

HALLICRAFTERS SERVICE HINT NO. 21  
 October 20, 1947

SUBJECT: Model SX-42 Receiver

DISCUSSION: Production Run Identification  
 (Refer Service Policy Letter #9, dated Nov. 14, 1946)

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The production run number on the SX-42 is stamped on the inside of the chassis.  
 To date, the production run numbers have been:

- (1) Production Run X
- (2) Production Run XX
- (3) Production Run XXX
- (4) Production Run XXXX
- (5) Production Run 1

The production run numbers are explained as follows:

<u>Prod. Run</u>	<u>Schematic</u>	<u>Service Bulletin</u>	<u>Remarks</u>
X	Original		Original run
XX	89D210F	94X224 (March, 1947)	Receivers thus marked may incorporate all, or any part, of the modifications shown in the Modifications Section of this Service Hint.
XXX	89D210K	94X224 (June, 1947)	Added resistors R101 and R102 (330 ohms) in series with the third band, 2nd R.F. and mixer primaries to suppress parasitic oscillations on this band.

(Continued on next page)

<u>Prod. Run</u>	<u>Schematic</u>	<u>Service Bulletin</u>	<u>Remarks</u>
XXXX	89D210K	94X224 (June, 1947)	Moved #4 band oscillator to low side of signal to improve sensitivity, increase image ratio, and remove images from the DX portion of the 10 meter band. (See Service Hint #13). Removed R37 (27 ohms) from cathode of 6SK7 first I.F. tube to increase I.F. sensitivity. Removed 1st I.F. tube from sensitivity control and added R37 (100,000 ohms) from B plus to moving arm of sensitivity control. This change was made so that the R.F. gain can be reduced without affecting the I.F. sensitivity, thus giving some control over cross modulation.

Note: In the past it has been the custom to reassign a circuit symbol which has been deleted from another part of the circuit. An example of this is the case of R37 just mentioned. Because this practice may lead to some confusion, it will be discontinued in the future.

1	89D210K	9X224 (June, 1947)	Run 1 is identical to Run XXXX
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## MODIFICATIONS – SX-42

<u>Operation</u>	<u>Purpose</u>	<u>Instructions</u>
1 (1st RF)	Improve 4th band image ratio	Some early receivers had 5 turns on the primary of the 4th band 1st RF transformer T3. The transformer was mounted directly on the mounting bracket. Remove the transformer and unwind 3 turns from the bottom end of the primary, leaving 2 turns. Re-install with 3/8" fiber spacer (8A717) underneath the coil. Mount with a 5/8" screw (3BXL) and lockwasher (4AZE).
2 (1st RF)	Improve RF tracking with 4th band. Reduce frequency shift with change in setting of sensitivity control	Install 15 mmf. ceramic condenser C36 (CC20UK150K) between secondary of T3 and chassis ground. In some cases this condenser is installed but is grounded to the 1st RF coil shield. C36 must ground directly to the chassis.
3 (1st RF)	Improve image ratio	Remove C11 (.05 mfd. condenser) with solid leads, in cathode of 1st RF tube. Replace with C11 (.05 condenser) with braided leads (46-091).
4 (1st RF)	Improve image ratio	Install white dot RF choke L5 and 330 ohm resistor R95 (one unit – Part No. 53-117) in series with 1st RF screen. A tie lug (Part No. 88-086) is necessary for this operation.
5 (1st RF)	Isolation so trimmers on various bands do not affect each other	Remove jumper from bandswitch and install R90, 15 ohms (RC20AN150K). This change is included in all but very earliest sets.
6 (2nd FR)	Improve sensitivity on bands 3, 4, 5, and 6	Remove R5 from plate lead of 6AG5 1st RF tube. Install R5, 15 ohms (RC20AN150K) across bandswitch. It is usually necessary to move C14 so it will connect to the proper side of R5. This change is included in all but very earliest sets.

