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2.4 kHz SSB filter on AM: This modification allows use of the SSB filter without the BFO to give better selectivity. Instead of the present 4.8 kHz selectivity on AM, you will have the option of either 4.8 kHz or 2.4 kHz. While the conversion is fairly simple, it is strongly urged that those not familiar with electronics stay OUT of the set! Too much heat on a circuit board or a splash of solder in the wrong place can cause a great deal of trouble.

If you attempt to modify your SPR-4, take your time, read all instructions before starting AND understand them. Schematic diagrams follow the text. You can also get out your Technical Manual for a clearer look at the various circuit boards. After opening up your set, take a few minutes to locate all connections and tie points mentioned in this article before proceeding. On the average, it will take about 3 hours to complete.

You will need about three feet of shielded cable (such as RG-174), the same amount of hook-up wire (#22 stranded), and a DPDT switch. The switch can be mounted on the front panel for convenience, or if the idea of drilling a hole in the front panel bothers you, it can be placed on the rear panel in one of the existing holes. To repeat, take your time, do a good job, and cut all wires to just the length required. Follow the step-by-step instructions carefully and refer to the pictorials as needed.

1. Remove top & bottom cases.
2. Remove all knobs, pointers and phone jack nut.
3. Drill a 1/4" hole 2 1/2" from bottom of front panel, 1/2" from the left side. Use a small drill for a pilot hole, then follow with larger drills until 1/2" is reached.
4. Remove front panel.
5. Remove wire from AM DETECTOR BOARD to BFO BOARD. That's a white/blue wire.
6. Remove white/green wire from AM DETECTOR BOARD to BFO BOARD.
7. Connect hook-up wire from terminal on AM DETECTOR BOARD to terminal 5 on switch. Route this and other wires through 1" square hole (beneath volume control). This will be in parallel with 2 white/brown existing wires. (This is if you are mounting switch on front panel. Otherwise route wires to the rear panel by the most direct path.)
8. Cut etch on AM DETECTOR BOARD and connect wire (hook-up) from etch to terminal 4 on switch. (see figure 36)
9. Connect wire (hook-up) from terminal on BFO BOARD to terminal 6 on switch. (see figure 35)
10. Connect center conductor of shielded cable to terminal on AM DETECTOR BOARD (parallel to two wires already there). Other end goes to terminal 2 on the switch.
11. Connect new shielded cable from BFO BOARD to terminal 3 on switch. Ground shield at BFO BOARD at this time.
12. Run shielded wire from terminal 1 on switch to etch on AM DETECTOR BOARD. Cut etch. (See figure 36)
13. Tie (solder) all shields together at switch.
14. Install switch on sub-panel (if that is where you put it).
15. Re-assemble receiver. If you choose to make the following changes also, delay step #15 until they are completed.

Basically, after steps 1-14 are done, what is done is, the BFO is killed, the AM detector is energized, and audio is switched from SSB out to AM DETECTOR out. Before, SW-14 did all the switching. Note: Tuning will be 2.4 kHz high in the LSB mode and 2.4 kHz low in the USB mode. When using CW, LSB, USB or calibrating, the new BFO switch must be in the ON position.

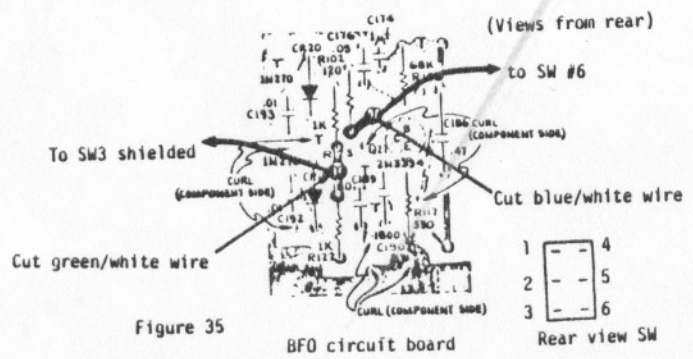


Figure 35

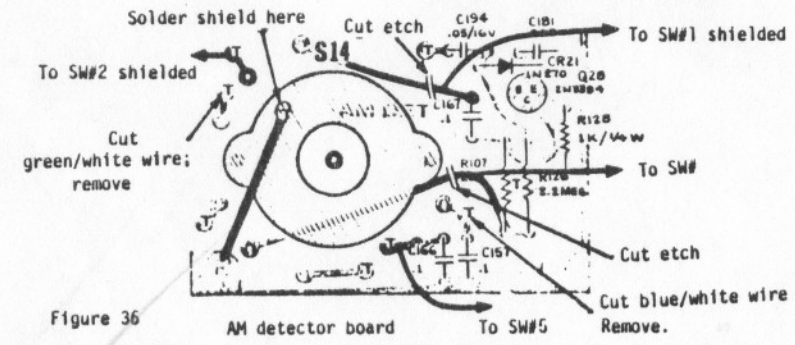


Figure 36

Additional modifications: AVC ON/OFF may be added with a switch (SPST) 1/2" to the right of new BFO switch. (see figure 38).

AVC choking may be reduced by adding a 3.3 mΩ resistor across R-100 (6.8 mΩ). This also loosens up the S-meter, which may need to be adjusted as per page 23 in the service manual. (See figure 38)

Change R-44 (39 ohm 2 watt) to 47 ohm 2 watt. This will help cut down on pilot light burn out, which is a problem with most SPR-4's.

TIP: Some SPR-4's have the improper range & preselector setting decals. For example, the 3.0 crystal should read D-2, not C-7. 4.5 crystal should be E-2, not D-5. Always use the highest range switch setting with the lowest preselector setting for all ranges below 10 MHz. Much better sensitivity.

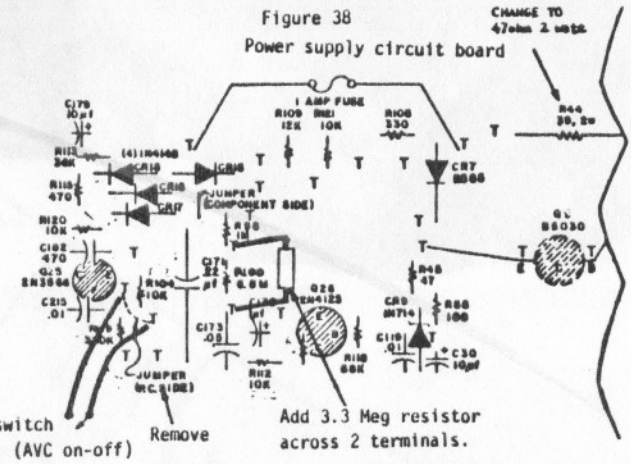


Figure 38

Using the above modifications, your SPR-4 will be even better. Another point to keep in mind is the speaker you use. The Drake SPR-4 has a 4 ohm output. Speakers with 4 ohms are hard to find! The speaker Drake sells to go with the SPR-4 is not all that great, so experiment with different types. Two 8 ohm speakers in parallel may be an improvement. For headphones, a deliberate miss-match seems to help. 500-600 ohm headphones may well improve your listening pleasure.

Another helpful aid with the SPR-4 is to use an outboard amplifier through the AUDIO OUT on the back panel. Use a mono (or one side of a stereo) amplifier hooked to the AUDIO OUT, then to your speaker. This will allow you to adjust the bass and treble to suit your taste, and help eliminate the rather 'tinny' sound characteristic of Drake receivers.

If you do not feel competent to modify your own SPR-4, Radio West does a selectivity and an AVC modification. Write them for more info.