

SG-2020 Side-tone Level Improvement
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One complaint I have with the SG-2020 is that the CW side-tone level varies directly with the AF volume control. This can be a real problem if you are copying a weak station with the AF gain is turned up, and you are controlling the audio level with the RF gain control (recommended by SGC). In this case, you'll really blast your ears when you transmit unless you remember to turn down the AF gain before you transmit. The reason for this is that SGC injects the side-tone just before the AF volume control. A better place would be to inject the side-tone after the volume control. A perfect place is to inject it right into audio amplifier U6.

The modification isn't too difficult, but you will be removing an SMD resistor from the EXCITER pcb (bottom side). The modification is as follows:

1. Remove the SG-2020 from its case.
2. On the Exciter Component Layout sheet, locate R42. This is just to the right of J1 as you look at the Component Layout page.
3. Unplug the cable going to J1. Pull up on the outer plastic housing that holds the cable in place and then unplug the cable.
4. Carefully unsolder and remove R42. Make sure you don't inadvertently damage the cable that was plugged into J1.
5. Put some insulated sleeving or heat-shrink tubing over both leads of a 5.6K ohm ¼ watt resistor. The lead lengths on the resistor need to be about ½-inch long each.
6. Remove the shield over the audio amplifier (this shield may not be there in newer radios). There are three screws. Two of the standoffs under the shield will be loose – the standoff on the audio amplifier U6 will stay in place.
7. Solder one lead of the 5.6K resistor to the R42 pad closest to C16.
8. Solder the other lead of the resistor to pin 1 of U6. This is the lowest right hand pin on U6 as you look at the board when it is oriented as is the component locator page. Pin 1 is also right by the “dot” on U6.
9. Turn pot R46 (the side-tone level control) clockwise about ¼ turn.
10. Examine your solder connections, and then re-install the shield over U6. You'll need to put in the two loose standoffs first, and then carefully put the screws through the cover and through the standoffs.
11. Re-plug in the cable into J1, taking care to seat it properly and then pushing in the plastic retainer.
12. Connect the radio to your antenna and adjust the AF level for normal volume.
13. Key the radio to ensure that the side-tone level is to your liking. If not, re-adjust R46 for the level that satisfies you. With a little care and a tiny screwdriver, you may be able to do this without having to disconnect the J1 cable. If you do have to disconnect the J1 cable, make sure you turn off the radio first.
14. Re-install the SG-2020 in its case.

This mod will make a huge difference in comfort when you operate CW from this point on. Total time for me to do this mod was about ten minutes.