rendering aid. Keep one hand in your pocket while making high-voltage measurements. This precaution will prevent touching the electrical circuit with more than one part of the body at one time.

When servicing the equipment, except in making voltage measurements, always remove the battery clips from the battery terminals. Shorting the storage battery will cause a flash and severe burns.

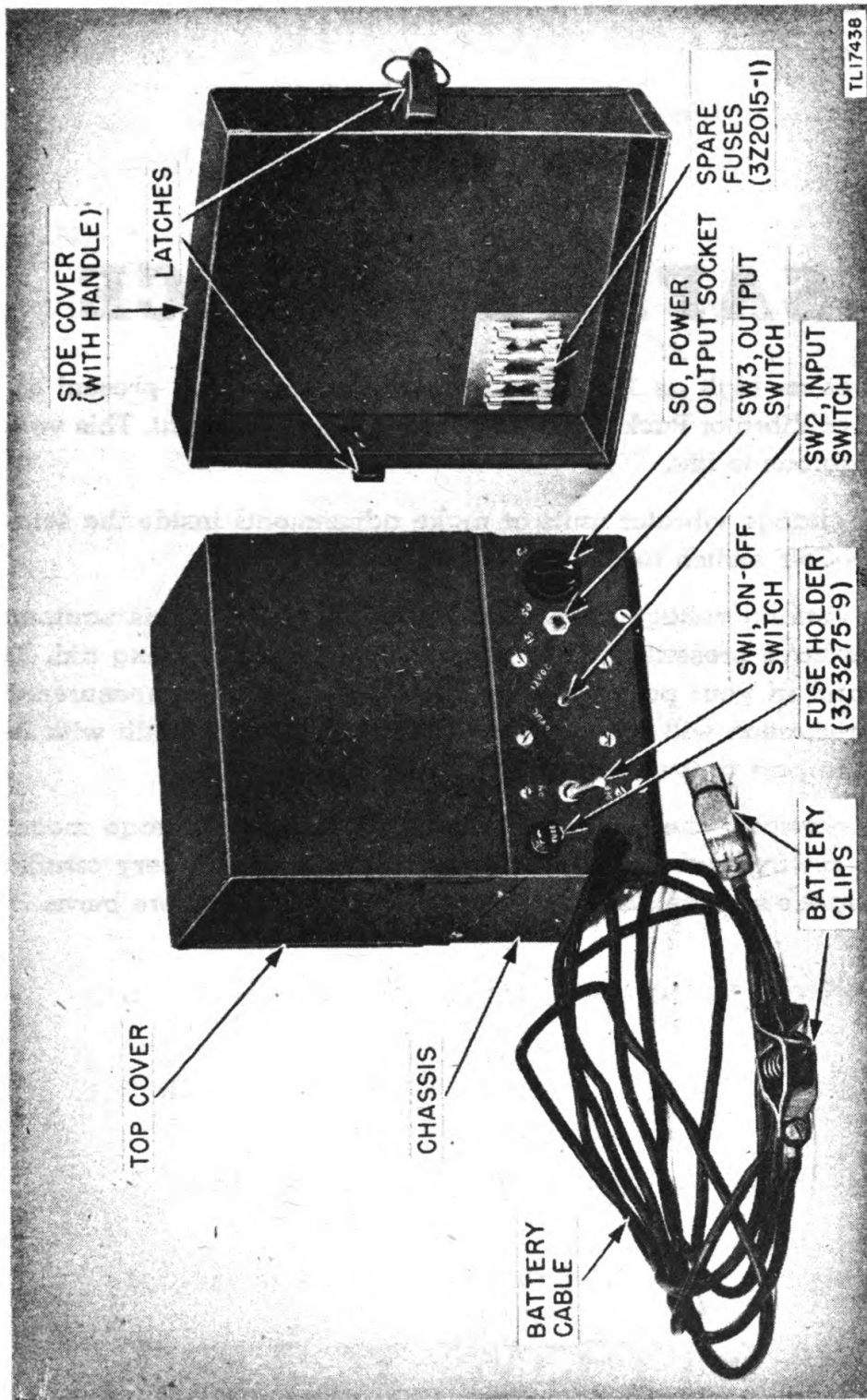


Figure 1. Vibrator Pack PP-68/U, semi-assembled view.

