

Modifying The 75A-3 Receiver for Improved SSB Reception

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The slow tuning rate, excellent signal to noise ratio and the mechanical filter of the 75A-3 receiver make it ideal for SSB reception. However, the diode detector and the lack of a.v.c. action leave something to be desired.

The installation of a product detector and a few simple changes in the a.v.c. circuit do the job quickly. No new controls are added and the outward appearance of the receiver remains unchanged. The original circuit can be restored quickly if the receiver is to be traded in.

Product Detector Construction

The receiver's existing b.f.o. is used for carrier injection, making a separate b.f.o. and its associate control unnecessary. The product detector is built on a galvanized steel chassis. Galvanized steel was used because it provided easier soldering of ground connections. The dimensions are 2½" square by 1½" deep. The filter condenser, if a can type is used, may be mounted on the front lip and the 6U8 is mounted on the top. An 8 prong male plug is mounted on the bottom of the chassis and the entire unit plugs into the NBFM socket on the 75A-3 chassis.

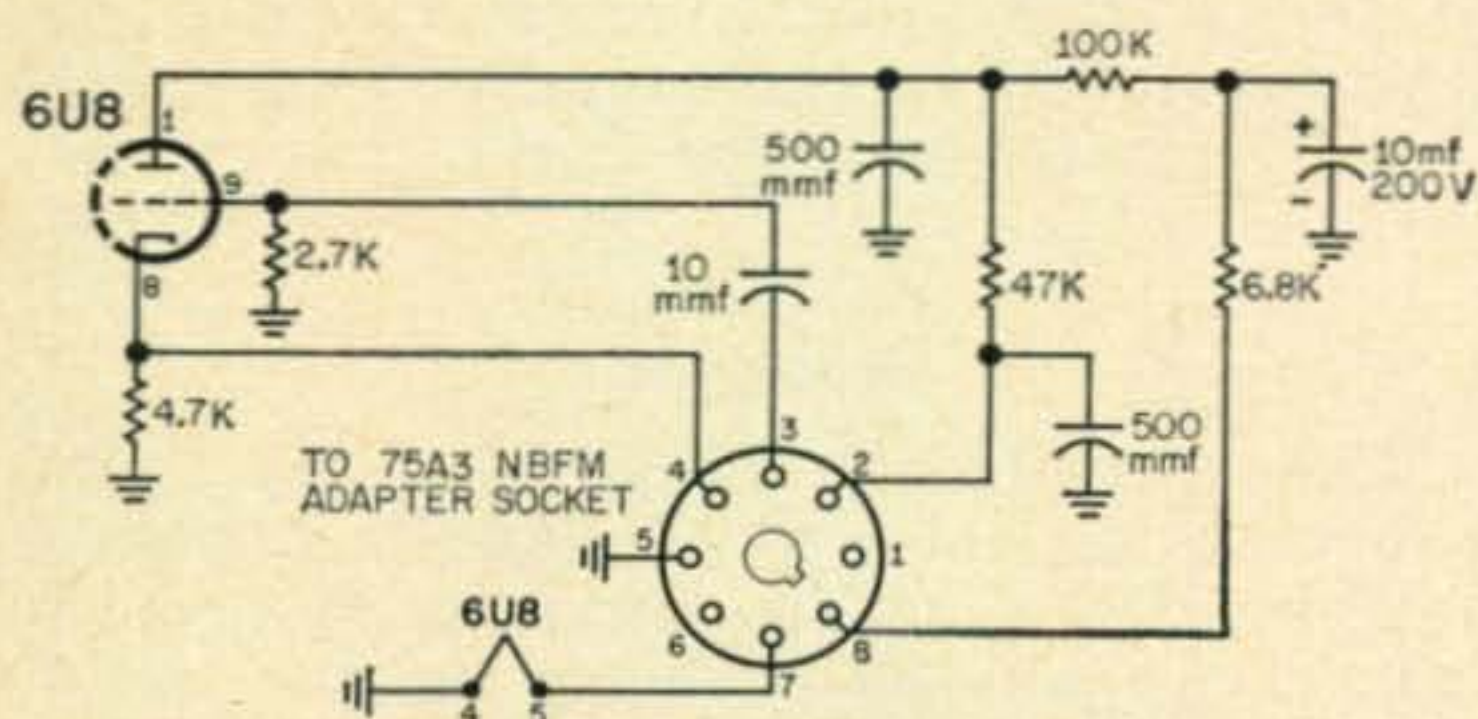


Fig. 1—Circuit of the product detector that may be plugged into the NBFM adaptor socket of the 75A-3.

