

Service Bulletin

from **hallicrafters**

CIRCUIT CONVERSION INFORMATION
FOR
COMMUNICATIONS RECEIVER MODELS SX-28 AND SX-28A

APPLICATION OF NEW
AND HIGHLY EFFECTIVE
NOISE LIMITER SYSTEM

PROVISIONS FOR CONNECTION
OF AN OSCILLOSCOPE OR
PANORAMIC UNIT

PROVISION FOR 100 KC,
500 KC OR 1 MC CRYSTAL
MARKER OSCILLATOR

We are pleased to herewith furnish data that, if properly applied, will enhance the owners enjoyment in the use of these receivers. This information permits utilization of new developments in noise limiting circuitry and also describes a means of providing for interconnection of the equipment with a panoramic unit or oscilloscope. In addition, a crystal marker oscillator can be incorporated for calibration purposes.

NOISE LIMITER: Very desirable and more effective noise limiting action can be accomplished by changing the present shunt type limiter circuit (that is used in conjunction with the Lamb limiter --- see Fig. 1) to the new series limiter system illustrated in Figure 2. It will be noted by comparison with the old circuit that we employ a 6AL5 diode in a series arrangement and dispense with the 6H6 diode (V10). The 6AL5 must be added to the chassis and should be mounted on a small bracket as close as possible to the second detector tube V7 (6B8). Attention is also directed to other circuit differences such as values and interconnection of components associated with the noise limiter as well as the 6B8 second detector stage (V7). Do not overlook the use of a 6.8 ohm resistor in series with the filament supply for the 6AL5 tube.

All wiring associated with the new noise limiter circuit should be kept as short as possible to reduce stray capacitance to a minimum. It is also desirable to independently shield the two leads connecting to the ANL switch -- use low capacity shielded wire to separately shield each lead.

Do not attempt to retain the 6H6 diode (V10) for use in the new noise limiter circuit as leads would be too long for effective limiting action.

CONNECTIONS FOR PANORAMIC UNIT OR OSCILLOSCOPE; ALSO CRYSTAL MARKER OSCILLATOR:

Elimination of the 6H6 tube mentioned in the preceding discussion now permits the use of this tube socket for two other desirable applications. By installing a 6SL7 tube at that position and making circuit connections as shown in Figs. 3 and 4, it is possible to utilize the amplified IF signal from the 6AB7 (V9) to provide a low impedance (cathode follower) output from 1/2 of the 6SL7; the other section of the 6SL7 may then be used as a crystal marker oscillator. These functions permit the use of an oscilloscope for measuring percentage modulation or attachment of a panoramic unit and the marker oscillator provides for convenient calibration of the receiver.



August 6, 1961

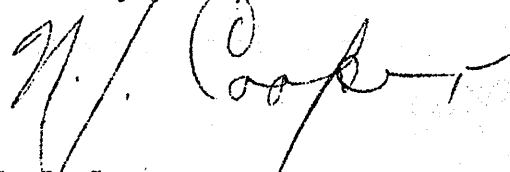
The marker oscillator can be used at 100 kc, 500 kc or 1 mc depending upon your choice of crystal frequency. A switch for control of the marker oscillator (located in cathode circuit) should preferably be mounted at a convenient position on the front panel. Direct coupling of the marker oscillator to RF circuits of the receiver is not necessary as coupling is automatically accomplished via radiation.

Rearrangement of the circuitry associated with the 6AB7 tube (V9) now allows control R-53 (formerly used in the noise limiter system) to act as a gain control for the 455 kc cathode follower circuit which feeds signal to a separate oscilloscope or panoramic unit. The 455 kc output from the cathode follower section of the 6SL7 should be brought out to a connection jack (J2) which can be mounted on the rear lip of the chassis.

After the aforementioned circuit changes have been completed, it is necessary to check alignment of the IF stages as a certain amount of detuning occurred as a result of repositioning and revision of associated components, particularly in the stage preceding the second detector; also transformer T-5 in the plate circuit of the 6AB7 tube.

