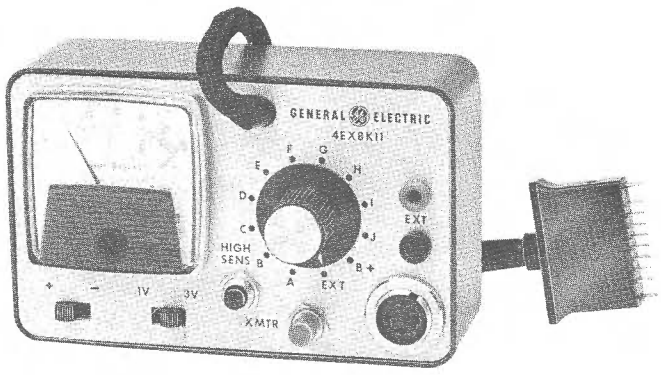
MOBILE RADIO

# ASSEMBLY, OPERATION & MAINTENANCE

## GENERAL ELECTRIC TEST SET KIT
## MODEL 4EX8K11






## SPECIFICATIONS *

| | | |
|---|---|---|
| Description | Portable meter for aligning and troubleshooting two-way radios which have centralized metering facilities For servicing equipment without centralized metering, test set can be used as 20,000 ohm-per-volt voltmeter | |
| Meter used in test set | 2-3/4" panel meter with jeweled pivot, off-center zero | |
| Sensitivity | -10 and +50 microamperes full scale. External resistance added to make useable sensitivity -0.2 and +1.0 volt full scale (20,000 ohmm per volt) | |
| Internal resistance | 1370 ohms ±15% | |
| Damping factor | 32 nominal | |
| Response time | 1.4 seconds nominal | |
| Accuracy | ±3% of full scale | |
| Overload protection | Meter movement protected by diodes | |
| Centralized metering functions | With test cable connected to transmitter | With test cable connected to receiver |
| Test selector | Selects 1 of 11 circuits to be metered | |
| Range selector | Selects 1-volt or 3-volt meter range | |
| Polarity switch | Reverses meter polarity | Reverses meter polarity |
| High Sensitivity switch | Provides a 100-millivolt full scale meter range and permits transmitter & supply voltage to be metered | |
| XMTR TEST | Keys transmitter (except in IMTS positive ground mobiles) | |
| MIKE jack | For keying or voice-modulating xmtr with mike or handset and monitoring rcvr with handset | For monitoring rcvr with handset |
| DC voltmeter functions | Using test probes | |
| Range selector | Selects 1 or 3-volt range (with Test Selector in "EXT" position) | |
| Polarity switch | Reverses polarity of meter | |
| Operating temp range | 0°C to +50°C (+32°F to +122 F) | |
| Size (H x W x D) | 3-3/4" x 6-1/2" x 2-7/8" | |
| Weight | 1-1/2 pounds | |

*These specifications are intended primarily for the use of the serviceman. Refer to the appropriate Specification Sheet for the complete specifications.



GENERAL ELECTRIC

# TABLE OF CONTENTS



ILLUSTRATIONS

# DESCRIPTION

Test Set Model 4EX8K11 is designed to facilitate servicing General Electric Two-Way Radios. The Test Set can be wired for servicing standard two-way radios, or it can be wired for servicing IMTS equipment. The unit cannot be wired for servicing both types of equipment.

For equipment with centralized metering facilities, Test Cable W1 connects the Test Set to the transmitter or receiver being serviced. For equipment which does not employ centralized metering, the set may be used as a 20,000 ohm-per-volt DC voltmeter.

The off-center zero on the meter scale permits both positive and negative discriminator voltages to be measured, with changing polarity. At the same time it preserves maximum scale lengths, so that readings can be easily and accurately made.

# OPERATION

All controls on the Test Set are conveniently located on the front panel. The microphone jack and the external test jacks are located on the right side of the set. The Test Set was designed to operate with the front panel facing up.

NOTE

To protect the meter movement when transporting the Test Set, damp the meter movement by placing a shorted dual-banana plug in the EXTERNAL jacks.

## CENTRALIZED METERING

When servicing two-way radios with centralized metering jacks, connect the test cable from the Test Set to the metering jack on the transmitter or receiver. The Test Selector switch can then be used to select the circuit which is to be metered. A decal is normally provided near the centralized metering jacks to indicate which circuits are metered with the Test Selector switch in position "A" through "J", and "B+". Alignment instructions for transmitters and receivers with centralized metering also indicate the metering positions to be used. The transmitter alignment procedures also contain instructions for measuring the PA current and voltage.

NOTE

Since many transmitters designed for centralized metering are adjusted for a PA PLATE loading of 0.7 volt (position "G"), a red mark has been porvided on the meter scale at this reading.

## Range-Selector Switch

This switch sets the meter range for either 1 volt or 3 volts full scale. For centralized metering, this switch should normally be in the "IV" position.

## Polarity-Reversing Switch

If the needle on the meter should deflect to the left end of the scale, this switch can be used to reverse the polarity of the meter and bring the reading on-scale. While metering PORTA-MOBIL and MASTR Executive equipment, it should normally be in the "+" position; for MASTR Professional equipment, it should normally be in the "+" position. It may be necessary to switch the polarity of the meter while checking FIL voltage, depending upon whether the radio is installed in a vehicle with a positive-ground or negative-ground battery.

## High Sensitivity Switch

The High Sensitivity switch is used for two different functions when servicing Royal Professional and Royal Executive transmitters.

With the range selector switch in the 1-volt position and the test selector switch in position G, pressing the HIGH SENSITIVITY switch shunts R1 and R2 with potentiometer R6 and resistor R5. This lower resistance in the meter input provides a 100-millivolt full-scale reading. The voltage reading obtained may be converted to amperes according to the instructions on the applicable transmitter Alignment Procedure.

With the range selector switch in the 1-volt position and the test selector switch in the B+ position, pressing the HIGH SENSITIVITY switch shunts the 20-megohm, 2-watt resistor with 301K-ohm resistor R7. This lower resistance permits the transmitter PA supply voltage (Vcc) to be read on the 15-volt scale, (approximately 12.5 volts).