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PART ONE

INTRODUCTION

SECTION I

DESCRIPTION OF VIBRATOR PACK PP-68/U

1. GENERAL.

Vibrator Pack PP-68/U (fig. 1) is a portable, vibrator type power supply. It operates with a 6- or 12-volt storage battery source and supplies 110-volt, 60-cycle alternating current to Tube Tester I-177 which is a part of Test Set I-56K. The vibrator pack may be used to supply input power not exceeding 50 watts to other test equipment requiring 110-volt, 60-cycle alternating current.

2. TECHNICAL DATA.

Input to Vibrator Pack PP-68/U is supplied either by a 6-volt or a 12-volt storage battery. Output voltage is 105 to 115 volts for loads of 15 to 50 watts. The following table gives input voltage, input current, output voltage, and output power:

<i>Input voltage (d-c volts)</i>	<i>Input current (d-c amperes)</i>	<i>Output voltage (a-c volts)</i>	<i>Output power (watts)</i>
6	4.0	105	15
6	11.25	105	50
12	2.0	105	15
12	5.25	115	50

3. TABLE OF COMPONENTS.

Vibrator Pack PP-68/U is 8- $\frac{3}{4}$ inches high, 8- $\frac{3}{8}$ inches wide, 9- $\frac{3}{8}$ inches deep, and weighs 22 pounds (fig. 4). Major components are:

<i>Component</i>	<i>Required Number</i>	<i>Weight</i>	
Chassis	1	14 lb	
Bottom plate	1	2 lb	14 oz
Top cover	1		
Side cover (with handle)	1	2 lb	11 oz
Vibrator	2 (1 spare)	1 lb	8 oz
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4. PACKAGING DATA.

Each Vibrator Pack PP-68/U is packed in an individual cardboard carton 12-1/2 inches high, 10 inches wide, and 10 inches deep. The weight of each packed unit is 24-1/2 pounds. The spare vibrator is wrapped in corrugated cardboard and packed in the same carton. The battery cable is wound in large coils to fit between the vibrator pack and its cover.

