

Gadgets for the S-76

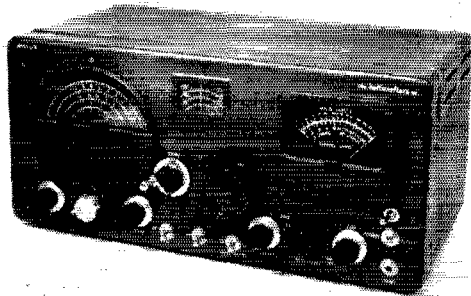
Some Useful Additions and Changes

BY LEWIS G. McCOY,* W1ICP

IN a recent review of the SX-88 receiver,¹ it was pointed out that this new receiver includes provision for reducing the low-frequency audio response to avoid the "boominess" associated with the high-selectivity reception of 'phone signals. It was mentioned parenthetically that a similar stunt had been tried in the Headquarters lab on an S-76 with equally good results. Upon reading the mention of this experiment, several S-76 owners wrote Headquarters asking for details. Since the volume of correspondence indicated that still others might be interested in the modifications of the S-76, the receiver was looked over to see if there were any other changes or possible additions that might add to the performance or operating convenience. This article is a result of that look.

One possibility was the addition of a small variable condenser across the input tuned circuit to serve as an antenna trimmer. Most operators these days like to have antenna trimmers on their receivers so one was installed on the S-76 for a trial. It proved to be a worth-while addition, particularly on the higher frequency bands.

Another change was the installation of a dial lock on the general-coverage tuning knob. In ad-



View of the receiver showing the installation of S_x above the send-receive switch. The dial lock and flat-rimmed dial modification are clearly visible along with the large bandspread tuning knob.

dition, a larger tuning knob was installed on the bandspread range. The dial lock insured the handset staying "set," and the large knob on the bandspread range offered greater ease of tuning.

In the first production run of the S-76 the screen voltage to the mixer tube was unregulated. This was responsible for a change in the beat note of c.w. signals when the r.f. gain control was varied. In later models, the screen was connected to the regulated 150-volt line, eliminating this

• If you have an S-76 receiver, don't pass up these simple modifications that will add to the receiver's performance. They cost only a few dollars and an evening's work.

trouble. The mixer circuit should be checked to see if the screen voltage is regulated. If not, R_{11} should be connected to the 150-volt line.

When all the changes outlined above were completed, the receiver was given a good workout on Field Day. While it is sometimes difficult to improve an already good receiver, the modifications appeared to be well worth the time and effort needed to do the job.

Audio Modification

As can be seen in Fig. 1, the audio change is simply a matter of adding a condenser and switch. The 100- μ f. condenser, C_x , is wired in series with C_{80} . The switch, S_x , is connected across C_x to switch it into and out of the circuit.

S_x is mounted directly over the send-receive switch and the leads to C_x are run through the hole in the chassis that accommodates the S-meter leads. Shielded wire is used for the switch leads to avoid possible hum pick-up. Pin 1 of the audio tube can be used for a tie point for one end of C_x , C_{80} and a switch lead.

With C_x shorted out, the receiver performs the same as without the modification. When the receiver is used on 'phone with selectivity positions Numbers 3, 4 or 5, the voice becomes difficult to copy because of the boominess mentioned earlier. Switching C_x into the circuit restricts the bass response, reducing the bass and improving the intelligibility.

Another system that was tried and rejected was that of substituting for R_{57} a dual control and switch. The value of R_{57} , $\frac{1}{2}$ megohm, remained the same and another $\frac{1}{2}$ -megohm variable resistor was connected across C_x . By adjusting both resistors, the amount of bass or treble could be gradually varied to suit the individual taste.

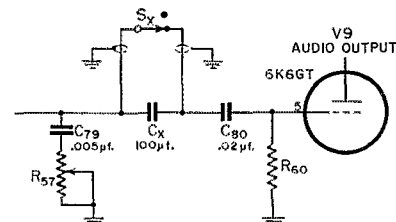
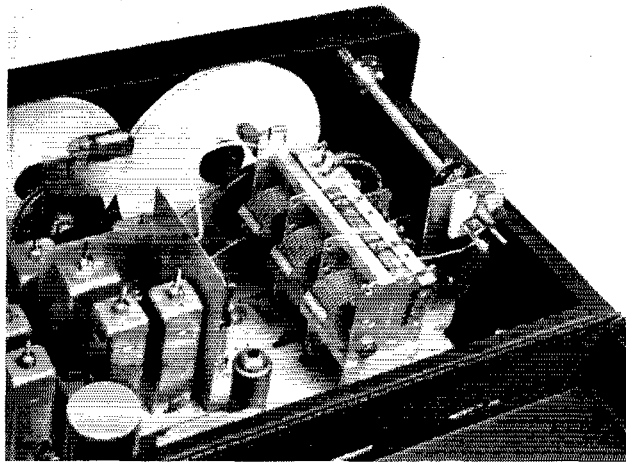


Fig. 1 — Circuit diagram of the audio change.

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¹ "The SX-88 Receiver," QST, June, 1954.



The antenna trimmer condenser is supported by a bracket mounted on the bandspread-condenser frame.

However, the apparent differences in audio quality were not enough to warrant the cost of the variable-resistor system.

Antenna Trimmer

As shown in the photograph, the mounting of the antenna trimmer condenser was a simple matter of making a bracket that fitted on the frame of the bandspread condenser. The bracket was a piece of aluminum, two by four inches. As the rotor of the trimmer condenser was grounded, a shaft-mounted type condenser was used. The condenser shown in the photograph is a Hammarlund HF-35. The stator of the trimmer was connected to the stator of the general-coverage condenser. A through-shaft bushing was installed on the panel at the front upper left-hand corner, to the left of the general coverage dial. A short piece of $\frac{1}{4}$ -inch rod and two shaft couplers were used to connect the bushing shaft to the condenser rotor. The receiver was then tried on the various bands to see how the trimmer performed. It was found on some of the receiver ranges that the trimmer wouldn't peak. This was corrected by tuning the receiver to the center of an amateur band in the range, setting the condenser half-meshed, and then adjusting the r.f. and mixer trimmer condensers for maximum output. These condensers are located on the bottom of the receiver and the proper ones to adjust can be determined from the instruction book.

A comparison was made with another S-76 which didn't have the modification, and the receiver with the trimmer gave better performance on every frequency range.

Tuning Dial Changes

Several times while listening to the S-76, the handset knob would get bumped or accidentally moved, causing the dial setting to go askew. This meant lost contacts or frantic tuning to try to reset the dial to the correct spot. This trouble was corrected by installing a Millen dial lock and Millen type 10007 flat-rimmed metal dial. The

screw that holds the general coverage dial plate, the one adjacent to the general coverage tuning knob, was removed to accommodate the dial lock. For the lock to fit, the hole was slightly enlarged with a small file.

Last, but not least, the bandspread tuning knob was replaced by one with a much larger diameter. The operating improvement of such an installation is something that must be tried to be appreciated. In a receiver with the excellent selectivity of the S-76, the large tuning knob is a "must."

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