

# Complete Scanning With The Pro-34

## Pro-34 Modification To Tune 806-960 MHz

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**T**his describes a modification to the PRO-34 scanner. The modification will allow tuning 806-960 MHz as a continuous band.

I enjoy using the Realistic series of Pro scanners. They are well designed and rugged. Lately, some PRO scanners are being sold with certain frequency ranges blocked out. Blocked frequencies typically occur in the 800-900 MHz range, the PRO-34 being sold with a wiring option that blocks segments of the 806-960 MHz range. When entering a blocked frequency, the display indicates "Error." At that point, the scanner will not respond to the desired frequency. By de-installing the option, you restore the designed capability of the radio. Modification of the PRO-34 requires only simple tools, no parts, and about one hour. Although you can probably modify the radio yourself, you might wish to seek expert assistance. In any case, your warranty and service contract won't survive any changes you might make.

Start by reading the whole article before actually doing anything.

1. Make sure you have a written record of the frequencies programmed in the radio. During the modification, you may lose memory in the radio. The radio's memory is maintained, while the batteries are out, by the retained charge of an internal capacitor. This capacitor will normally hold its charge for about an hour if your batteries were at full voltage before being removed. Well let's get started. Remove the battery case from the radio.

2. Remove the four phillips head black bolts from the back of the radio case. The antenna along with the volume and squelch knob are then removed. The knobs may require a *gentle* pull with a pair of pliers. The back of the case is removed by lightly pressing upward on the bottom back of the case to release that end. The top of the case will then slide over the top of the radio.

3. Fig. 1 shows you what tools are needed. These include a small phillips head screwdriver, needle-nose pliers, diagonal cutters, and a soldering iron or gun. A small solder-

ing iron would be ideal. I used the gun and a light touch without any problem.

4. Fig. 2 shows the inside back of the radio with the cover removed. Start by removing the four brass hex spacers. These are identified in Fig. 2 as (A), (B), (C), and (D). Do not turn ANYTHING with a phillips head on the top board. This top board is the RF Printed Circuit (PC) board. It must be unsoldered and removed as follows:

A. The two connectors, (star) on Fig. 2, should be gently pulled from their sockets. Don't worry about confusing them. They will not fit in each others sockets. Lift the wire, (T) in Fig. 2, to release the leads to the connector. Move this wire out of the way until you are ready to put the radio back together again.

B. Unsolder the two wires from the volume control switch at the PC board. These wires are (2) and (3) in Fig. 2. The wire should be lifted up away from the board. Leave the wires connected at the other end to the volume control switch.

