

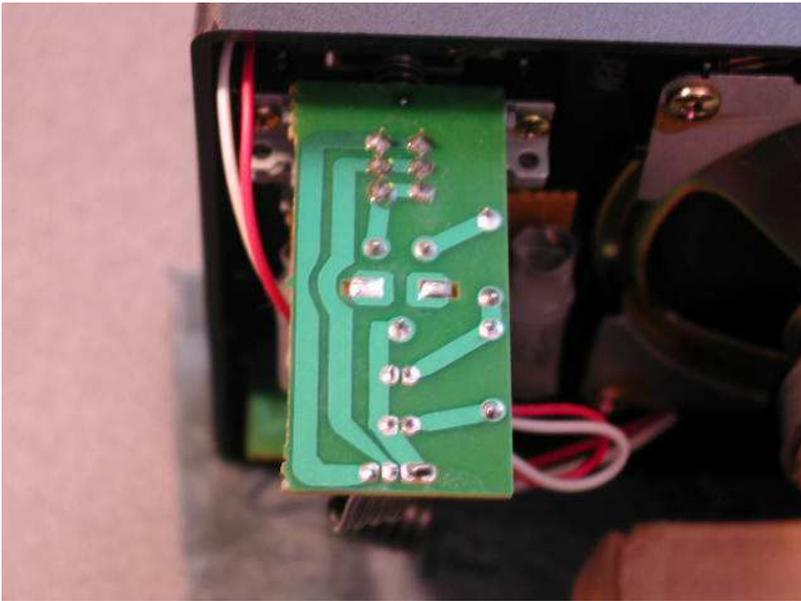
Remove the screws holding the top half of the SP-20 cover, and pull out the insulation. Pull off the 4-wire cable coming from the spkr output jack going to the circuit board modular plug mounted on the front panel (see pic #29), and removed the remaining screws holding the front panel to the cabinet. Removed the front panel from the cabinet and prop it up so to work on the upper circuit board (spkr on-off board)



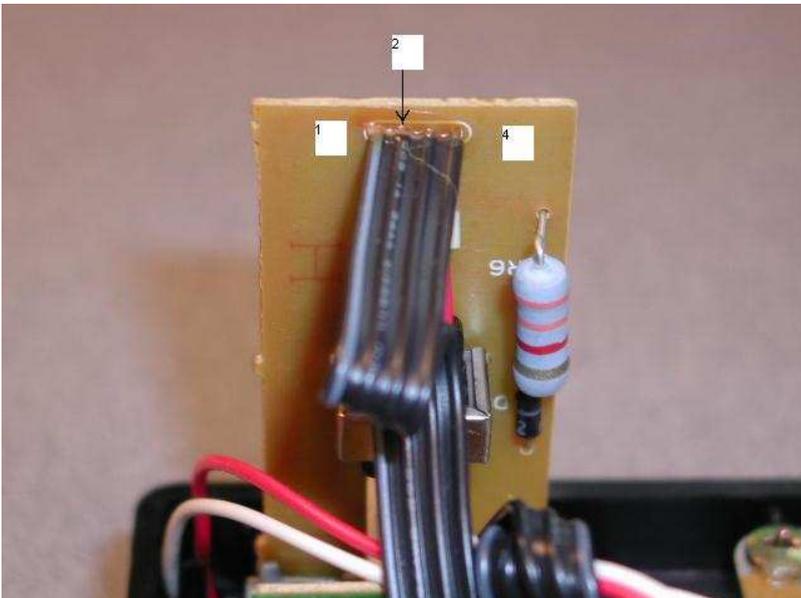
1.



2.



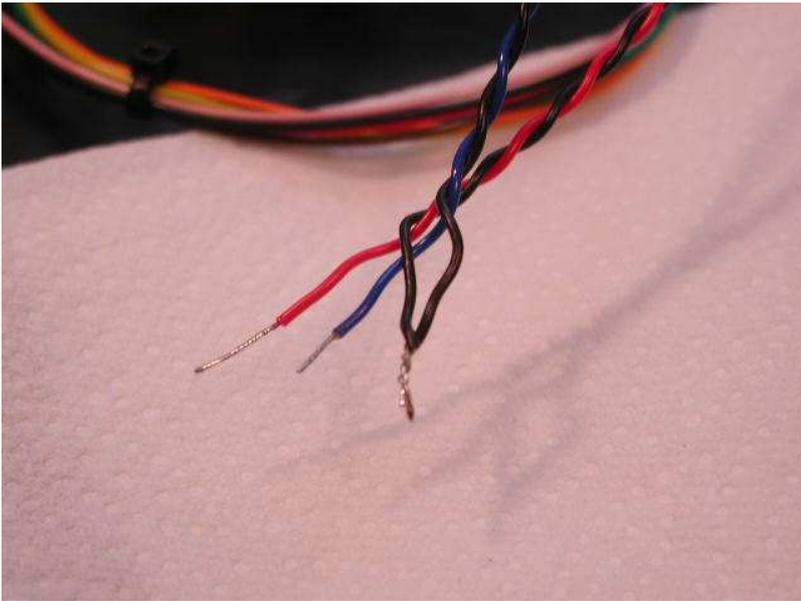
3. Spkr on-off board.