**CAUTION**

Do not press the HIGH SENSITIVITY switch when metering tubed transmitters. This may apply the high B+ directly across the meter, damaging the Test Set. Use the HIGH SENSITIVITY switch only where directed in Royal Professional and Royal Executive Maintenance Manuals.

## XMTR Test Switch

While servicing transmitters, the transmitter can be easily keyed by pressing the XMTR Test Switch.

## Microphone Jack

The microphone jack on the front of the Test Set provides a convenient place to connect a microphone or handset for keying or voice-modulating a MASTR transmitter. The audio output of the receiver can also be monitored by a handset connected to this jack.

DC VOLTMETER MEASUREMENTS

To use the Test Set as a DC voltmeter, just place the Test Selector switch in the "EXT" (external) position. Use the Range Selector switch to select the desired voltage range (1 or 3 volt scale). Connect a pair of test probes (not provided) to the red and black jacks on the front of the Test Set.

With the polarity-reversing switch in the "+" position, the red test probe jack will be positive and the black jack will be negative. To quickly change the polarity of the test probes, just flip the switch to the "-" position.

## CIRCUIT ANALYSIS

The voltage range desired is selected by Range Selector switch S3, which connects meter M1 to Test Selector switch S1. S2 switches the positive sides of the meter to twelve floating pins on S2 which selects the circuit to be metered.

Diodes CR1 and CR2 limit the meter overload to approximately six times the rated current of the meter, with less than 1 5% full-scale compression. As a 1-volt instrument, the meter is protected for a 1000 to 1 overload. However, under this condition, one or more of the metering resistors may be damaged.

CAUTION

Due to the lower resistance in the meter circuit, the meter is more susceptible to damage when using the high sensitivity (HS) switch. Always check the meter reading before pressing the high sensitivity switch.

## ASSEMBLY & WIRING INSTRUCTIONS

The Assembly and Wiring Instructions in this manual are listed in the proper sequency for assembling the Test Set in a minimum amount of construction time. Following each step in the order listed will help eliminate wiring errors and incorrect assembly procedures.

The first step in the assembly is to collect all of the necessary equipment in a suitable work area. The following equipment is required:

- A 30 to 100-watt soldering iron or gun.
- A roll of rosin core solder - Important: Do not use acid core solder for this assembly.
- A set of wire cutters (diagonal cutters preferred).
- A knife or other tool for stripping insulation from wires.
- A pair of pliers (long-nosed pliers will also be helpful in attaching wires and component leads to terminals).
- A 5/64-inch Allen wrench.
- A Phillips screwdriver.
- A set of nut drivers would be helpful in assembly of the front panel.
- A set of test probes would be helpful in performing the Calibration Procedure.

PARTS LIST

The second step is to carefully unpack the kit and check off each part in the space provided on the following Parts List.

| ✓ | SYMBOL | GE PART NUMBER | QUANTITY | DESCRIPTION |
|---|---|---|---|---|
| | C1 | 5494481-P12 | 1 | Capacitor, ceramic disc: .001 µf ±20%. |
| | CR1, CR2 | 5494922-P1 | 2 | Diode, Silicon. |
| | J1 | 7117934-P2 | 1 | Mike jack: 4 contacts. |
| | J2 | 19B209152-P2 | 1 | Red jack tip, EXTERNAL. |
| | J3 | 19B209152-P3 | 1 | Black jack tip, EXTERNAL. |
| | M1 | 5493947-P3 | 1 | Meter: DC, 20-0-100, .5-0-3, 2.5-0-15 scale. |
| | R1 | 5495948-P321 | 1 | Resistor, deposited carbon: 16,200 ohms ±1%, 1/2 watt. |
| | R2 | 5495948-P238 | 1 | Resistor, deposited carbon: 2,430 ohms ±1%, 1/2 watt. |
| | R3 | 5495948-P359 | 1 | Resistor, deposited carbon: 40,200 ohms ±1%, 1/2 watt. |
| | R4 | 5496955-P576 | 1 | Resistor, deposited carbon: 20 megohms ±2%, 2 watts. |
| | R5 | 3R77-P391J | 1 | Resistor, composition: 390 ohms ±5%, 1/2 watt (orange-white-brown-gold bands). |
| | R6 | 19B209358-P102 | 1 | Resistor, variable (calibration potentiometer): 25 to 500 ohms ±20%, 0.2 watt. |
| | R7 | 5495948-P447 | 1 | Resistor, deposited carbon: 301,000 ohms ±1%, 1/2 watt. |
| | S1 | 19C307113-P2 | 1 | Test Selector Switch: Rotary, 2 pole, 12 position. |
| | S2 | 7145098-P1 | 1 | Polarity switch: slide, DPDT. |
| | S3 | 7145098-P3 | 1 | Range switch: slide, SPDT. |
| | S4 | 19B209165-P1 | 1 | XMTR switch: momentary contact, SPST. |
| | S5 | 4033364-P1 | 1 | High sensitivity (HIGH SENS) switch: momentary contact, SPDT. |
| | TB1 | 7775500-P11 | 1 | Terminal board: phenolic, 5 terminals. |
| | W1 | 19C303568-P1 | 1 | Metering Cable: 3 foot, includes 18 pin plug P1 (19C303568-P1). |
| | | PL-19B212634-G1 | 1 | Back cover. |
| | | NP257680 | 1 | Front Panel Nameplate. |
| | | PL-19B212633-G2 | 1 | Front Panel Back-up plate. |
| | | 19A115431-P1 | 1 | Knob (for Test Selector Switch S1). |
| | | 7147223-P1 | 1 | Cable clamp (for W1). |
| | | 19B209260-P12 | 2 | Terminals (for M1). |
| | | 4036780-P3 | 3 Ft. | Red hookup wire, 22 AWG. |
| | | 19A115060-P26 | 1 Ft. | Bare hookup wire, 22 AWG. |
| | | 4038593-P6 | 1 Ft. | Sleeving (for bare hookup wire). |
| | | 7162441-P21 | 2 In. | Black Sleeving (for W1). |
| | | N84P13005C13 | 1 | Flat head screw, #6-32. |
| | | 7141225-P2 | 7 | Nut, #4-40. |
| | | N404P11C13 | 12 | Lockwasher, #4. |
| | | 7165075-P2 | 1 | Hexnut, 3/8-32. |
| | | 7115130-P9 | 1 | Lockwasher, 3/8. |
| | | 5491541-P212 | 1 | Hex Spacer, 2-inch. |
| | | NP249177 | 1 | Nameplate "WIRED FOR IMTS". |
| | | N404P13C13 | 1 | Lockwasher #6. |
| | | 7115130-P11 | 1 | Lockwasher, 15/32" |
| | | CALIBRATION RESISTORS | | |
| | | 5495948-P17 | 1 | Resistor, deposited carbon: 14.7 ohms ±1%, 1/2 watt. |
| | | 5495948-P113 | 1 | Resistor, deposited carbon: 133 ohms ±1%, 1/2 watt. |
| | | 3R77-P101K | 1 | Resistor, composition: 100 ohms ±10%, 1/2 watt (brown-black-brown-silver bands). |