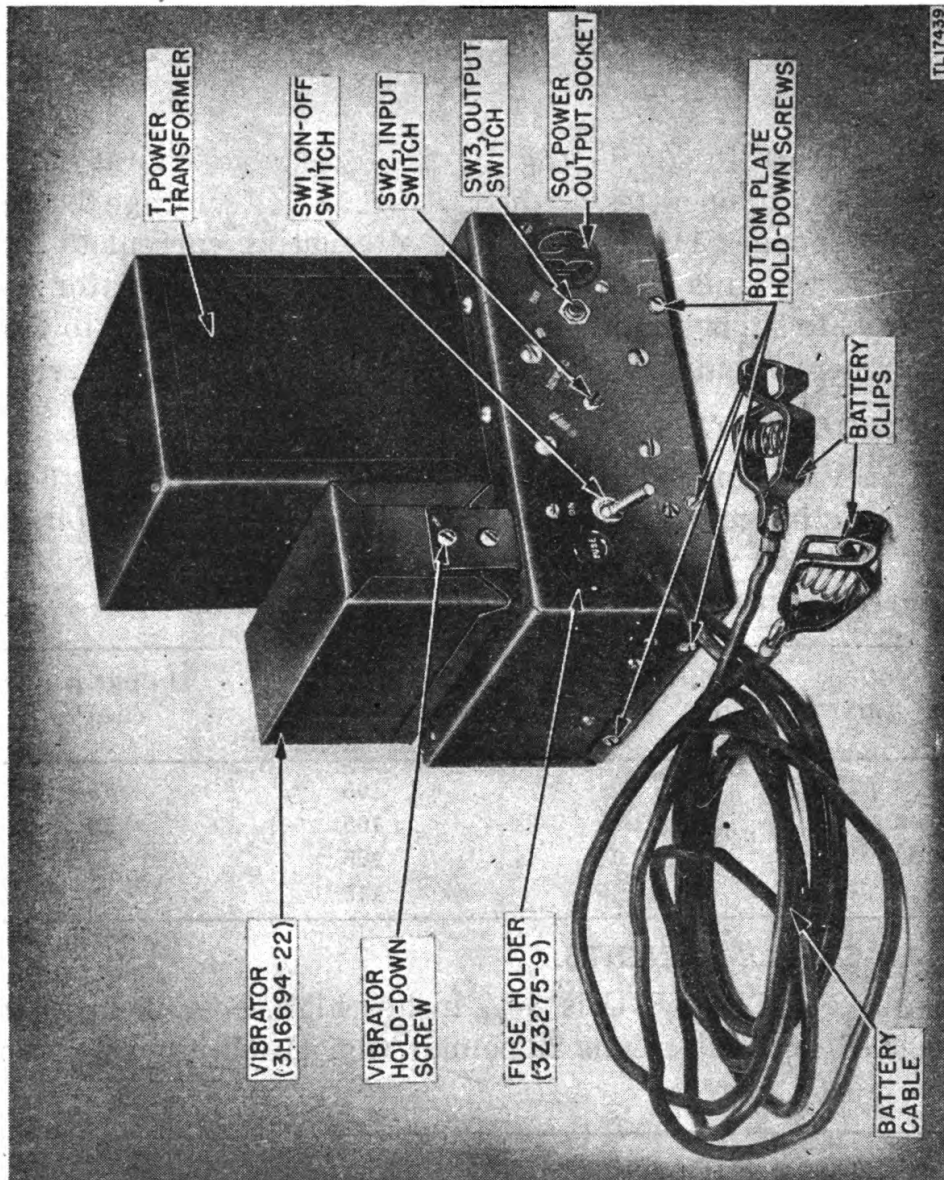


Figure 2. Vibrator Pack PP-68/U, top cover removed.

5. DESCRIPTION OF MAJOR COMPONENTS.

a. Chassis Assembly. The chassis assembly consists of a steel-formed housing. Mounted on top of the housing (fig. 2) are the output transformer T, the vibrator unit, and a six-prong socket for the vibrator unit. The vibrator unit is encased in a metal box which plugs into the socket and is held in place by two screws

which are mounted in steel angles welded to the chassis. Mounted on the front of the chassis assembly are the output receptacle SO, the ON-OFF switch SW1, the input switch SW2, the output switch SW3, the fuse post with a 15-ampere fuse F, and a 6-foot, 2-wire battery cable terminating in two battery clips. Mounted inside the chassis (fig. 3) are a 0.25-mf capacitor C1, a 0.5-mf capacitor C2, a 2.0-mf capacitor C3, a 10-ohm resistor R1, and a 10-ohm resistor R2.

b. Cover Plates. The cover plate on the bottom of the chassis assembly is held in place by eight 6/32 screws. The top cover is a steel housing and it is fastened to the chassis by four 6/32 screws. The side cover is attached to the chassis assembly and top cover by two catch fasteners (fig. 4). It has a steel handle, which is used for carrying the vibrator pack. On the outside of the side cover is the nameplate; inside is a fuse mounting with four spare fuses.

