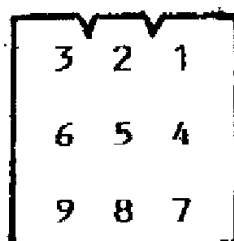


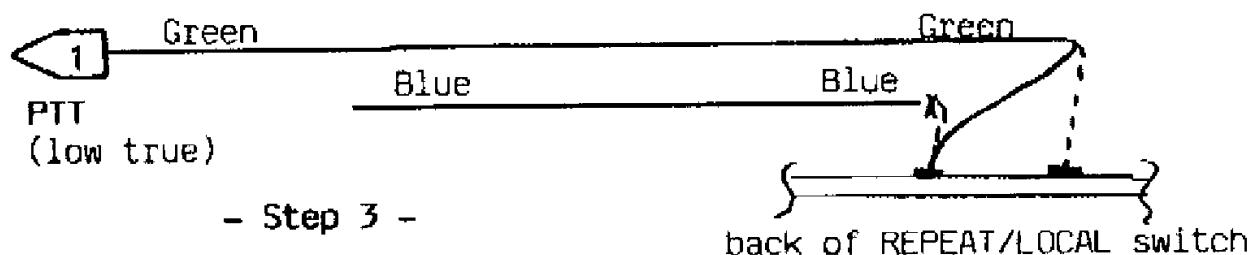
**INSTALLING THE S-COM 5K REPEATER CONTROLLER
IN A UNIDEN ARU 251 REPEATER (NEW MODEL)**

1. Note that the following instructions apply to the latest Uniden model. The schematic and the repeater wiring diagram are dated 4/30/87.
2. Remove the cover from the repeater. Note that there is a 9-pin **Accessory Connector** on the rear panel of the repeater. Looking from inside the repeater cabinet, the pins are numbered as follows:



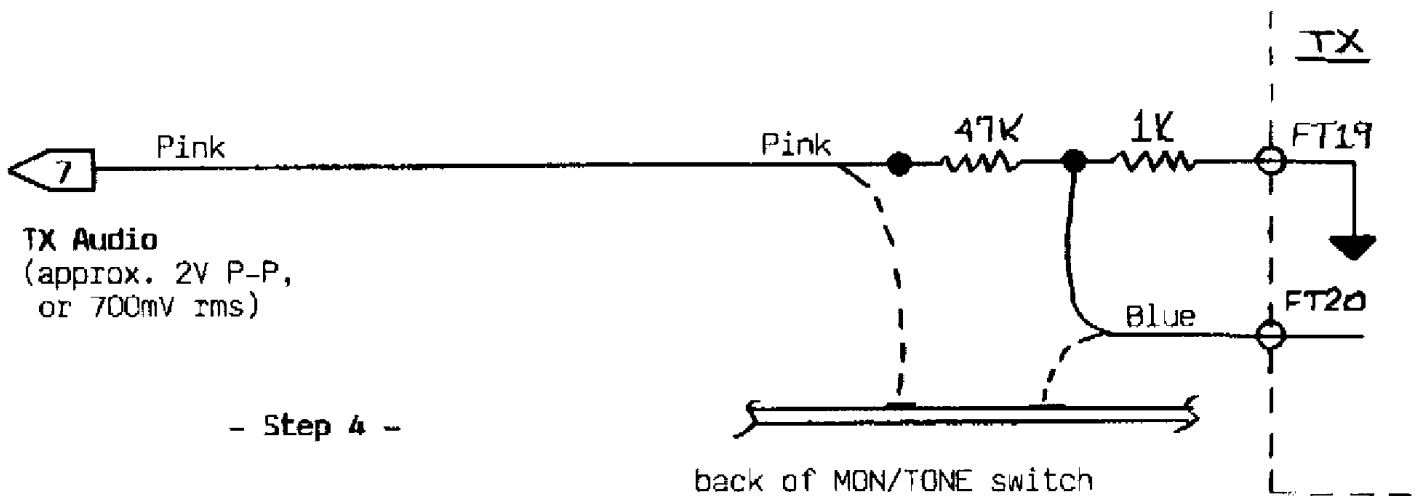
3. Locate the **Monitor & Rpt/Local Switch Board**, PC009. Unsolder the BLUE wire from the RPT sw and leave it disconnected. This opens the circuit from the internal controller to the transmitter PTT.

