NOTE: This unit has been replaced by the RLN4460 Test Box.
1. DESCRIPTION

The RTX-4005B Portable Radio Test Set is a service aid for the following Motorola Handie-Talkie series portable FM two way radios: MT500, MX-300, HT90, HT440, HT600, PT500, and EXPO; also, the test set may be used to service the Maxar 50 fm two-way mobile radio. Typical measurements such as simulation of transmitter modulation and keying, receive audio output, and various receiver test points can be readily accessed. The applications and procedures using the test set are described within the appropriate radio service manual. Since the RTX-4005B Portable Radio Test Set is a self-contained unit, all interfacing to a portable or mobile radio is accomplished through an accessory cable, as described in paragraph 3.

2. OPERATOR ITEMS

All operator items are mounted on the front panel and are identified as to their function. Before using the RTX-4005B Portable Radio Test Set, the operator should thoroughly understand the functions of these items given in the following paragraphs. For quick reference, Figure 1 shows a brief functional description and location of all the operator controls.

- **MT B+ Binding Posts**

  15 V dc input power connections for MT500 series radios when tested with the front panel cover removed. An inline fuse protects the B+ circuit. The black binding post is internally connected to the radio via the accessory cable.

- **AC/DC MTR Binding Posts**

  Connections for external ac or dc voltmeter when measuring circuit performance or the microphone (MIC) input level. The black binding post is internally connected to the radio via the accessory cable.

- **AUDIO IN Binding Posts**

  Connections for an external audio oscillator for circuit testing. The input impedance is 600 ohms and is developed from a 15 dB resistive network. The black binding post is internally connected to the radio via the accessory cable.

- **METER SELECTOR Switch**

  Determines which circuit is connected to the AC/DC MTR binding posts for performance measurements. The MIC (microphone) position provides metering of the internal radio microphone output level, or the input signal level from the audio oscillator connected to the AUDIO IN binding posts. The VOLUME position provides metering of the receiver audio directly from the volume control before it is fed to the output power amplification stages. The MX DISC position provides metering of the recovered receiver audio directly from the discriminator for MX-300 series radios. The AUDIO PA position provides metering of the amplifier receiver audio.

- **MT PL Switch**

  Used to select the type of receiver squelch control, either Private-Line (PL) or noise (carrier), of MT500 series radios. The ON position enables the PL squelch circuit while the OFF position disables the PL squelch circuit, reverting back to noise squelch control.

- **AUDIO OUT Switches**

  Used to route the recovered receiver audio to the test set speaker (SPKR) for audible testing or to the internal resistive LOAD for non-audible testing. Use the MT/MX/A/B/C rotary switch to select the proper LOAD impedance; MT position for MT500 series radios and MX position for MX-300 series radios, and “B” position for HT600.
• **PTT Switch**

Provides a switched ground push-to-talk (PTT) function to turn on the transmitter of the radio under test. This is a three-position switch with one non-locking, spring-loaded return-to-center position. The CONT (up) position is locking and provides a continuous PTT function whereas the MOMT (down) position is non-locking and provides the PTT function for as long as the switch is held in the MOMT position. The PTT function is disabled when the switch is in the unmarked (center) position.

### 3. ACCESSORY CABLES

There are several accessory cables available for servicing with or without the front cover panels installed as identified in Figure 2. The RTK-4000A and RTK-4021A Test Cables provide direct connection to the Universal MT500 series radios and MX-300 series radios, respectively, without removing the front cover from the radio. This permits rapid performance testing of the selected functions. The RTK-4001A Test Cable provides connection to MT500 Series models, when the front cover is removed. This permits circuit adjustments to be made within the radio when the radio is being tested with the test set. The RTK-4003A RF Test Cable is available for making rf measurements of Universal MT500 series radios without removing the front cover. The test set is not used when taking rf measurements with this cable.

The RTK-4013B Test Cable provides interfacing between the test set and PT500 series radios by connecting directly to the microphone connector on the radio. The RTK-4038A Test Cable provides the interface between the test set and the HT90 and HT440 series radios only if the front cover is removed from the radio. The RTK-4039A Test Cable provides interfacing between the test set and the HT90 and HT440 series radios with or without the radio covers in place. The RTK-4059A Test Cable provides the interface between the test set to the EXPO series radios only if the radio unit is removed from the housing. The RTK-4073A Test Cable provides interfacing between the test set and the Moxar 50 series radios by connecting directly to the microphone connector on the radio.

The RTK-4205A Test Cable provides interfacing between the test set and the HT600 series radios.

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![Figure 1. Portable Radio Test Set Operator Items](image-url)
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<th>CABLE</th>
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Figure 2. Accessory Cables For Portable Radio Test Set