4. Bottom view of spkr on-off board

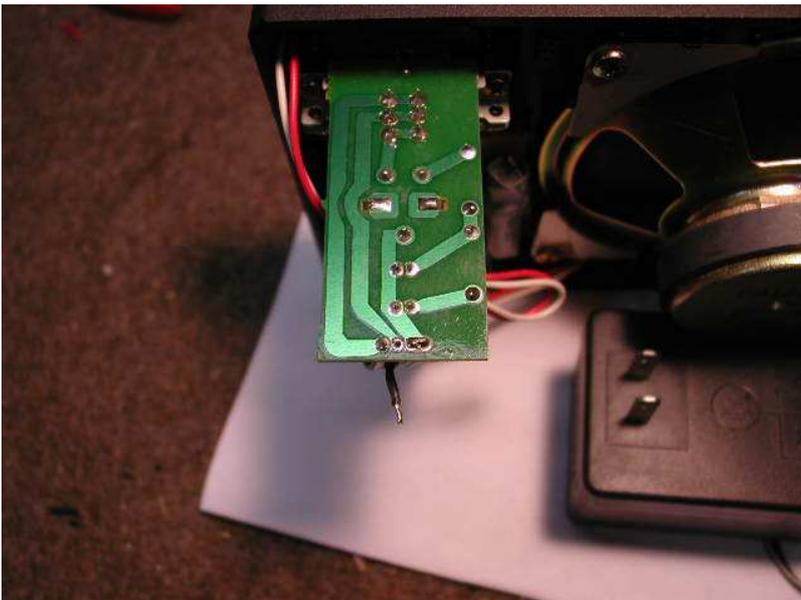
Locate the 4-wire ribbon cable and with a sharp knife or razor, split the 2nd wire (from the left) free from the remaining ribbon wires, as this wire will be unsoldered and removed from the board.

Prepare the blue-black and red-black wires by twisting the two black wires together and solder them. These black wires will then be soldered to the circuit board in an upcoming step.



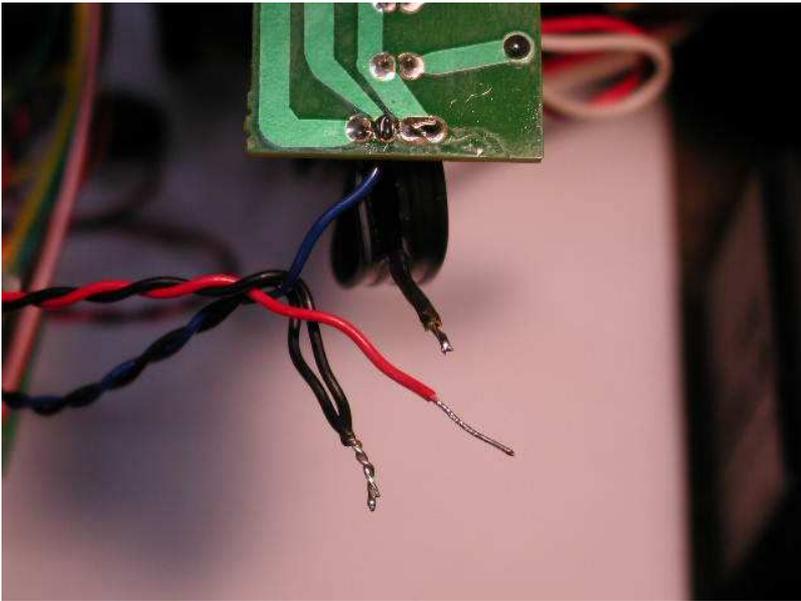
5.

