

## RITRON MOBEX/RPM MOBILE RADIO INSTALLATION

### DESCRIPTION

The MOBEX/RPM mobile system allows the radio user, while away from his vehicle, to make and answer calls through his mobile radio using a handheld. The Mobex transmitter is activated by the squelch output of the RPM mobile, eliminating the VOX keying typical of Mobex operation.

The mobile radio may be programmed to prevent Mobex operation on selected channels. The standard setting allows Mobex operation on all channels. **IMPORTANT:** Before programming the RPM mobile radio, you must first disconnect the MOBEX from the RPM mobile's rear panel, 9-pin connector.

The MOBEX unit connects to the RPM mobile radio via two cables, called the RMX-OPT-RPM assembly. The long cable connects the MOBEX PC board push-pins through the MOBEX front panel to a 9-pin plug. The short cable is located inside of the mobile radio case, and connects the RPM PC board to a 9-pin socket mounted in the rear panel.

The MOBEX half of the RMX-OPT-RPM cable assembly is:

- An 8-conductor, shielded cable, 5 ft. length.
- Connected to the MOBEX PC board with push-pins, except for +12 VDC and Ground, which are soldered.
- Retained at the MOBEX front panel with a strain relief.
- Terminated with a square 9-pin MOLEX plug.

The RPM half of the RMX-OPT-RPM cable assembly is:

- A 9-conductor, shielded cable, 10 inch length.
- In series with a circuit board that is required for operation with the MOBEX unit.
- Connected to the RPM PC board with push-pins.
- Terminated with a square 9-pin MOLEX socket, mounted to the RPM rear panel, for connection to the MOBEX cable.

### INSTALLATION PROCEDURE

#### MOBEX

- 1) Remove the existing MOBEX front panel cable.
  - a) Take the 4 Phillips head self-taping screws out of the bottom of the MOBEX case.
  - b) Slide the top half of the case up and off.
  - c) Unhook the push-pins on the MOBEX PC board.
  - d) Remove the front panel cable strain relief, and pull the cable through the front panel.
- 2) Disconnect the existing MOBEX front panel DIN connector by unhooking the push-pins and cutting all of the wires from the DIN connector. NOTE: An alternative to cutting the wires is removing the DIN connector from the front panel and masking the panel holes with tape or a label.
- 3) De-solder the +12 VDC and Ground wires from the MOBEX PCB and remove the rear panel power cable and wires.
- 4) Cut or remove CR617.
- 5) Solder the 1.5 K $\Omega$  resistor included with this kit to the MOBEX PC board bottom side, between the MON OUT pin and K601 pin 2. (See the MOBEX service manual bottom side diagram; the MON OUT pin shares a pad with C632.)
- 6) This step is optional. If you want to reduce the MOBEX hang-time, replace C601 (2.2  $\mu$ F Tantalum) with a 1  $\mu$ F Tantalum capacitor. The polarity of this capacitor is critical (see the attached diagram).
- 7) Feed the push-pins on the MOBEX half of the cable assembly through the MOBEX front panel and secure the cable to the front panel with a strain relief. Approximately 1/4" of the cable's gray insulation should be inside of the case.
- 8) Connect the push-pins to the MOBEX PC board pins according to the chart and diagram on the following pages.