STEP-BY-STEP PROCEDURE

When performing the step-by-step assembly procedure, be sure to read each step all the way through before beginning the work Where illustrations are indicated, study the figure carefully After completing each step, check it off in the box provided.

The letter (S) used in the instructions indicates a solder connection. The letters (NS) indicate that the connection is not be be soldered at this time, as another wire or lead is to be added Where two or more leads are connected to the same terminal, solder all of the leads when indicated by the letter (S).

If the test set is to be used to service IMTS equipment, there are four wiring changes required. These changes are indicated by Notes 1 through 4 in the Meter Cable, Selector switch and Mike Jack wiring charts.

Assembly of TB1 (see Figure 1)

☐ Connect 16.2 K resistor R1 from terminal 1(NS) to terminal 4 (NS).

☐ Connect 2.43 K resistor R2 from terminal 4(NS) to terminal 2 (NS).

☐ Connect diode CR1 from terminal 4(NS) to terminal 5(NS) with its color bands towards terminal 5.

☐ Connect diode CR2 from terminal 4 (S) to terminal 5(NS) with its color bands towards terminal 4.

☐ Connect .001 μf capacitor C1 from terminal 2(NS) to terminal 5(NS). Use sleeving on both leads.

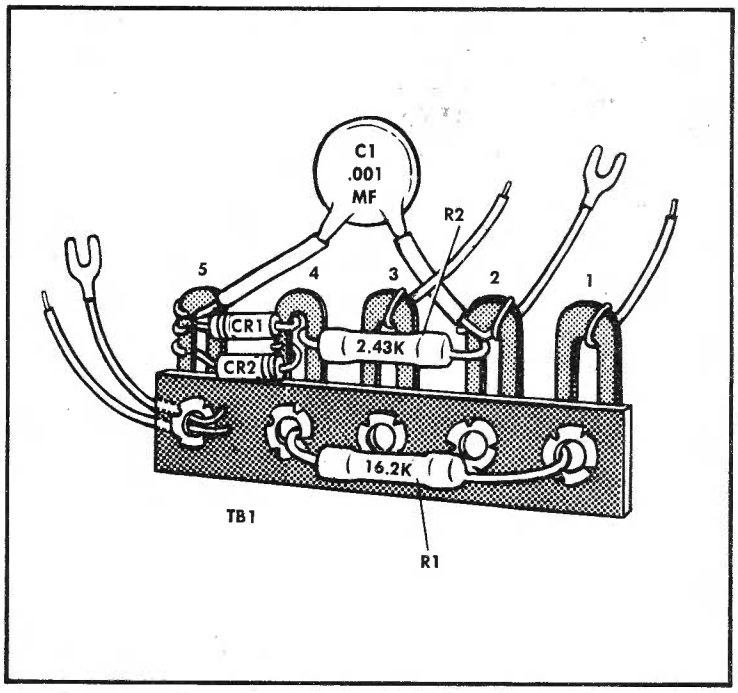



Figure 1 - Assembly of TB1

Next, make the following connections to TB1 using the red hook-up wire. Strip off 1/4-inch of insulation from each end of the wire

☐ Connect one end of a 2-inch piece of red hook-up wire to terminal 5(NS) of TB1. Next, crimp on the spade lug to the other end of the wire.

☐ Connect one end of a 3-inch piece of red hook-up wire to terminal 2(S) of TB1. Next, crimp on the spade lug to the other end of the wire.

☐ Connect one end of a 3-inch piece of red hook-up wire to terminal 3(S) of TB1.

☐ Connect one end of a 2-1/2-inch piece of red hook-up wire to terminal 1(NS) of TB1.

☐ Connect one end of a 5-inch piece of red hook-up wire to terminal 5(S) of TB1.

Test Selector Switch Wiring (See Figure 4)

☐ Peel the protective film off of the nameplate and align with the backup plate. Then install Selector Switch S1 with a 3/8-inch nut and lockwasher (See Figure 2).

Next, make the following connections to the Test Selector switch by stringing a single length of bare hook-up wire and sleeving as indicated. (See Figure 4).

| ✓ | FROM TERMINAL ON SECTION B OF S1 | TO TERMINAL ON S1 |
|---|---|---|
| | Terminal 1 (S) | Terminal 2(S) on Section B |
| | Terminal 2 | Terminal 3(S) on Section B |
| | Terminal 3 | Terminal 4(S), Section B |
| | Terminal 4 (See Note 1) | Terminal 5 (NS) Section B |
| | Terminal 5 (sleeve) | Terminal 8 (NS) Section B |
| | Terminal 8 (S) | Terminal 9 (NS) Section B |
| | Terminal 9 (S) (sleeve) | Terminal 11 (S) on Section A |

Note 1 - For IMTS Test Sets, omit this step.

Make the following connections to the Test Selector switch using the red hook-up wire. Strip off 1/4-inch of insulation from each end of the wire.

☐ Connect a 2-1/2-inch piece of red hook-up wire to terminal 12(S) on section A of switch S1.

☐ Connect a 3-1/2-inch piece of red wire to terminal 12(S) on section B of switch S1.

☐ Connect a 4-3/4-inch piece of red wire to terminal 22L(S) on section A of S1.

☐ Connect a 4-inch piece of red hook-up wire to terminal 22L(S) on section B of switch S1.

After completing the Selector switch wiring, go back and check each step carefully to make sure no wiring error was made. A thorough check at this time may prevent trouble later.