Unsolder the 2nd ribbon wire and remove it from the spkr on-off board, and pull it away from the ribbon about 3/4 to an inch. The red NED1062 lead will be soldered to this lead in an upcoming step.



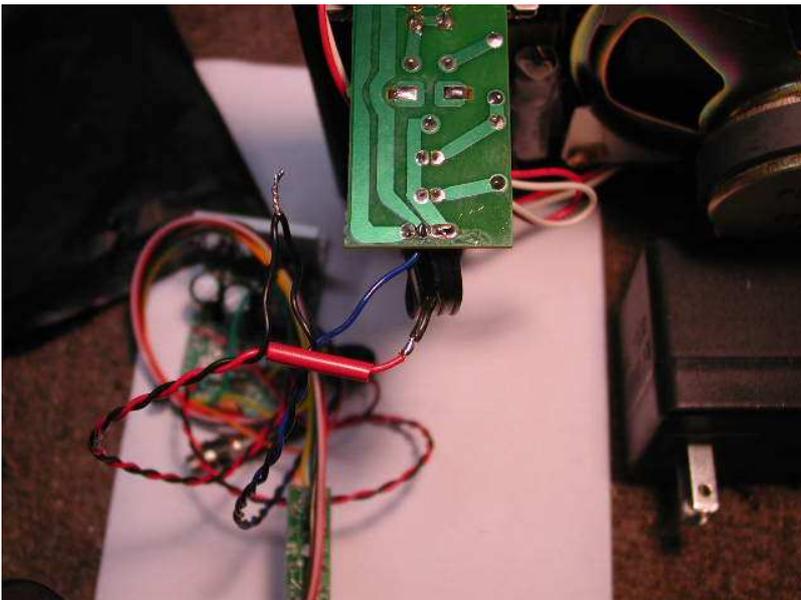
6.

Solder the blue lead in place where the 2nd ribbon wire was removed to the spkr on-off board.

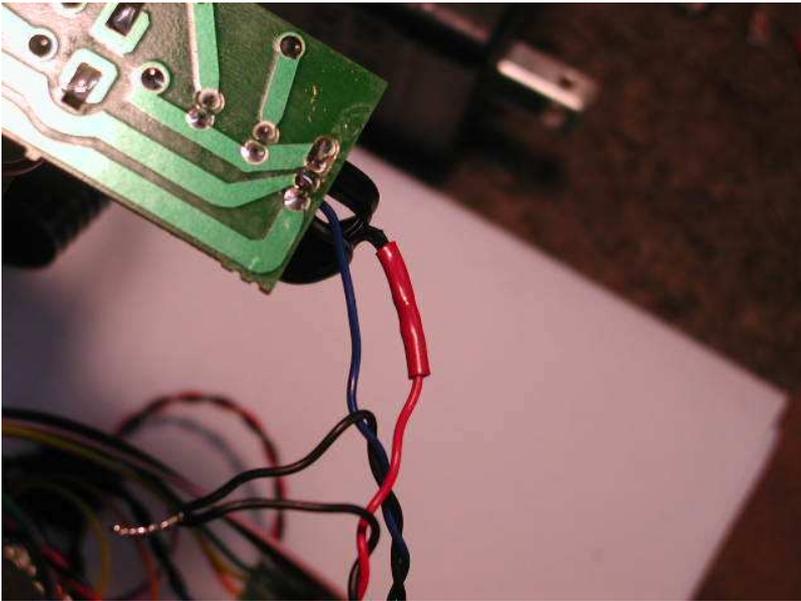


7.

Install a piece of heat-shrink over the red wire before soldering it to the removed 2nd ribbon wire. Now solder the red lead to the 2nd ribbon wire and then insulate it with the heat shrink.