The product detector circuit is shown in fig. 1. It is extremely simple as it uses the triode section of a 6U8. The b.f.o. input is fed to the cathode, pin #8. The i.f. output is picked up from the plate of the last i.f. stage, V_7 , and fed to the grid, pin #9, of the 6U8. The combined signal appears at the plate, pin #1, of the 6U8 and is fed to pin 2 of the NBFM socket through the filter network, where it is applied to the first audio amplifier when the MODE switch is in the f.m. position.

The changes in the receiver are detailed below:

- 1 - Check the existing coax cable from the b.f.o. to pin 4 of the NBFM adaptor socket to be sure you have b.f.o. output there.
- 2 - Remove the jumper on S_3 , the MODE switch, as shown in fig. 2. It is located at the left of the center wafer when viewed from the front of the cabinet.

It can readily be checked because screen voltage will appear at V_{12} when the MODE switch is in the c.w. position and when switched to a.m. or f.m. no voltage will appear because the screen is grounded. Cutting the jumper

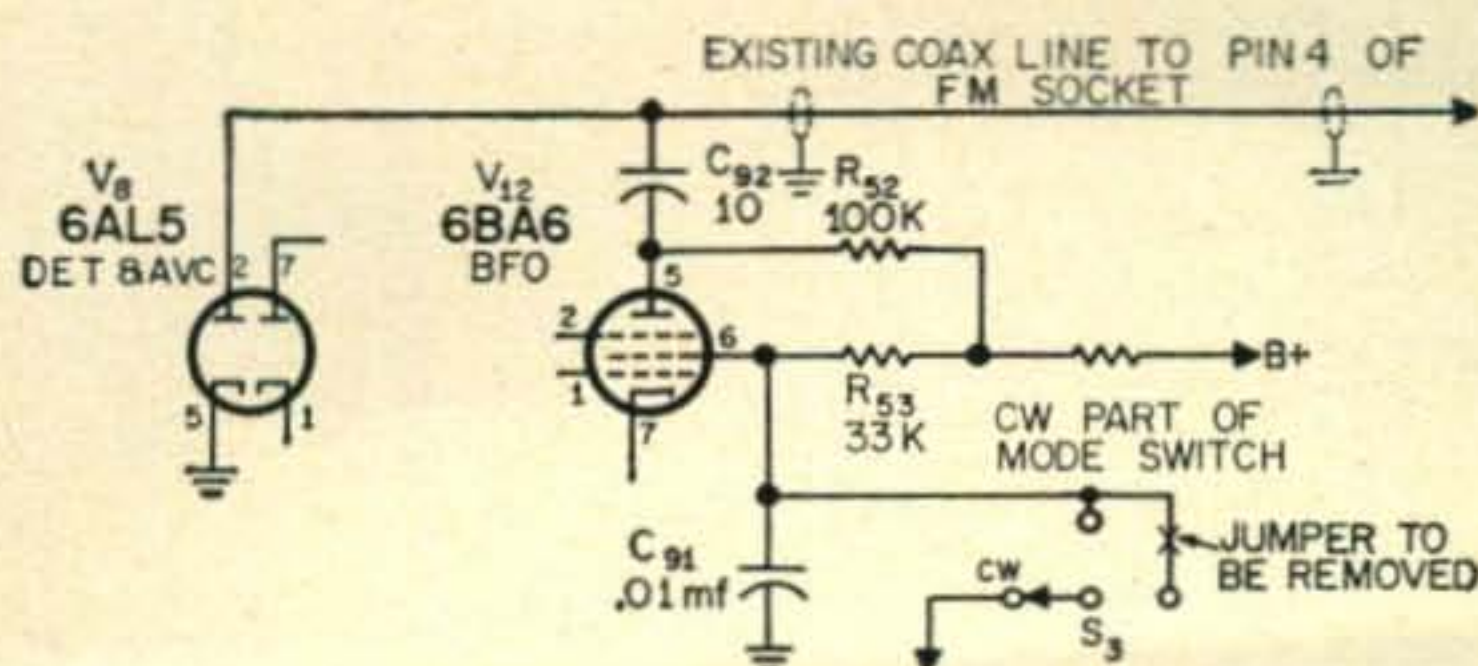


Fig. 2—Circuit modifications in the bfo circuit.