Assembly of Metering Cable W1 (See Figure 3)

☐ Trim 4 inches of braid from cable W1, taking care not to cut any of the wires. Tape the cut edge of the braid to prevent raveling. Slip the 2-inch piece of black sleeving over the cable to hold the braid.

☐ Mount the cable clamp to the front panel with a #4-40 nut and two #4 lockwashers (one under the mounting foot and one under the nut).

☐ Run the cable through the hole until the sleeving is in the cable clamp. Let 1/2-inch of sleeving extend past the front of the panel. Then tighten the cable clamp with a pair of pliers.

Meter Cable Connections (See Figure 4)

☐ Connect the wires from metering cable W1 to the terminals on Test Selector switch S1 as shown in the following chart. Cut off leads ta proper length, and strip off 1/4-inch of insulation from each lead.

| ✓ | WIRE COLOR FROM METERING CABLE W1 | CONNECT TO SECTION A OF S1 |
|---|---|---|
| | White-orange | Terminal 1(S) |
| | White-brown | Terminal 2(S) |
| | White-green | Terminal 3(S) |
| | White-blue | Terminal 4(S) |
| | White-orange-black | Terminal 5(S) |
| | White-orange-brown | Terminal 6(S) |
| | White-orange-blue (See Note 2) | Terminal 10 (S) |
| | White-orange-green (See Note 3) | Terminal 9 (S) |
| | White-orange-red | Terminal 8(S) |
| | Blue | Terminal 7 (NS) |

Note 2 - For IMTS Test Sets, connect the white-orange-blue wire to terminal 4(S) on section B of Selector switch S1.

Note 3 - For IMTS Test Sets, connect the white-orange-green wire to terminal 4(S) on mike jack J1.

| ✓ | WIRE COLOR FROM CABLE W1 | CONNECT TO SECTION B OF S1 |
|---|---|---|
| | Red | Terminal 7(NS) |
| | White-black-green | Terminal 6(S) |
| | White-black (use either lead) | Terminal 5(S) |
| | White-black-brown | Terminal 10(S) |

☐ Connect the other white-black lead to terminal 2 (NS) on XMTR switch S4 after the switch is installed as directed in the Front Panel Assembly. (See Figure 3).

After completing the meter cable connections, go back and check each step carefully to make sure that no wiring error was made. A thorough check at this time may prevent trouble later.

Front Panel Assembly (See Figure 2)

☐ Install Polarity switch S2 (6 terminals) and Range Selector switch S3 (3 terminals) with #4-40 nuts and #4 lockwashers.

☐ Install High Sensitivity switch S5 (4 terminals) and XMTR switch S4 (2 terminals) with 15/32-inch nuts and lockwashers.

☐ Install the red and black EXTERNAL jacks with the #5/16 hex nut supplied on the jacks.

☐ Install Mike Jack J1 with the hex nut, lockwasher and knurled nut supplied on the jack.

☐ Install meter M1 using three #4-40 nuts and four #4 lockwashers. Do not use the split lockwashers in the envelope containing the hardware. Note that TB1 mounts on one of the meter screws Use a lockwasher under the mounting foot of TB1 and one under the nut.

Mike Jack Wiring

Connect the remaining wires from test cable W1 to Mike Jack J1 as shown in the following chart (See Figure 3).

| ✓ | WIRE COLOR | CONNECT TO J1 |
|---|---|---|
| | White-red-brown | Terminal 3(NS) |
| | White-black-blue (See Note 4) | Terminal 4(S) |
| | Center conductor of gray cable | Terminal 2(S) |
| | Shield of gray cable | Terminal 1(S) |

Note 4 - For IMTS Test Sets, connect the white-black-blue wire to terminal 9(S) on section A of Selector switch S1.

Final Connections (See Figure 3)

- [ ] Sleeve a 1-inch piece of bare hook-up wire and connect from terminal 1 (NS) to terminal 6(S) on Polarity switch S2.
- [ ] Sleeve a 1-inch piece of bare hook-up wire and connect from terminal 3(S) to terminal 4(NS) of Polarity switch S2.
- [ ] Sleeve a 1-1/2-inch piece of bare hook-up wire and connect from terminal 4(S) on Polarity switch S2 to terminal 3(NS) on Range Selector switch S3.
- [ ] Connect a 1-3/4-inch piece of red hook-up wire from terminal 1(S) on XMIT switch S4 to terminal 3(S) on Mike Jack J1.
- [ ] Connect the 40.2 K resistor R3 from terminal 2(NS) to terminal 3(S) on Range Selector switch S3.
- [ ] Connect the red wire from terminal 22L on section A of Test Selector switch S1 to terminal 1(S) of Polarity switch S2.
- [ ] Connect the red wire from terninal 12 on section A of Test Selector switch S1 to the red external jack J2(S).
- [ ] Connect the red wire from terminal 12 on section B of Test Selector switch S1 to the black external jack J3(S).
- [ ] Connect the red wire from terminal 22L on section B of Test Selector switch S1 to terminal 2(S) of Range switch S3.
- [ ] Connect the red wire from terminal 5 of TB1 to terminal 5(S) of Polarity switch S2.
- [ ] Connect the wire from terminal 1 of TB1 to terminal 2(S) of Polarity switch S2.
- [ ] Connect the red wire from terminal 3 of TB1 to terminal 2(S) of XMTR switch S4.
- [ ] Connect the wire with the spade lug from terminal 5 of TB1 to the + pole of meter M1. Use one nut and one flat washer.
- [ ] Connect the other wire with the spade lug from terminal 2 of TB1 to the remaining pole on meter M1. Use one nut and one of the flat washers.
- [ ] Sleeve both leads and connect the 20-Megohm resistor R4 from terminal 7 (NS) to terminal 11 (NS) on section B of switch S1 (See Figure 4).
- [ ] Screw the 2-inch hex spacer on the screw post, using a #6 lockwasher (See Figure 2). Bend TB1 away from the spacer so that none of the components touch the spacer.

- [ ] Sleeve one lead of 390-ohm resistor R5 (orange-white-brown-gold bands). Connect unsleeved lead of R5 to terminal 1 (S) of calibration potentiometer R6 and connect the sleeved lead of R5 to the top terminal of section 1 (S) on High Sensitivity switch S5.