Unsolder the GREEN wire from the RPT sw and connect it to the pad formerly used by the BLUE wire. This allows the 5K controller to operate the transmitter's PTT line, and also allows the front panel **REPEAT/LOCAL** switch to operate as before.

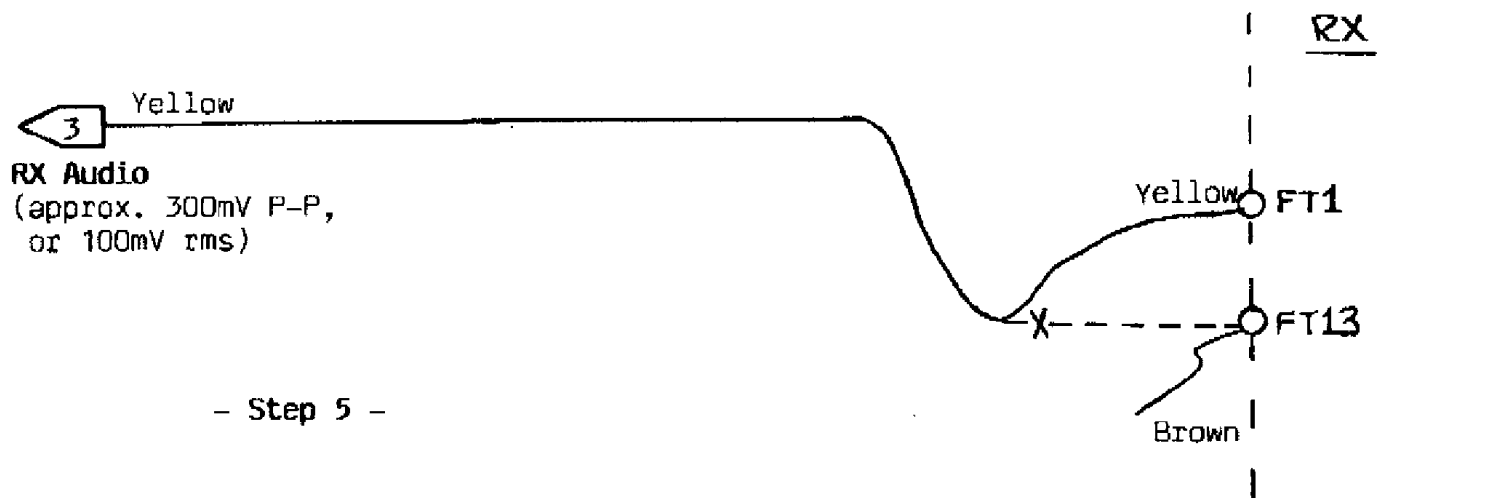


4. Solder a 1K resistor to feedthru FT19 (ground) on the transmitter. Solder a 47K resistor to the free end of the 1K resistor.

Locate the **Monitor & Rpt/Local Switch Board** again. Unsolder the PINK and BLUE wires from the MON/TONE switch. Solder the BLUE wire to the junction of the 1K and 47K resistors. Solder the PINK wire to the free end of the 47K resistor. These modifications reduce the high-level audio from the controller to the nominal TX microphone input level. The local microphone will operate as before.



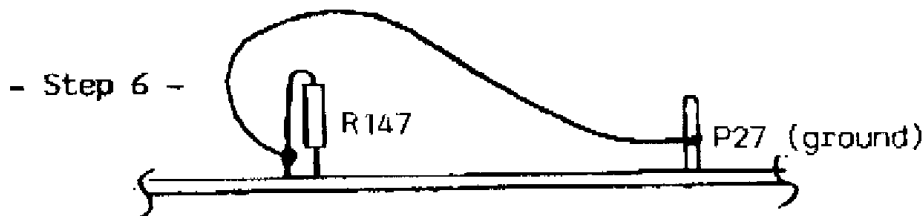
5. Unsolder the YELLOW wire from feedthru FT13 on the receiver. Solder it to feedthru FT1 on the receiver. (You may need to cut some cable ties to move this wire over.) This modification feeds flat, filtered audio to the controller instead of discriminator audio. The front panel VOLUME control will not affect the repeat audio level. Cut one lead of R17 (marked "B") in the 5K controller to increase the gain of the RX input.