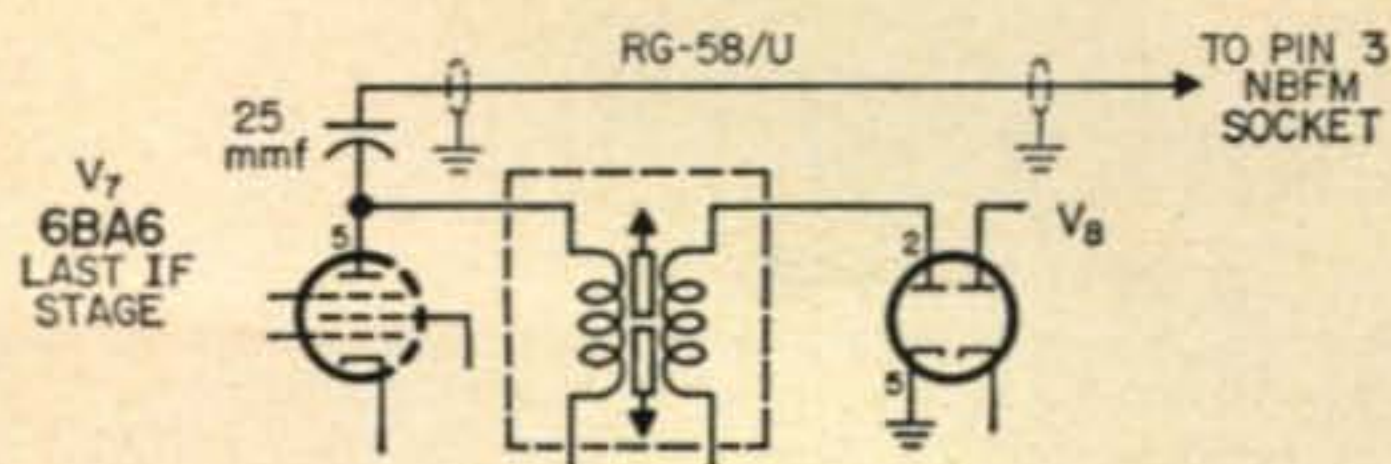


Fig. 3—The output of the last if is coupled to pin 3 of the NBFM adaptor socket through a 25 mmf.