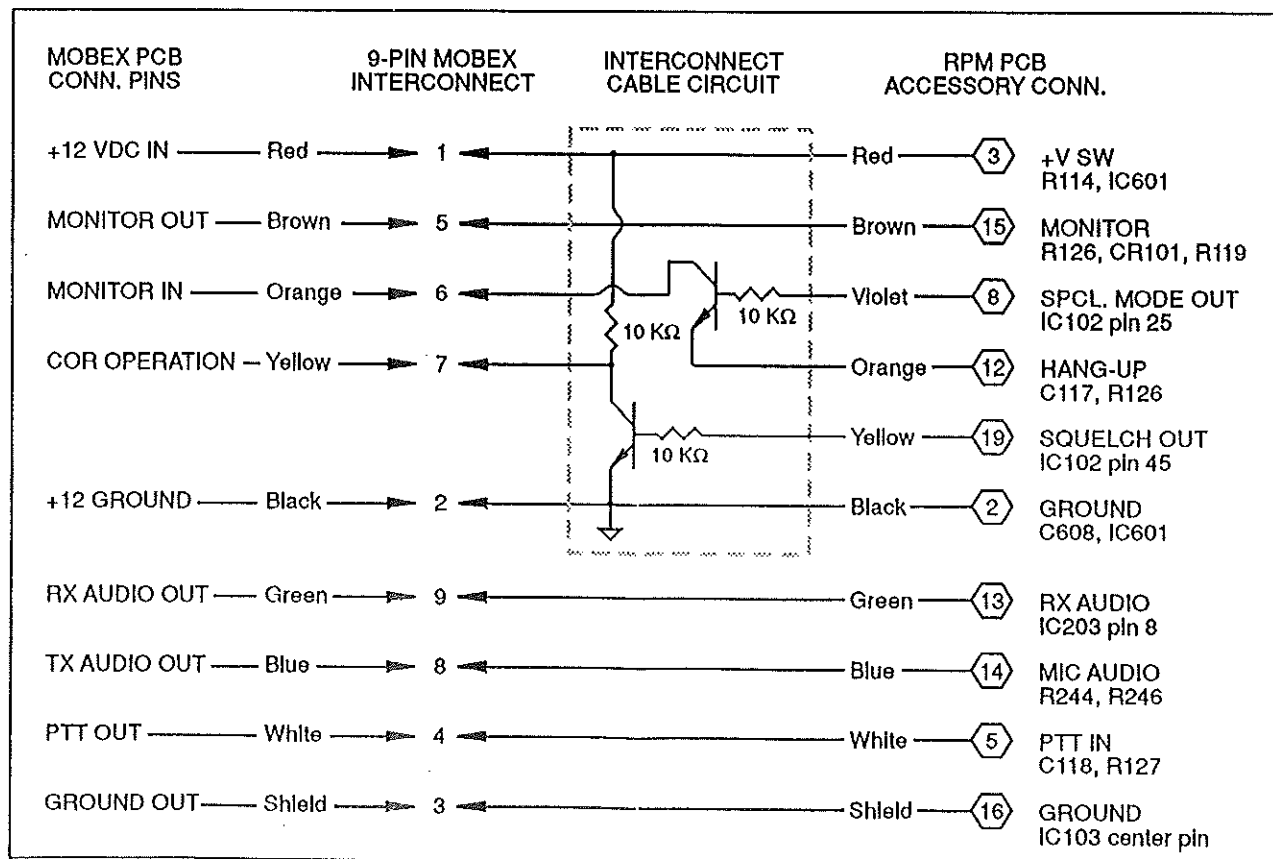
## RPM MOBILE RADIO

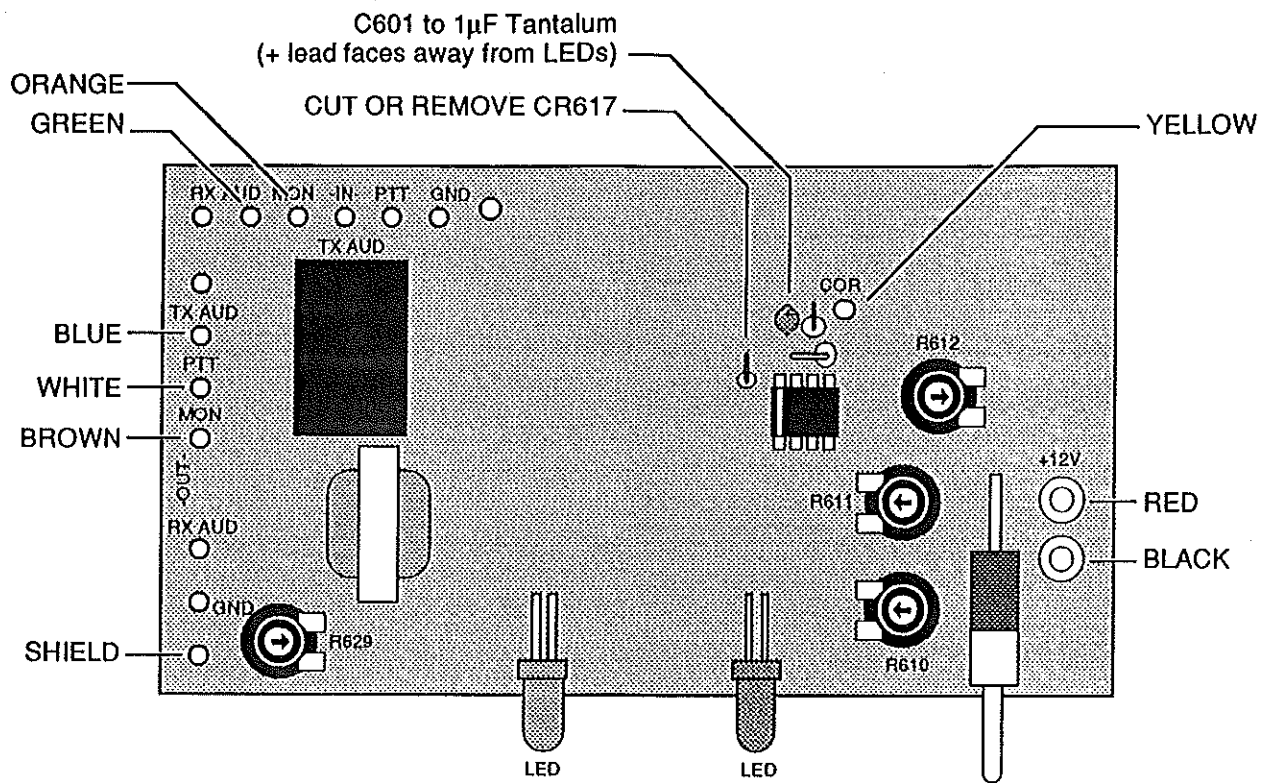
- 1) Remove the RPM mobile from its case, as described in your RPM radio service manual alignment procedure.
- 2) Connect the cable push-pins to the RPM PC board, according to the chart below. Note: On some RPM PC boards, a pin is not available for each accessory connection point. In this case, remove the push-pin from the wire and solder the wire to the appropriate point on the board. To locate these points, refer to the appropriate schematic and parts placement diagram.
- 3) If the radio is model RPM-050, remove R537 from the receiver PCB. (Refer to the RPM-050 service manual parts placement diagram.) Removing R537 will permanently enable the noise blanker circuitry, and make available the microprocessor's special mode output pin for MOBEX operation.
- 4) Install the RPM mobile into its case, leaving off the back panel.
- 5) Push the RPM accessory connector (with RMX-OPT-RPM cable attached) into the RPM rear panel. Make sure the retaining "ears" are fully engaged and the connector locks into the back panel.
- 6) Attach the back panel to the radio case.

## ALIGNMENT

*Refer to the MOBEX and appropriate RPM mobile maintenance manuals while making the adjustments below.*