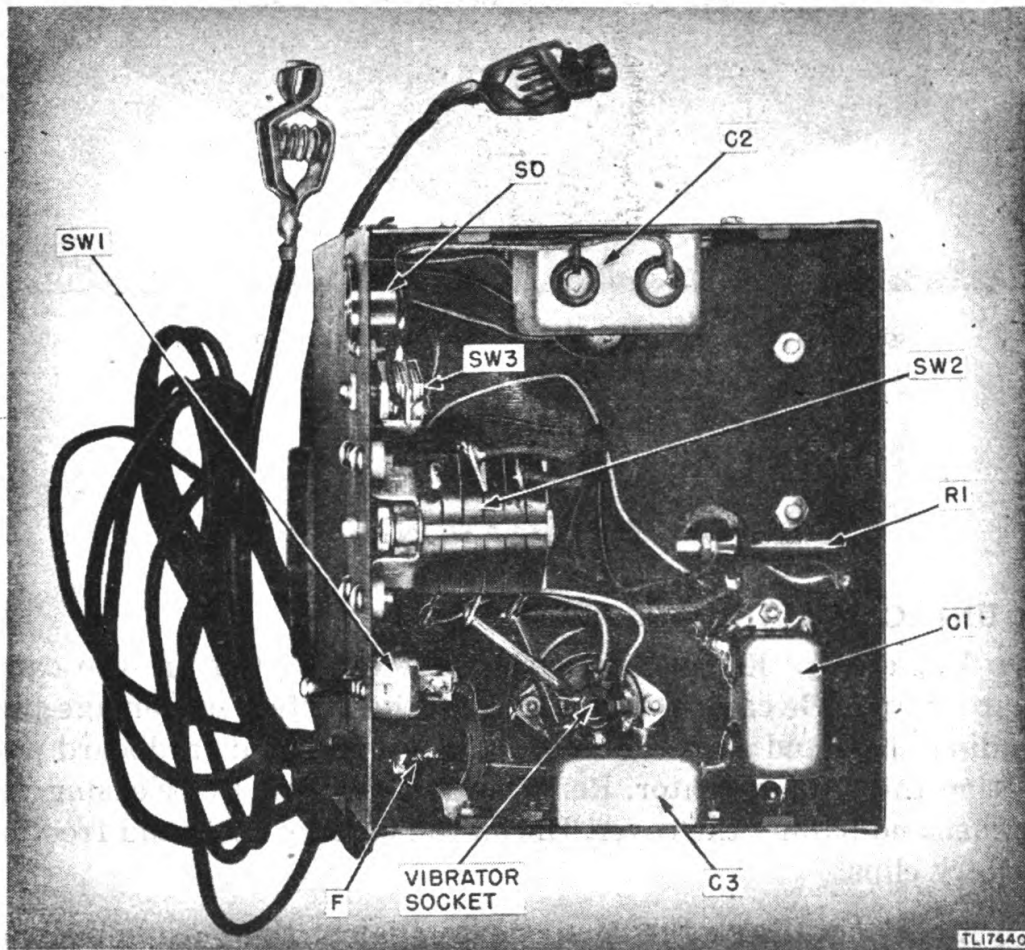


Figure 3. Vibrator Pack PP-68/U, bottom view, cover plate removed.

(Note: C2 and C3 are reversed.)