If you do not have available an accurate signal generator and adequate shop facilities to personally undertake these circuit conversions, then any authorized Hallicrafters Communications Equipment Service Center will be pleased to handle the job for you at moderate cost. At the same time they can give your receiver a thorough overhauling to assure that it is properly aligned and operating at peak efficiency. Please consult the classified section of your local telephone directory or write to us for the name and address of the nearest Hallicrafters Service Center.

Cordially yours,



N. J. Cooper
General Service Manager

NJC:bv

FIGURE 1
ORIGINAL NOISE LIMITER
CIRCUIT

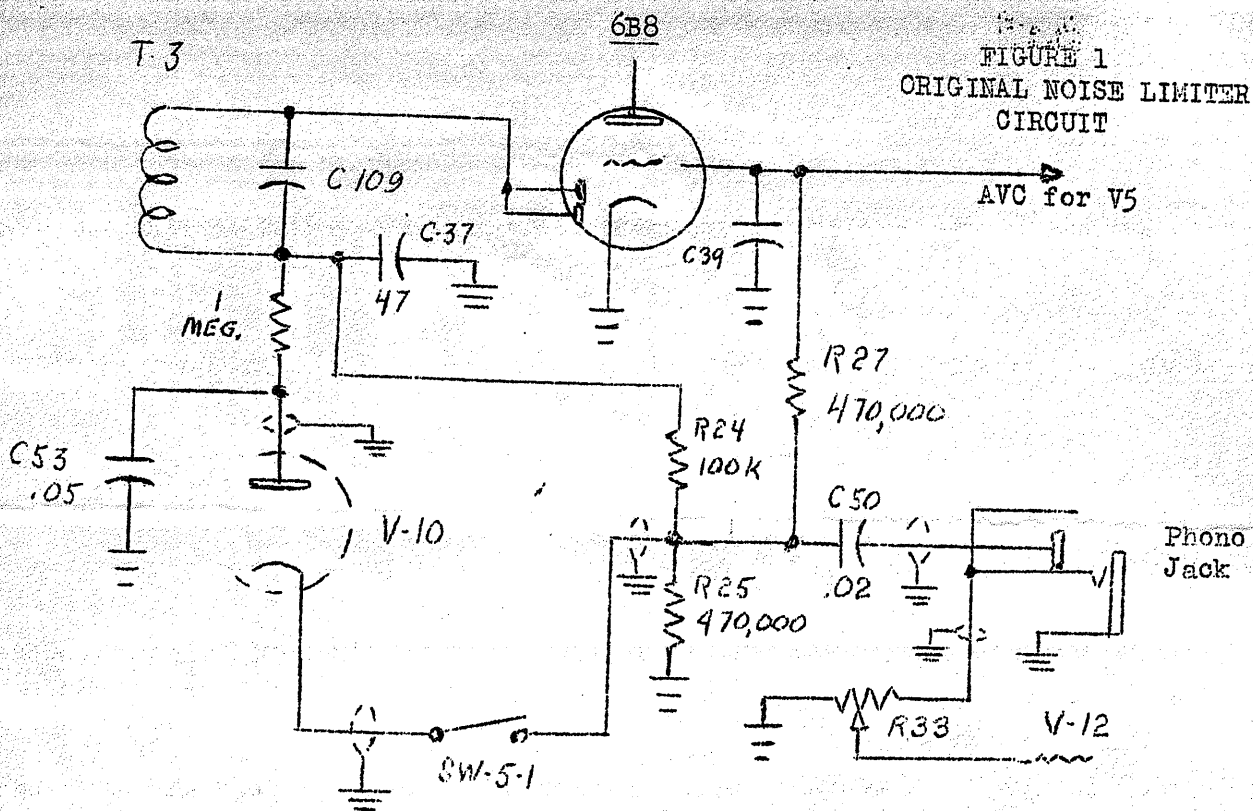


FIGURE 2 NEW NOISE LIMITER
CIRCUIT

NOTE:
For circuit symbols
refer to
Hallicrafters
Instruction Book
94 X 004

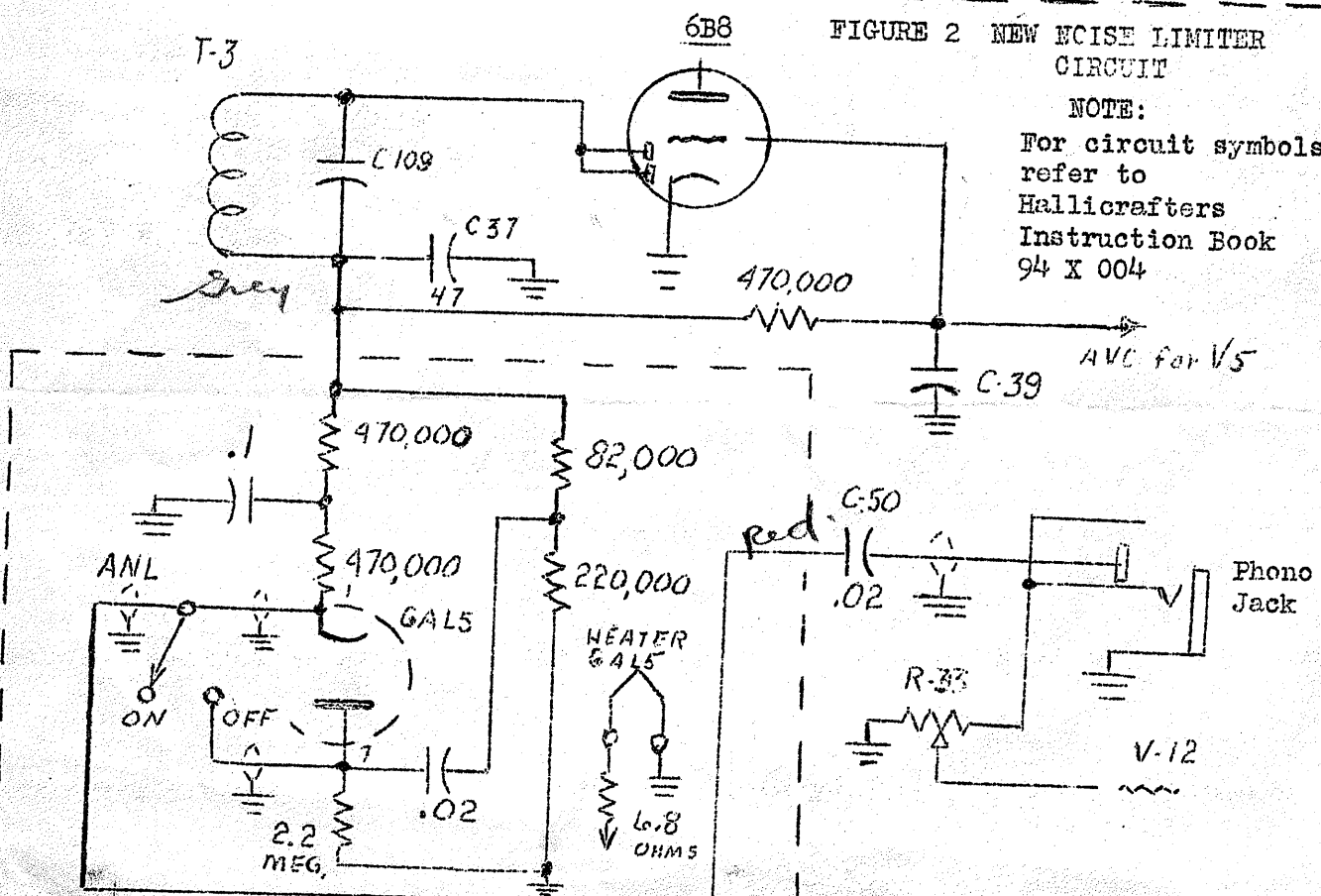


FIGURE 3 Cathode follower circuit
for connection of oscillo-
scope or panoramic unit