6. **"Receiver Always UNSQUELCHED" mod (optional):**
As shipped by Uniden, the receiver-transmitter audio is gated in the receiver **as well as** on the Uniden control board. The receiver audio gate is operated by the receiver's squelch circuit, with the front panel SQUELCH control used to set squelch sensitivity. For many applications, this is an acceptable method. (Note that the COS signal for the controller is generated on the Uniden control board and not the receiver's squelch circuit.)

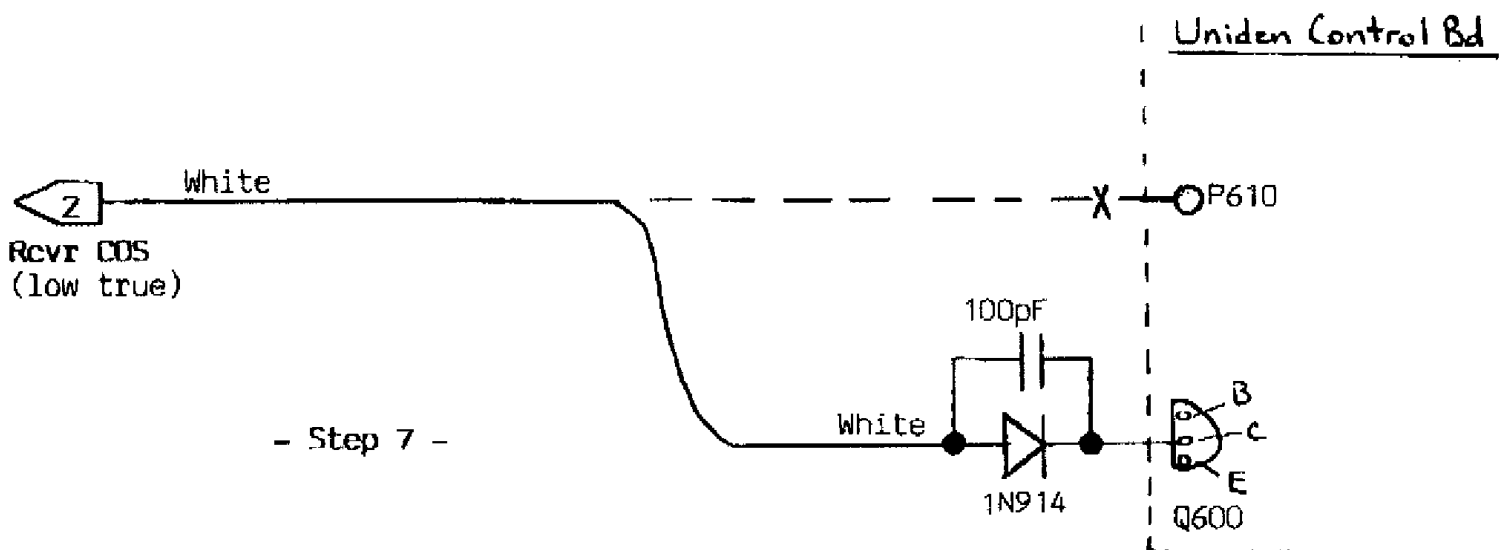
The difficulty with this method is that weak signals using CTCSS will trip the CTCSS decoder before tripping the squelch. The receiver's audio gate, being driven by the squelch circuit, will stay OFF and prevent audio from passing to the controller. Therefore, it is desirable to have the receiver's audio always unsquelched and allow the controller to do the audio gating.

To make the modification, remove the cover from the receiver box (four screws). Locate resistor R147 and connector pin P27. Solder one end of a wire to P27. Solder the other end of the wire to R147, being sure to use the proper side of R147: it is the junction of R147, R146, and R174. Replace the receiver cover.