- [ ] Connect a 1/2-inch piece of bare hook-up wire from terminal 2(S) to terminal 3(S) of potentiometer R6, and then to meter lug (S).

- [ ] Connect a 1-inch piece of bare hook-up wire from the bottom terminal of section 1 (S) on High Sensitivity switch S5 to terminal 1 (S) of TB1.

- [ ] Connect a 3-inch piece of insulated hook-up wire from the top terminal of section 2 (S) on High Sensitivity switch S5 to terminal 11 (S) on section B of Test Selector switch S1.

- [ ] Connect the 301K-ohm resistor R7 from the bottom terminal of section 2 (S) on High Sensitivity switch S5 to terminal 7 (S) on section B of Test Selector switch S1.

- [ ] Attach the Selector switch knob. Position the knob so that the set screw opposite the white pointer will screw into the flat side of the shaft. Tighten the two set screws with a 5/64-inch Allen wrench.

- [ ] Check the test set carefully and remove any loose bits of solder or wire clippings. Then check the assembled test set against Figures 1 through 5 for any mistakes.

- [ ] If the unit was wired for IMTS equipment, attach the "WIRED FOR IMTS" sticker to the front panel. The sticker may be trimmed to fit before peeling off the back.

- [ ] Before attaching the back cover, refer to the CALIBRATION PROCEDURE and adjust calibration potentiometer R6 as directed.

## CALIBRATION PROCEDURE

1. Place the Test Selector switch (S1) in the EXT position, the Range Selector switch (S3) in the 1V position and the Polarity switch in the "+" position.
3. Connect the three calibration resistors and a fresh "D" cell flashlight battery as shown in Figure 6.
3. Apply the test probes as shown and note the exact meter reading (should read approx. 90 on the top meter scale).
4. Now move the test probe connected to the red EXT jack to point "A" (the junction of the 133 ohm and 14.7 ohm resistor). Then, hold down the HS (high sensitivity) switch and adjust calibration potentiometer R6 for the exact reading obatined in step 3.

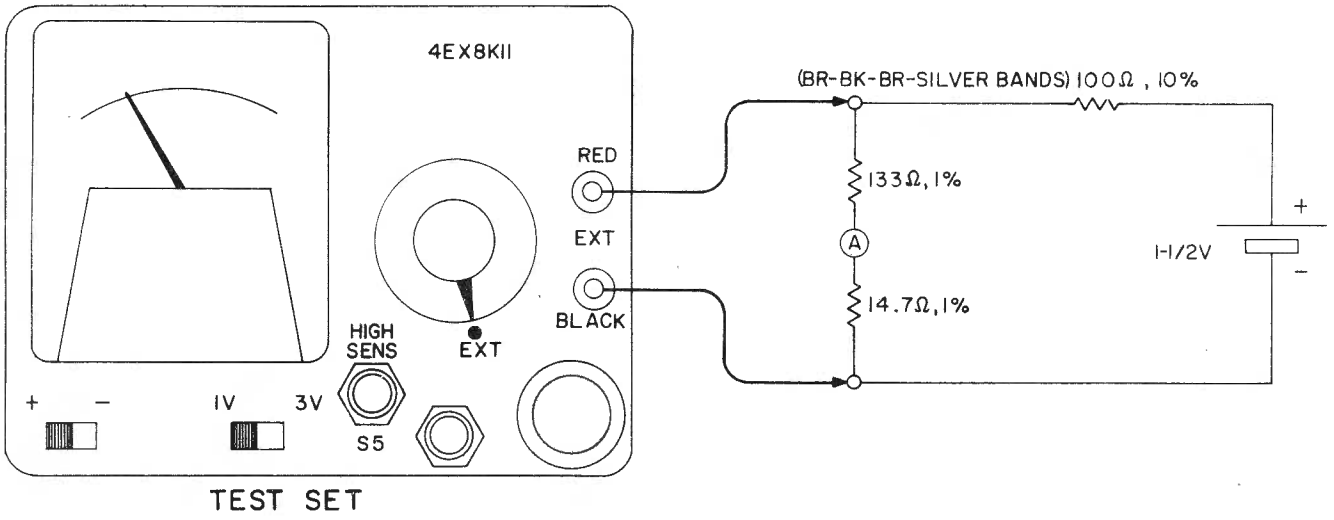



Figure 6 - Calibration Setup

5. Repeat steps 3 and 4 until the meter readings are the same.

6. Attach the back cover with the #6 flat-head screw.

## TROUBLESHOOTING PROCEDURE

In the event that the test set does not operate properly, the following steps should prove helpful in troubleshooting the unit.

1. Make sure that the test set is not connected to a two-way radio.

2. Remove the back cover and re-check the chassis for any loose bits of solder or wire clippings

**WARNING**

Do not remove the back cover of the test set with the unit connected to a mobile transmitter. High B+ is present on the meter leads with the Selector switch in the B+ position.