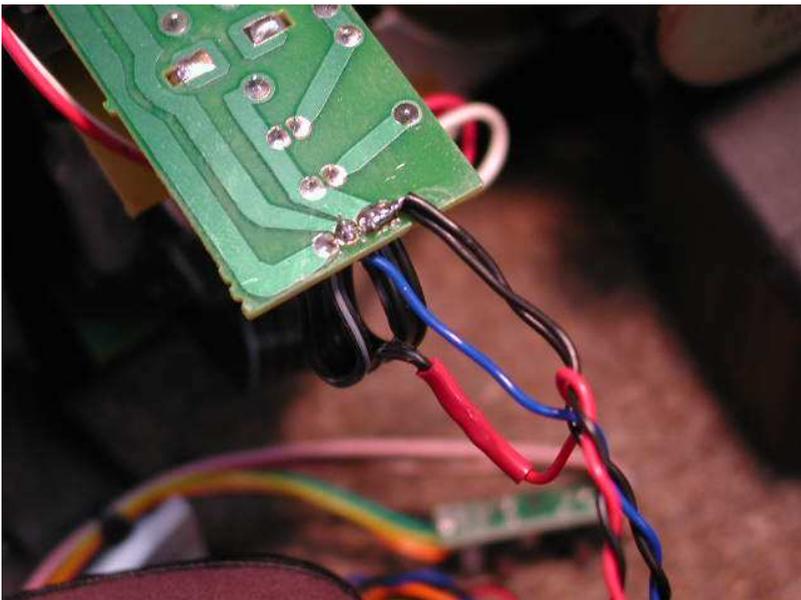


8.



9.

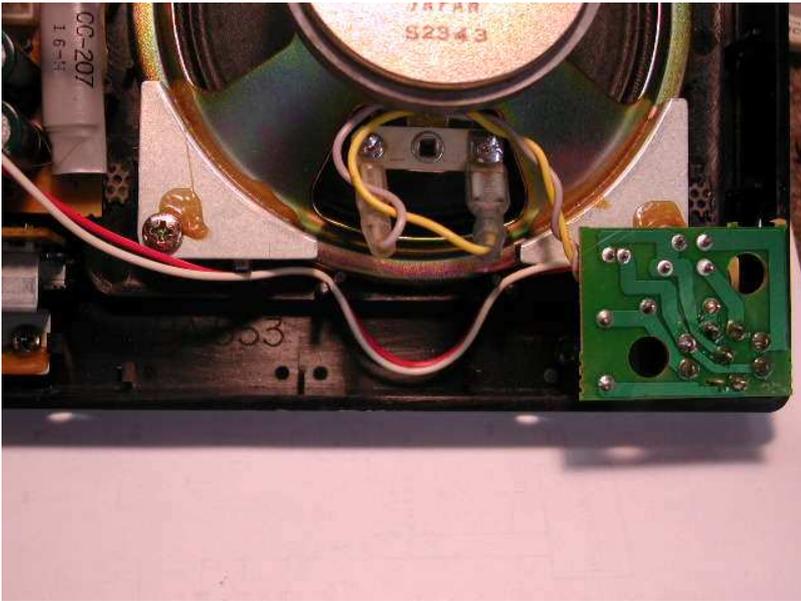
Solder the two black leads to the same solder joint the 3rd and 4th ribbon leads are attached to on the spkr on-off board.



10.

This completes the module wire connections to the SP-20.

Now prepare the holes to attach the KBD to the front panel. Care has to be taken to determine the clearance for the KBD unit. I used a mm ruler and determined the exact center (left to right) of the front panel and then the middle of the open area at the bottom from the inside. The mounting flat-head screw was my exact-center pilot hole, by which I drilled out from the rear. All the holes were drilled with a drill press. I used the directions to determine the distances between the remaining holes.



11. I mounted the KBD right where the red-white wire dips down.



12.



13. Another view.



14. Notice the small indentations for the other three holes to be drilled. One on the left, two on the right.



15. All holes drilled. Note the smaller hole is smack in the middle of the entire front panel.

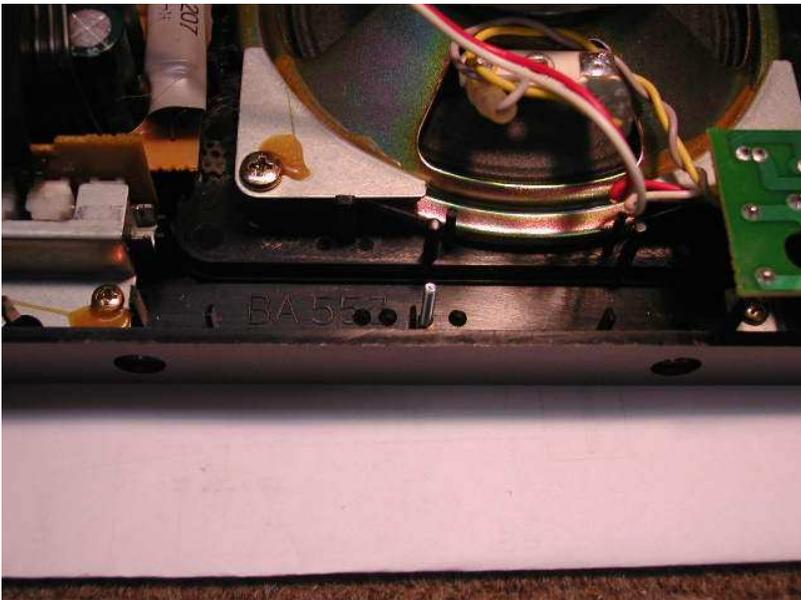
After all the holes are drilled, I used a larger-sized drill bit to ream out the plastic on the front of the SP-20 for the flat-head mounting screw, doing this by hand so as not to remove too much plastic.