## MODIFICATIONS – SX-42

<u>Operation</u>	<u>Purpose</u>	<u>Instructions</u>
7 (2nd RF)	Eliminate motorboating, reduce time constant AVC circuit.	Install series combination R98, 1000 ohms (RC20AE102M) and C126 .05 mfd. (46AU503) in parallel with series resistors R11 and R8. A tie lug is necessary for this operation.
8 (2nd RF)	Reduce frequency shift with change of setting of sensitivity control.	Change grounding point of C15 from 1st RF coil shield to the chassis.
9 (2nd RF)	Improve RF tracking 4th band. Reduce frequency shift with change of setting of sensitivity control.	Install 7 mmf. condenser C124 (CC20-UK070) between secondary of T8 and chassis ground. In some cases this condenser is installed but is grounded to the 2nd RF coil shield. C124 must ground directly to the chassis.
10 (2nd RF)	Improve image ratio	Remove condenser C25 (.05 mfd.) with solid leads, from cathode of 2nd RF tube 6AG5. Connect the inner foil of C25, .05 mfd. with braided leads (46-091) to the cathode terminal of the 2nd RF stage. The outer foil connects through RF choke and 33 ohm resistor combination, L7-R97 blue dot (53-118) to ground.
11 (2nd RF)	Improve image ratio	Install L6-R96 RF choke and 680 ohm resistor combination, Red Dot, (53-116) in series with screen of 2nd IF tube 6AG5. A tie lug (88-086) is necessary for this operation.
12 (Mixer)	Reduce frequency shift with change of setting of sensitivity control.	Change grounding point of C29 from 2nd RF coil shield to chassis ground.
13 (Mixer)	Improve RF tracking 4th band. Reduce frequency shift with change of setting of sensitivity control.	Install 7 mmf. condenser C125 (CC20-UK070) between secondary of T14 and chassis ground. In some cases, this condenser is installed but is grounded to the Mixer coil shield. C125 must be grounded directly to the chassis.

## MODIFICATIONS – SX-42

<u>Operation</u>	<u>Purpose</u>	<u>Instructions</u>
14 (Oscillator)	Reduce crosstalk Bands 3 and 4	Remove 10 ohm resistor R24 between 4th band oscillator coil, T20 and ground. Remove jumper between 3rd band oscillator coil T21 and ground. Remove jumper between ground terminals of 3rd band oscillator coil T21 and 2nd band oscillator coil T22. Run a jumper from ground terminal of 2nd band oscillator coil T22 to ground. From 3rd band oscillator ground terminal install R92 (RC20AE560K) 56 ohm resistor in series with R93 (RC20AE472) 4700 ohm resistor to ground. R93 is bypassed with C122 (46AW103J) .01 mfd. condenser. Likewise Band 4 oscillator is grounded through R24 and R91, 56 ohm and 4700 ohm respectively, with R91 bypassed by C-121, .01 mfd. condenser. A 3-terminal tie lug (88-034) is necessary for this operation.
15 (Sensitivity Control)	Eliminate motorboating with change of setting of sensitivity control.	Install a 100 mfd. condenser C127, (45A116) between center terminal of sensitivity control and ground.
16 (AM detector)	Reduce clipping on modulation peaks	Change .5 meg. resistor R52 to 1 meg. (RC20AE105M). Change 1 mfd. condenser C84 to .05 mfd. (46AU503). Install 330 K ohm resistor R99 (RC20AE334W) in diode return across C83.
17 (Discriminator)	Broader discriminator action.	Install 47K ohm resistor R94 (RC20AB-473K) across discriminator secondary.
18 (Limiter)	Reduce radiation from limiter.	Shield plate lead of second limiter with 1 1/2" piece of spiral shield (87-510).
19 (S Meter)	Improve S meter control action.	Reverse red and re-white leads at S meter control. Red leads should be closest to chassis.

## MODIFICATIONS – SX-42

<u>Operation</u>	<u>Purpose</u>	<u>Instructions</u>
20 (Bonding)	Reduce frequency shift with change in setting of sensitivity control.	The following bonds are 1/2" copper strip and are all included in the Part No. 76-378. A 2 3/4" and 3" from oscillator coil shield to mixer coil shield. An 8 1/2" from 1st RF coil shield to chassis apron and switch shield. The following bands are 1" sections of #15 wire braid (87-501): between mixer coil shield and 2nd RF coil shield; between 1st RF coil shield and side bracket; between the five main gang and bandspread gang condenser shields.
21 (Alignment)	To have receiver conform to current specifications.	Completely realign IF, FM and AM, and RF all bands.

**K4XL's**  **BAMA**

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