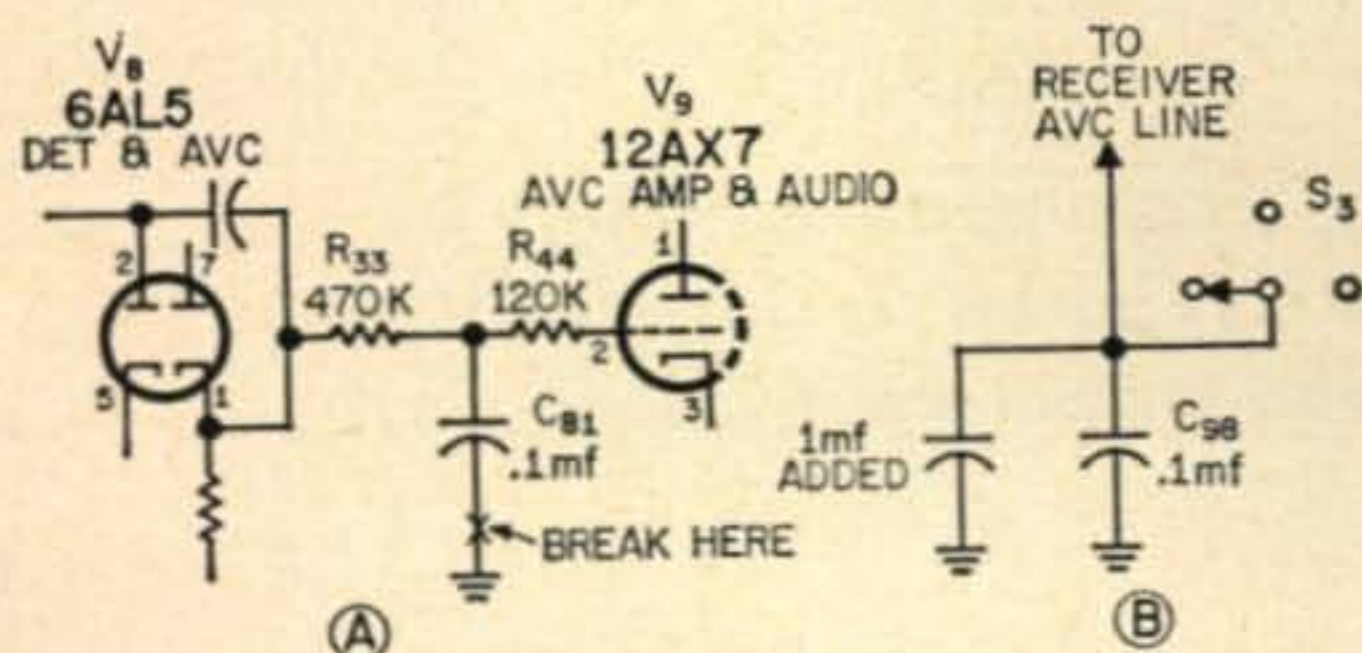


Fig. 4A—Removal of C81 makes possible a fast avc attack. 4B—Addition to the 1.0 mf capacitor provides slow release.

causes the screen to be grounded in the a.m. position only.

3 - The i.f. signal is picked up at pin 5 of the last i.f., V_7 , a 6BA6, as shown in fig. 3. A 25 mmf capacitor is placed in series with a length of RG-58/U coax and the signal is fed to pin 3 of the NBFM adaptor socket. Be sure to locate the 25 mmf capacitor at the plate of V_7 so that it will help isolate the cable capacity and not disturb the i.f. alignment.

Operation for CW and SSB

C.W. reception can be accomplished in the CW and FM position of the MODE switch. In the CW position reception is without a.v.c. while in the FM position the a.v.c. is active.

Sideband is also received in the f.m. position. With the s.s.b. adaptor, the sideband signals will now tune very smoothly and the audio level will be the same as a.m. signals (for the same setting of the audio gain control).

AVC Circuit Changes

The a.v.c. modifications only consist of 2 changes. The 0.1 capacitor, C_{81} , at the junction of R_{33} and R_{34} feeding into the a.v.c. amplifier, V_9 , is lifted from ground. This change makes possible fast a.v.c. attack necessary for s.s.b. This circuit area is shown in fig. 4A.

The second a.v.c. modification provides slow a.v.c. release. A 1.0 mf capacitor is simply placed across the a.v.c. line as shown in fig. 4B.

The operation of the revised a.v.c. circuit is such that the local kw signals are reduced in audio level to that of DX signals. If it is desired to reduce the sensitivity during evening hours, to escape the QRM, the a.v.c. action is still quite effective and this cannot be said for many other a.v.c. circuits. Automatic volume control action in the a.m. position is slower than optimum but it is a very satisfactory compromise. ■

W6MLZ Wins G-E Citation



Ray, W6MLZ, on the left, receiving his G-E Citation from regional manager B. S. Angwin.

RAYMOND E. Meyers, W6MLZ was honored and awarded a plaque at a ceremony in the Sheraton West Hotel by B. S. Angwin, G-E regional manager who was director of this year's Western Electronic Show and Convention.

The citation says: "For promoting international good will through his skillful planning, organizing, establishing and operation of extensive world-wide radio communications during the Ninth Plenary Assembly of the Consultative Committee on International Radio (CCIR) held in Los Angeles in April, 1959. The special radio station, K6USA, handled more than ten thousand important communications during the conference."

Herbert Hoover Jr., W6ZH, was one of the radio amateurs who worked with Ray last year in setting up radio service for the world convention delegates.

The communications service W6MLZ directed at the CCIR meeting involved a special act of Congress to permit foreign hams to send amateur radio messages.

Approximately 10,000 contacts were made by the station with amateur radio in about 100 foreign countries during the month-long 24-hours-a-day operation of station K6USA by both American and foreign amateurs attending the session.

The station included five transmitters, operating at 1 kw each. Operation was on 80, 40, 20, 15, and 10 meters and employed c.w., a.m., and s.s.b.