16.



17. Flush-mounted flat head screw.



18.

Mount the KBD unit, using the plastic washer under the nut. Do not over-tighten the mounting screw, as this may impede the buttons on the KBD from moving correctly.



19.



20.

Clean the area where the KBD decal will be applied with a Q-tip and some rubbing alcohol sparingly and allow a few min for the alcohol to evaporate. I used the unused tip of the Q-tip to help dry any excess away.

Install the KBD decal. I used a pair of tweezers to hold the decal in place to avoid getting my oily finger prints on the plastic as the decal was applied.



21.

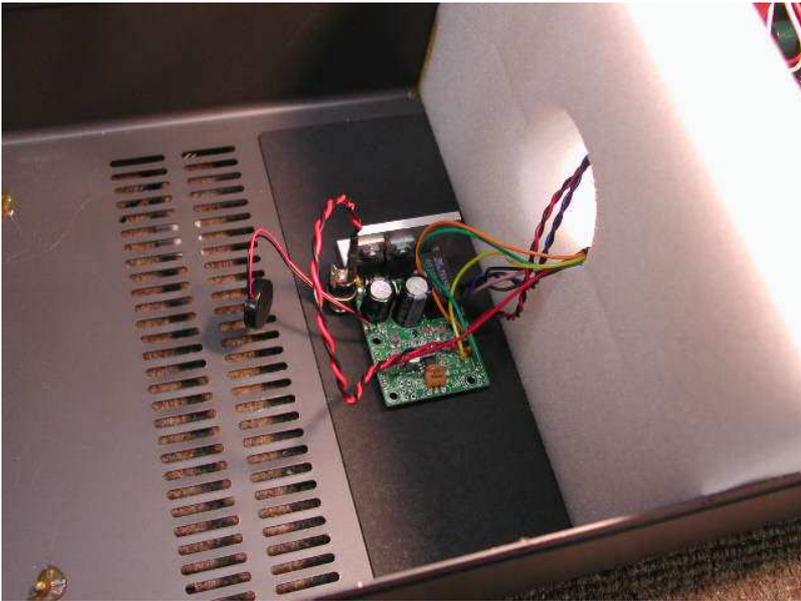
Reinstall the SP-20 front panel back on the cabinet. Do not reinstall the 4-wire connector at this time.

I removed the rear panel from the cabinet so I could use the drill-press to cut the hole for the power connector. Take care not to drill thru the wires between the input jacks and the output jack. Note where I put my power connector.



22.

Pass the DSP board thru the white foam insulation (the hole is just the right size) and using the double-stick tape, mount the DSP to the bottom.



23.

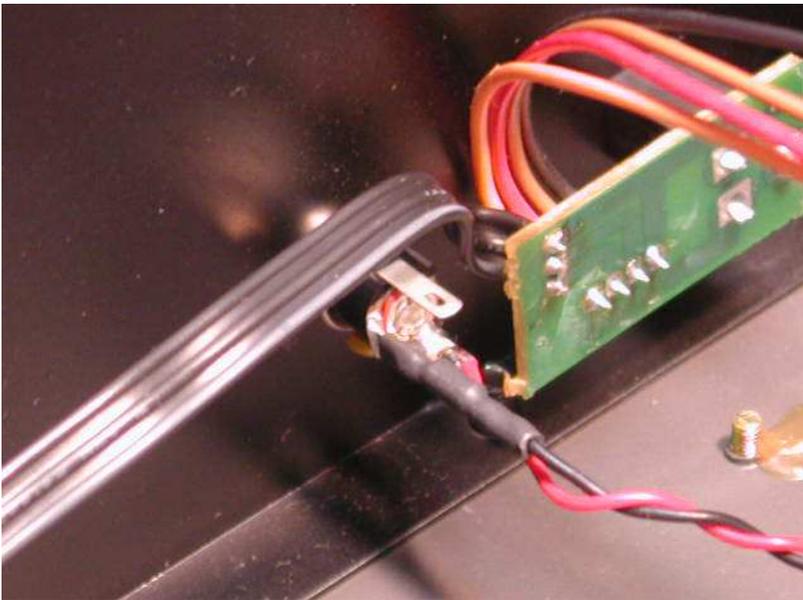
Reinstall the rear panel and then attach the power connector.