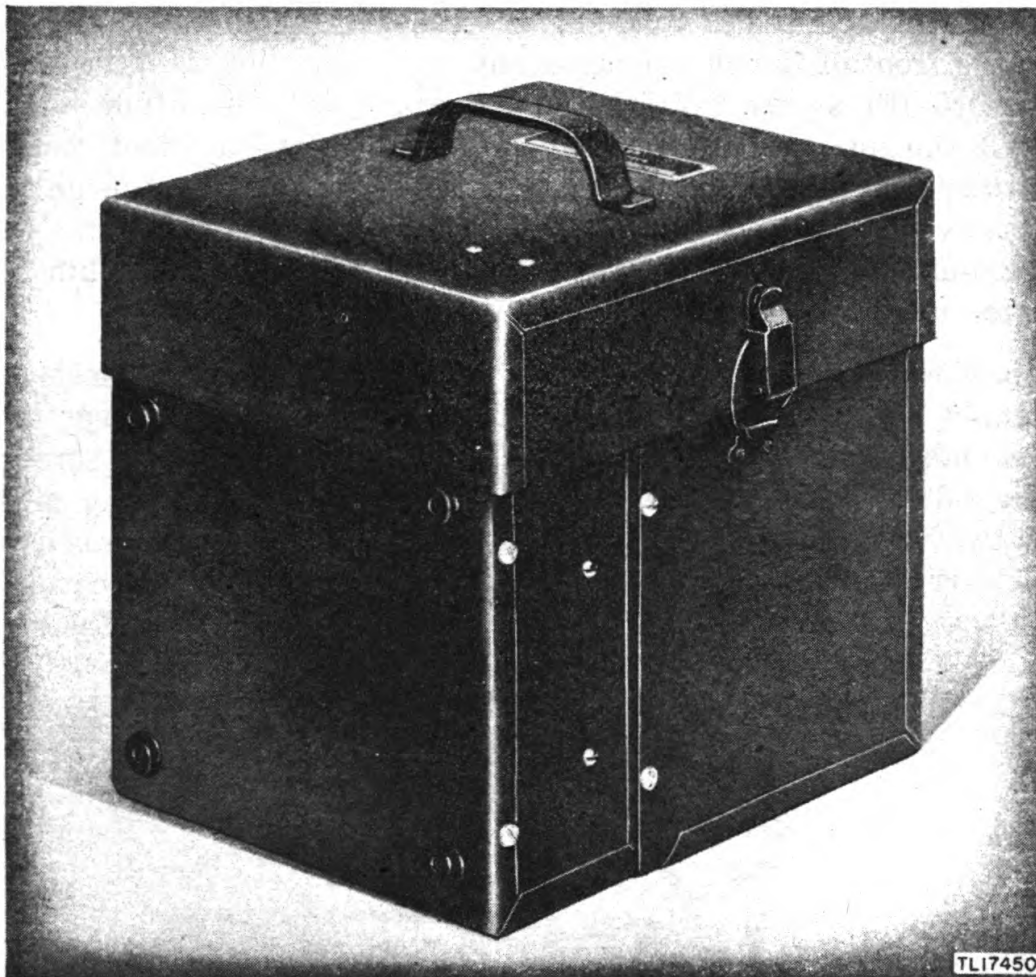


Figure 4. Vibrator Pack PP-68/U, assembled for carrying.

SECTION II INSTALLATION

6. UNPACKING AND CHECKING.

a. Unpacking. Remove Vibrator Pack PP-68/U from the cardboard carton. Be careful not to scratch the surface or damage protruding parts and controls. Remove the corrugated cardboard protecting the spare vibrator. Remove the side cover by releasing the latches and pulling the cover. Uncoil the battery cable and free the battery clips.

b. Checking. Check the components against the master packing slip. Remove the four 6/32 screws which hold the top cover of the vibrator pack in place and inspect the vibrator. Make sure it is seated firmly in its socket. Replace the top cover and screws. Visually check the condition of the fuse F.

7. CONNECTIONS.

Before making any connections make sure that ON-OFF switch SW1 on the front of the chassis assembly is turned to OFF and switch SW2 is in the 6- or 12-volt position depending on the battery voltage being used. Connect the battery clips on the end of the battery cable to the terminals of the storage battery. Make sure the clips make good contact. Plug the a-c power cord of Tube Tester I-177 into the output receptacle SO on the front of the chassis assembly of the vibrator pack.

PART TWO

OPERATING INSTRUCTIONS

NOTE: For information on destroying the equipment to prevent enemy use, refer to the destruction notice at the front of the manual.

SECTION III

CONTROLS AND THEIR USE

8. CONTROLS AND THEIR USE (fig. 2).

The functions of the three switches which constitute the controls of Vibrator Pack PP-68/U are:

a. ON-OFF Switch. The ON-OFF switch SW1 controls the application of battery voltage to the vibrator pack.

b. Input Switch. The input switch SW2 makes the proper circuit changes in the vibrator pack to permit use of either a 6-volt or a 12-volt storage battery as a source of power. *The switch must be in the 6VDC position when a 6-volt storage battery is used, and in the 12VDC position when a 12-volt battery is used.*

c. Output Switch. The output switch SW3 controls the power output of the vibrator pack. This switch is turned to the 15-watt position when the vibrator powers low-wattage test equipment; to the 50-watt position when the vibrator powers high-wattage test equipment.