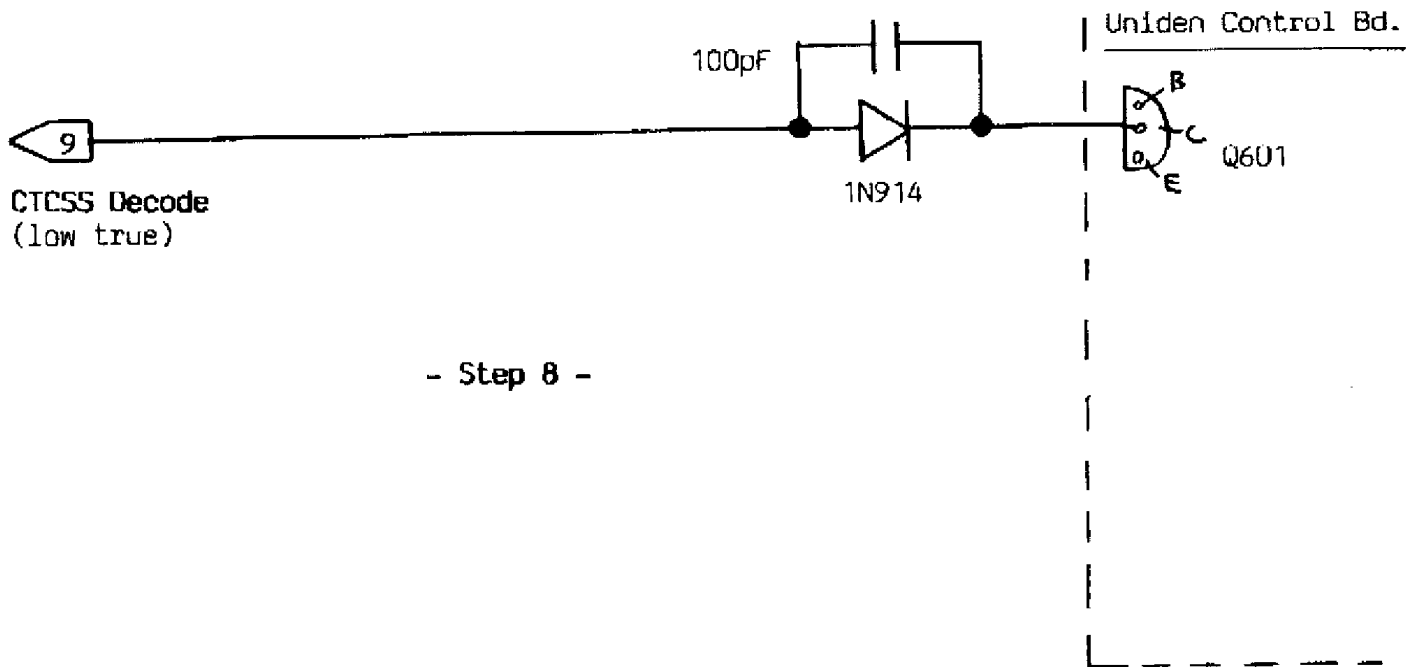
7. Solder the cathode lead of a small diode (1N914, 1N4148) to the collector of transistor Q600, located near the edge of the Uniden control board. Solder a small (100pF) ceramic capacitor across the diode.

Cut the WHITE wire from terminal P610 on the Uniden control board. Solder the wire to the junction of the 100pF capacitor and the anode of the diode. This modification provides a low-true COS signal to the controller.



8. If CTCSS operation is desired, make the following modifications:
 Check the 9-pin Accessory Connector for a spare (unused) pin. If none is found, obtain a 0.062" Molex pin and connect it to a length of wire.

Solder the cathode lead of a small diode (1N914, 1N4148) to the collector of transistor Q601, located near the edge of the Uniden control board. Solder a small (100pF) ceramic capacitor across the diode. Connect the free end of the wire with the Molex pin to the junction of the 100pF capacitor and the anode of the diode. Push the Molex pin into location 9 of the Accessory Connector. This modification provides a low-true CTCSS DECODE signal to the controller.



9. Power for the 5K Repeater Controller may be taken from the Accessory Connector. Pin 6 provides +13.6 VDC, and pin 8 provides the ground.
10. Build a cable to interconnect the Uniden repeater and the S-COM controller.

Uniden 9-pin Connector	Signal Name	S-COM 25-pin Connector
1	TX PTT	10
7	TX Audio	11
3	RX Audio	13
2	RX COS	6
9	CTCSS Decoder	4
6	+13.6VDC	2.5mm Center
8	Ground	2.5mm Sleeve
8	Shield Braid	Any of 14-25