24.

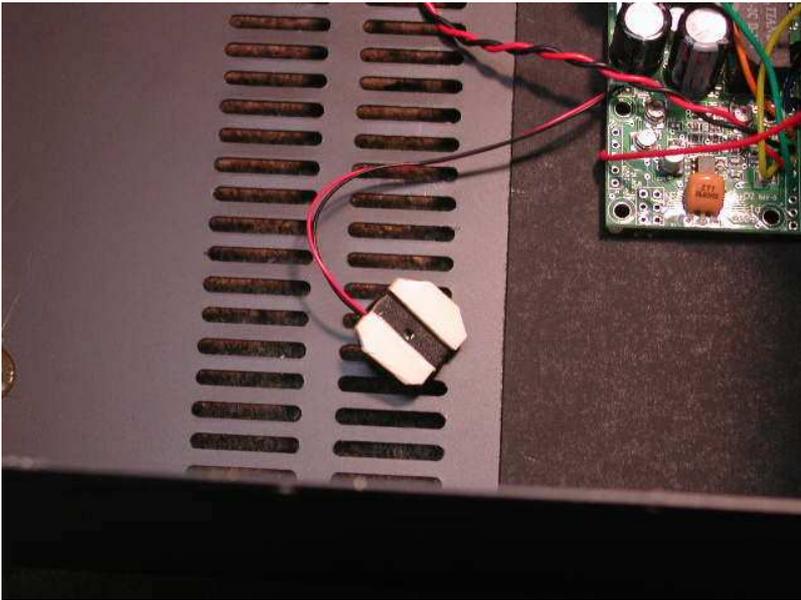


25.

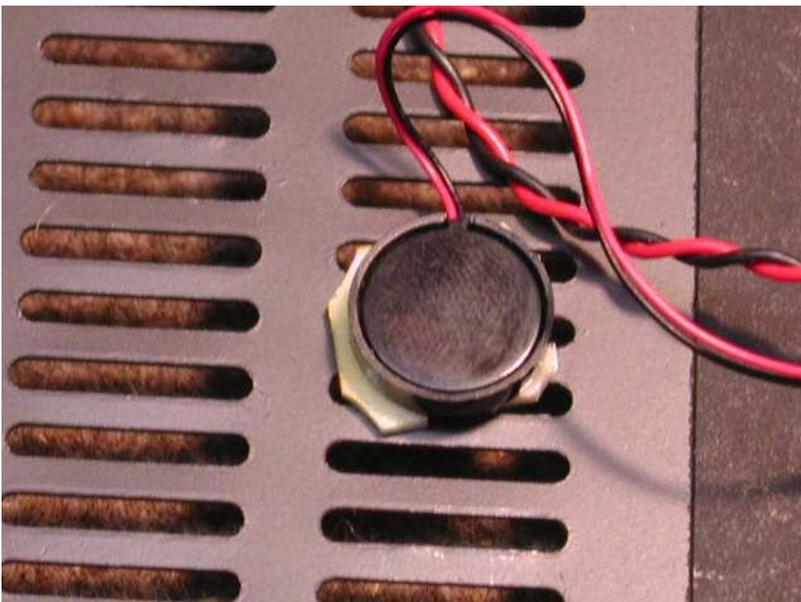


26.

Install the sounder using double stick tape, hole facing down.



27. Double-stick tape applied to sounder.



28. Sounder attached to speaker cabinet bottom, facing down.

Reinstall the 4-wire connector to the SP-20 front panel.



29.

All the parts are now mounted.

The next step is to test the speaker before applying any power to the DSP and closing up the cabinet.

Hook up the speaker to the radio and check the spkr on-off switch for proper function.

Next, check the power connection, remembering the center pin will be positive 12-16 vdc.

Apply the power. The unit, when working, will beep 3 times and the LED will light RED.

Just an FYI, the DSP has a polarity protection diode installed on it, but make sure the fuse is in-line from the power source.

Follow the setup instructions in the manual, then test the various functions of the unit.

When you are satisfied, reinstall the insulation and put the cover back on the cabinet.

Dave - K8TN