3. Check the meter and the resistors with an ohmeter

4. Check all of the solder connections. Reheat all connections if necessary to assure a good solder connection.

5. Refer to the illustrations and check to see that each part is properly assembled and wired into the circuit.

6. Carefully recheck all wiring. Refer to the Wiring Diagram and mark off each wire as checked.

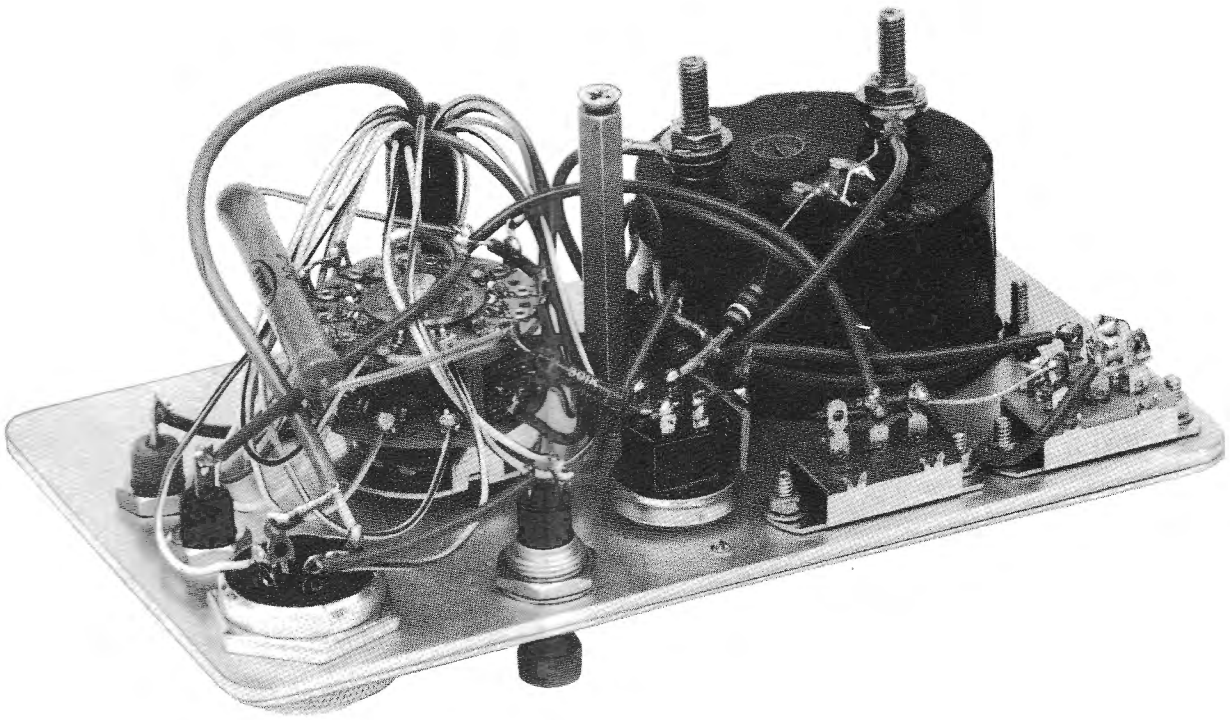


Figure 5 - Typical Test Set Assembly

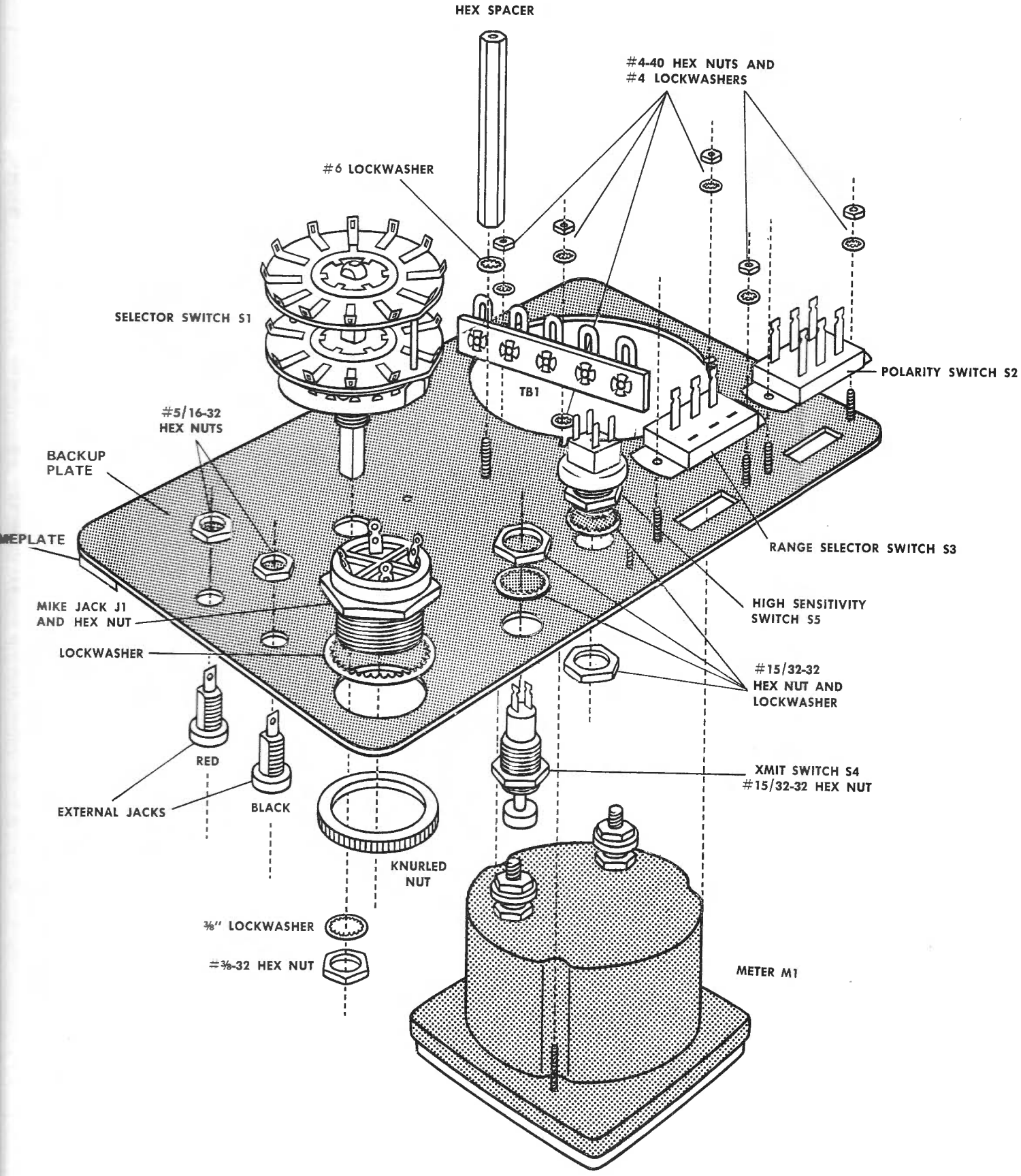



Figure 2 - Front Panel Assembly

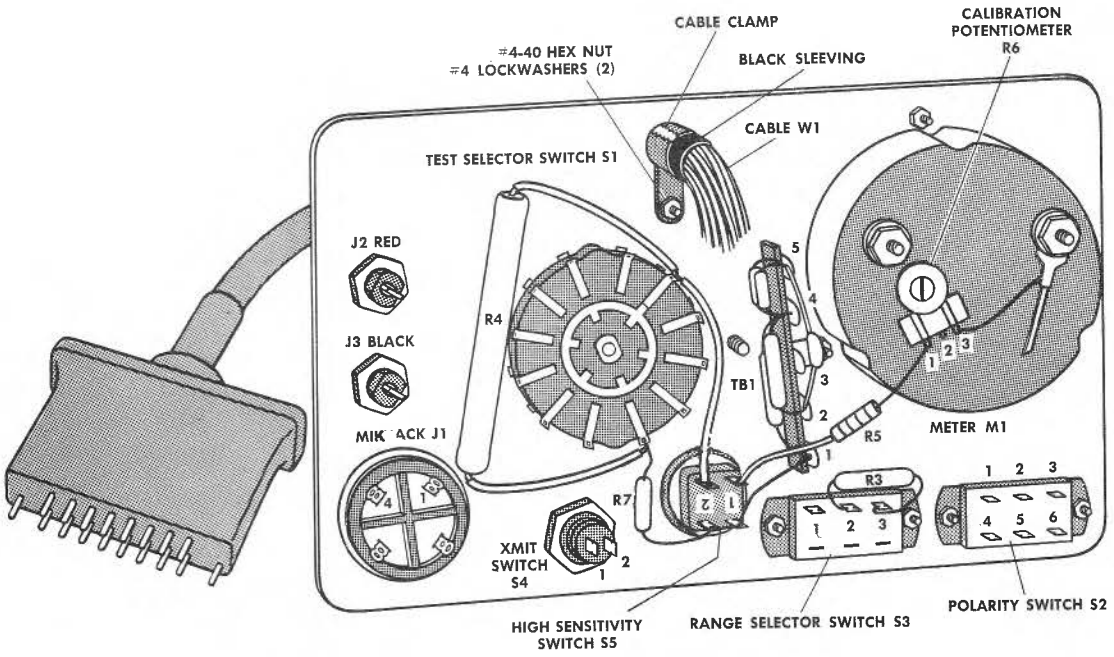



Figure 3 - Front Panel Wiring

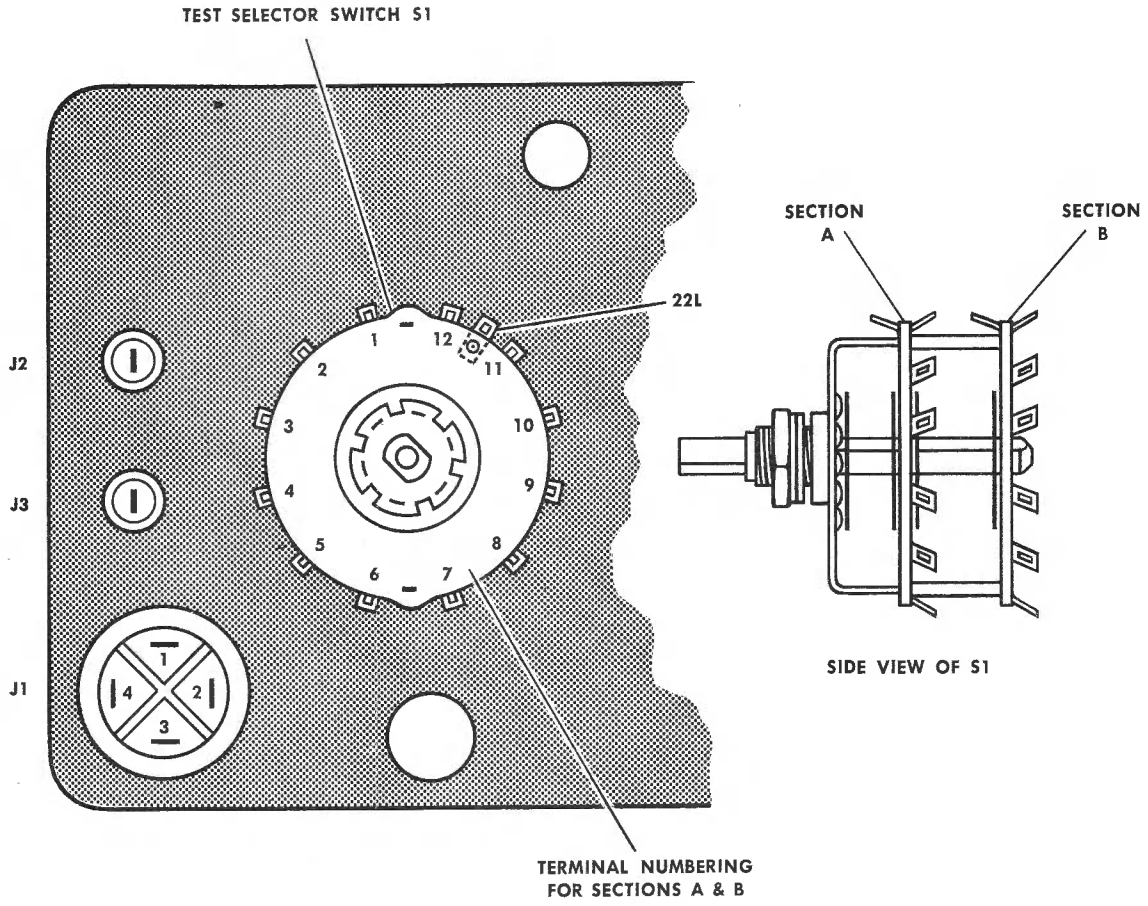
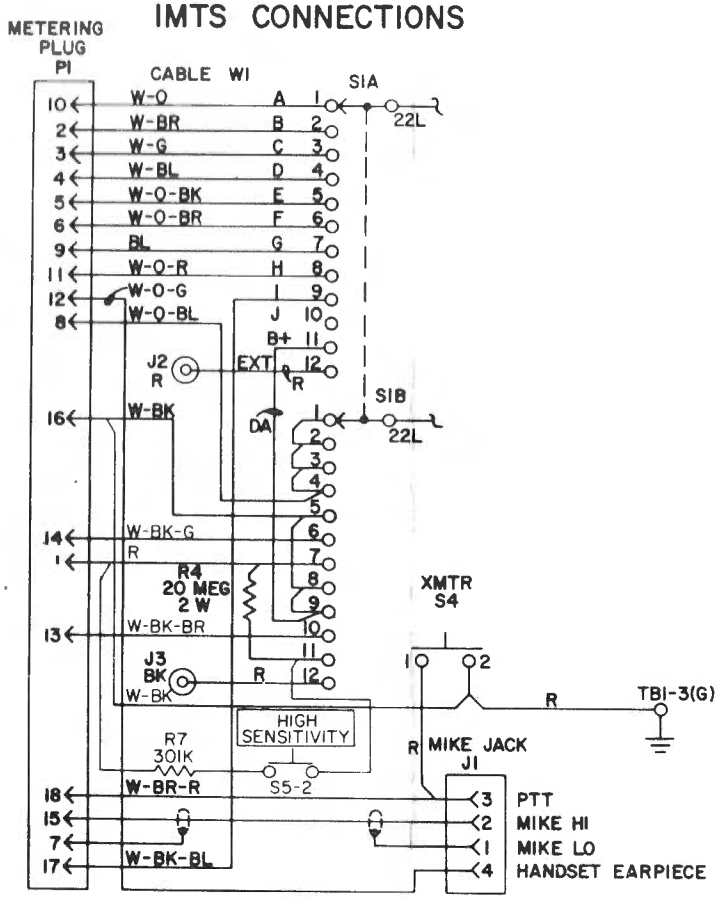