- 1) Connect the MOBEX cable to the RPM rear panel accessory socket.
- 2) Connect power to the mobile radio, and antenna termination to both the mobile and MOBEX.
- 3) Apply a full quieting receive signal to the RPM mobile receiver with a 1 KHz tone at 3KHz deviation. Also apply sub-audible if CTCSS will be used.
- 4) Adjust R610 on the MOBEX PCB to prevent limiting of the 1 KHz tone at IC601 pin 1.
- 5) Adjust R611 (MOBEX PCB) for 3 KHz deviation of the MOBEX transmitter. The mobile microphone must be in the grounding hang-up bracket for the MOBEX re-transmission to occur.
- 6) Remove the receive signal from the mobile and apply a full quieting receive signal to the MOBEX receiver, with a 1 KHz tone at 3KHz deviation.
- 7) Adjust R629 (MOBEX PCB) for 3 KHz deviation of the RPM radio transmitter.
- 8) Using the PC programming kit (RITRON model RPT-PCPK), program the special mode output of the RPM mobile for any channel that MOBEX operation is not desired. The default setting (N) activates MOBEX. Program special mode (Y) to disable Mobex on a per channel basis.
- 9) For any other information about MOBEX operation or adjustment, see the MOBEX manual.





MOBEX PC BOARD  
(TOPSIDE)