C. Unsolder the ground and the center conductor of the antenna connector at



FIG. 1

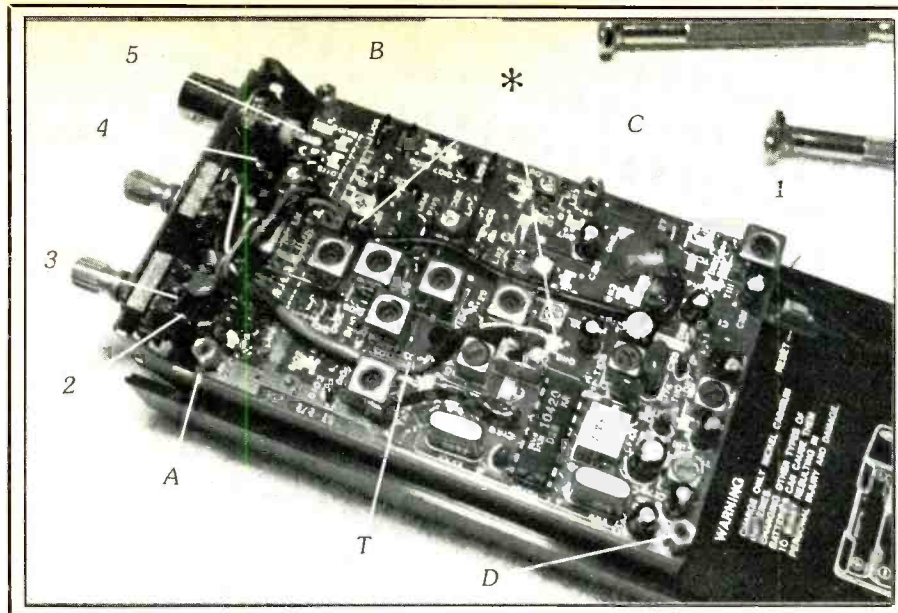


FIG. 2

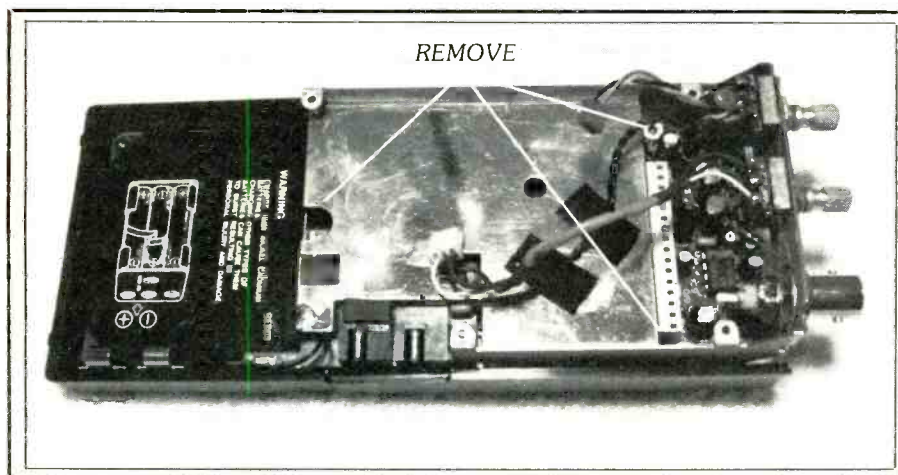


FIG. 3

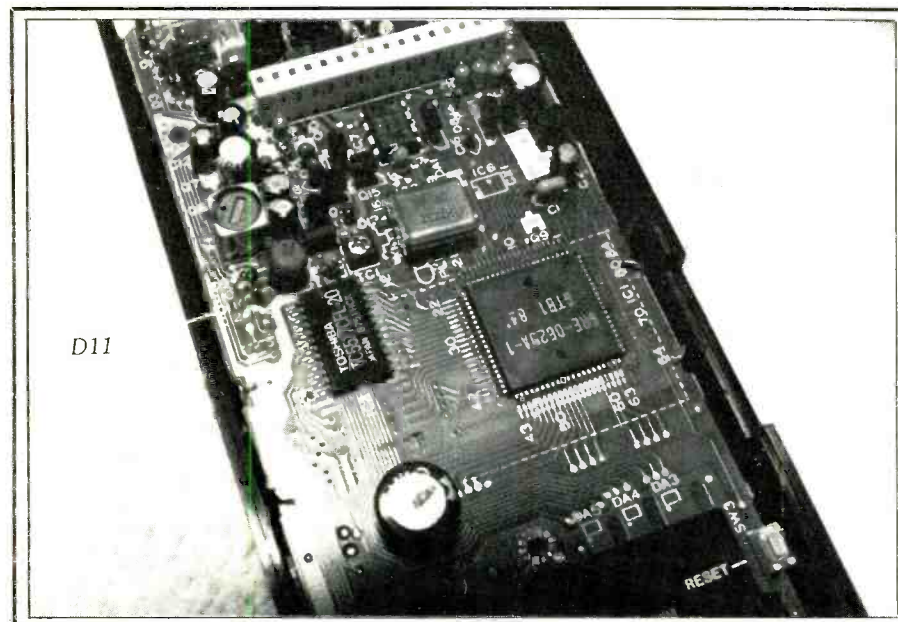


FIG. 4

the PC board end. These connections are (4) and (5) in Fig. 2.

D. Next, there is a bare wire attached to a transformer can on the battery case end of the PC board. Remove the end of the wire attached to the transformer can. This connection is (1) in Fig. 2.

E. The spacers, connectors, and soldered wire have all been removed. The board is still being held by a 16 pin connector underneath near the top of the board. Gently rock the top end of the board back and forth to release the connector and remove the board. Do not attempt to pry the board up with a tool. There are small surface mount devices under the board that could be damaged. Also do not bend or move the small wire coils on top of the board.

5. Next, the shield covering the digital board must be removed. Fig. 3 shows the shield and the three phillips head bolts that hold the shield down. Remove the three bolts (and only those three). Gently lift the shield and remove the connector, (star) in Fig. 3 from its socket. Put the shield aside, revealing the digital board underneath.

6. Locate the diode D11, see Fig. 4. With the diagonal cutters, clip the lead near the top of the diode. There are two diodes D10 and D11 next to each other. D11 is the one closest to the bottom edge of the board. Separate the clipped wires so they will not touch. The modification is now complete. Next put the radio back together and test it as follows.

7. Replace the shield by first reinserting the connector, (star) in Fig. 3, into its socket. Replace the shield and carefully insert the three phillips head bolts.

8. Line up the sixteen pin connector on the RF board with its socket on the digital board and gently push the connector together. Line up the holes in the top board for the brass hex spacers A-D. Reinsert the spacers except for the one near the volume control (A) in Fig. 2. Resolder the volume control switch leads to the PC board. Resolder the Antenna center conductor and the ground lead to the PC board. Reinsert the connectors, (star) in Fig. 2, into their sockets. Dress the leads as shown in the picture. Bend tab (T) over the leads as shown in Fig. 2. Resolder the wire to transformer can, (1) in Fig. 2.

9. Recheck that everything has been soldered properly. Reinsert the remaining brass hex spacer into the top board at the point marked (A) in Fig. 2.

10. Reinstall the back plastic cover. First put the controls through the appropriate holes in the top of the case. slide the case down until you can snap it together at the bottom. Replace the four phillips head bolts in the back cover. Replace the battery case and battery cover.

11. Replace the volume and squelch knobs. Replace the antenna. Turn the radio on and see if your pre-programmed frequencies have been retained in memory. If they haven't you can enter them later. Let's



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see if the modification works. Program in a frequency (872.220). It should enter properly without an "Error" indication. If an error appears try entering another frequency that wouldn't have been blocked before the modification like 807.000. If this frequency enters properly, the clipped leads of diode D11 must be touching. The radio will have to be taken apart again and the leads separated. If you receive an "Error" with the 807 Mhz entry, you clipped the leads to the wrong diode (D10). If this is the case, take the radio apart again, resolder the leads of D10 and this time clip the leads to D11.

12. That's all there is to making a worthwhile modification to your scanner radio. For the experimenters out there, just a few notes of interest. After making the modification, note that the previously excluded frequencies are operational at 30 kHz intervals. The 800-900 MHz frequencies that were not excluded are incremented at 12.5 kHz. By removing diode D11, and inserting it in the slot for D12 all tuning across 806-960 MHz will be 12.5 kHz. Also note that you must remove the bottom board for this soldering. The warning here is that the keyboard lock switch has loose parts that will fall out when removing the digital board. To reinsert the keyboard lock switch, the plastic part is placed in its front cover hole and the metal hairpin is placed with the bump facing up and the opening of the hairpin facing into the center of the radio. I believe you will not need this last modification, so try the radio without it first. **PC**

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