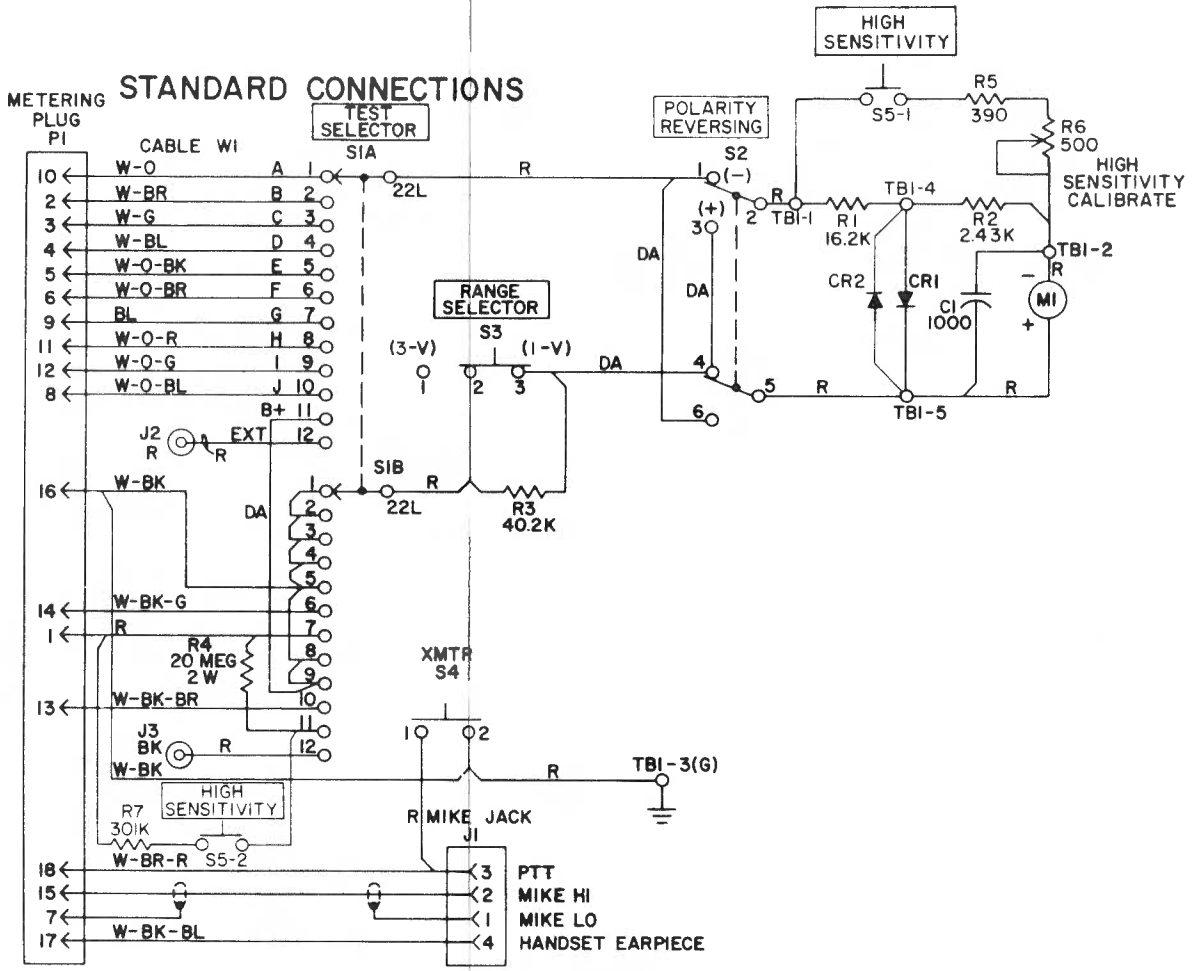



Figure 4 - Selector Switch Wiring

## IMTS CONNECTIONS




## STANDARD CONNECTIONS




(19C311769, Rev. 1)

# WIRING DIAGRAM

GENERAL ELECTRIC TEST SET
MODEL 4EX8K11

# ORDERING SERVICE PARTS

Each component appearing on the Schematic Diagram is identified by a symbol number, to simplify locating it in the parts list. Each component is listed by symbol number, followed by its description and GE Part Number.

Service parts may be obtained from Authorized GE Communication Equipment Service Stations or through any GE Radio Communication Equipment Sales Office. When ordering a part, be sure to give:

1. GE Part Number for component
2. Description of part
3. Model number of equipment
4. Revision letter stamped on unit

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These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance.

Should further information be desired; or should particular problems arise which are not covered sufficiently for the purchaser's purposes, contact the nearest Radio Communication Equipment Sales Office of the General Electric Company.

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# MAINTENANCE MANUAL

LBI-3863

DF-10008

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

GENERAL ELECTRIC

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