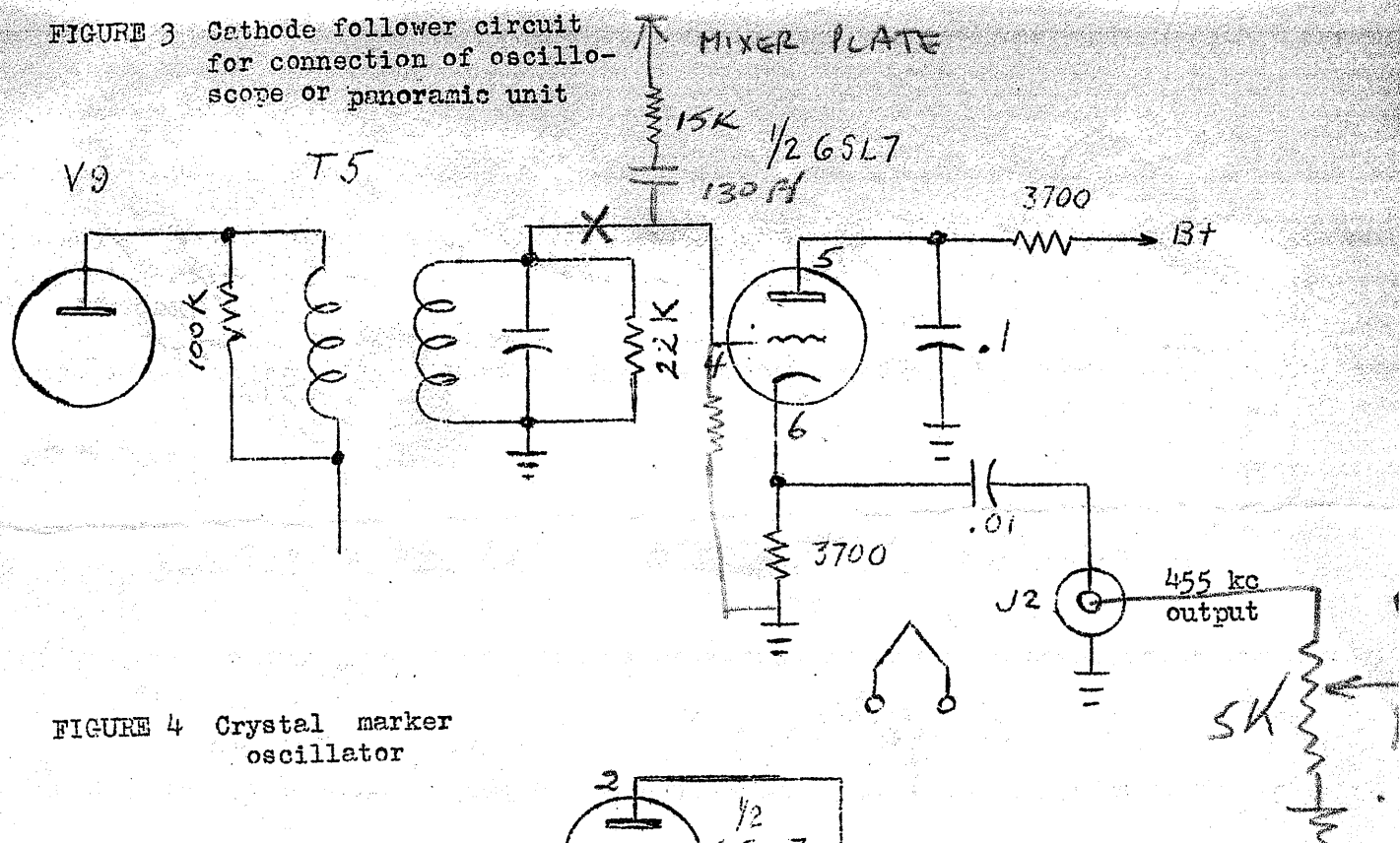


FIGURE 4 Crystal marker
oscillator