SECTION IV

OPERATION

9. OPERATION.

After the vibrator pack has been installed as described in section II, put it into operation by following the procedure below:

a. 6-volt Input. (1) INPUT SWITCH SW2. Using a screwdriver, turn input switch SW2 to the left, until the groove points to the 6VDC mark on the panel.

(2) POWER OUTPUT SWITCH SW3. Use a screwdriver to turn output switch SW3 to the 15-watt position if low-wattage output is required, or to the 50-watt position if more than 15 watts output is required. Turn the output switch to the 50-watt position when power is supplied to Tube Tester I-177.

(3) ON-OFF SWITCH SW1. To start Vibrator Pack PP-68/U throw ON-OFF switch SW1 to ON. To stop the vibrator pack, throw the switch to OFF.

CAUTION: When Vibrator Pack PP-68/U is not in use, always throw ON-OFF switch SW1 to OFF position to prevent unnecessary drain on the battery.

b. 12-volt Input. Using a screwdriver, turn the input switch to the right, until the groove points to the 12VDC mark on the panel. Proceed as in subparagraph α (2) and (3) above.

CAUTION: If input switch SW2 is set at 12VDC and a 6-volt battery is used, there will be no vibrator action. If the input switch is set at 6VDC and a 12-volt battery is used, the fuse will burn out.

SECTION V

EQUIPMENT PERFORMANCE CHECK LIST

10. PURPOSE AND USE OF CHECK LIST.

a. General. The equipment performance check list (par. 11) will help the operator to determine whether Vibrator Pack PP-68/U is functioning properly. The check list gives the item to be checked, the conditions under which the item is checked, the normal indications of correct operation, and the corrective measures that the operator can take. Items 1 to 5 are checked before starting, item 6 when starting, items 7 and 8 during operation, and item 9 when stopping.

b. Action or Condition. For some items the information given in the action or condition column consists of the settings of switches under which the item is to be checked. For other items it represents an action that must be taken in order to check the normal indication given in the normal indication column.

c. Normal Indications. The normal indications listed include the visible and audible signs that the operator will perceive when he checks the items. If the indications are not normal, the operator should apply the recommended corrective measures.

d. Corrective Measures. The corrective measures listed are those that the operator can make without turning the equipment in for repairs. If the equipment is completely inoperative or if the recommended corrective measures do not yield results, trouble shooting must be done by a qualified repairman.

11. EQUIPMENT PERFORMANCE CHECK LIST.

	<i>Item No.</i>	<i>Item</i>	<i>Action or condition</i>	<i>Normal indications</i>	<i>Corrective measures</i>
P R E P A R A T O R Y	1	Battery clips.	Attach clips to battery terminals.	Clips make clean, firm contact.	Clean battery clips and terminals.
	2	Input switch SW2.	a. Throw switch to 6VDC position for use with 6-volt battery. b. Throw switch to 12VDC position for use with 12-volt battery.		
	3	Storage battery.	Check specific gravity of battery.	Battery is fully charged.	Charge or replace battery.
	4.	Output receptacle SO.	Insert a-c input plug of test equipment into receptacle.	Plug is firmly seated in receptacle.	
	5	Output switch SW3.	a. Throw switch to 15-watt position for use with low-wattage test equipment. b. Throw switch to 50-watt position for use with high-wattage test equipment.		
S T A R T	6	ON-OFF switch SW1.	Throw switch to ON.	Vibrator hum is heard.	a. Check connections of battery clips. b. Check position of input switch. c. Check fuse. d. Replace vibrator. e. Replace battery.