

# KENWOOD

#866-1/3

## SERVICE BULLETIN

AMATEUR RADIO

SUBJECT

TS-930S CW Hetrodyne Tone

DATE

3.24.83

Some users of the TS-930S have reported that a heterodyne is heard when the VBT control is tuned in the CW mode. The tone may be more noticeable with no signal present, (e.g. no antenna connected.), or when the AF tune or CW PITCH controls are tuned. This may be reduced or eliminated by the following procedures.

### PARTS REQUIRED

QTY	DESCRIPTION	KENWOOD PART NUMBER
1	Shield Kit	Z930CARSHIELD
	Cover CAR 1	F11-0813-04
	Shield CAP 1	F10-1308-04
	8.2K $\Omega$ $\frac{1}{4}$ Watt Resistor	
	22K $\Omega$ $\frac{1}{4}$ Watt Resistor	
	3pf disc capacitor	
	.5pf disc capacitor	
	1pf disc capacitor	

### PROCEDURE

1. Remove the top and bottom covers from the TS-930S.
2. Turn the radio bottom up to allow access to the Signal Unit (X57-1000-11).
3. Remove the twenty-two (22) screws that secure the Signal Unit/Heat sink to the chassis. Unplug the RAT, DRV, XVT, FRO, and the VCOF coaxial cables from the Signal Unit. These are located along the rear and the left side of the Signal Unit. Unplug connectors number (16) and (20) located along the right of the Signal Unit.
4. Gently lift up on the rear of the Signal Unit and fold the board over towards the front panel to allow access to the bottom of the board.
5. Install the shield plate as shown in figure 1. Cut the circuit foil and add the jumper wire as shown.
6. Change the following components:

Change R635 to 8.2K $\Omega$   
Change R501 to 22K $\Omega$   
Change C469 to 3pf  
Change C473 to .5pf  
Change C476 to 1pf

7. Reinstall the signal unit. Pay carefull attention to the coaxial connectors when reinstalling to ensure they are in the correct locations.
8. Install the top cover to CAR 1 enclosure to complete the Signal Unit modification.

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9. Turn the set over so top is up. Remove the four (4) screws that secure the speaker assembly to the chassis and lift up gently (unplug the battery backup connector). The assembly may then be folded over to the right with cables attached. Remove the four (4) screws that secure the Digital assembly to the chassis and fold the assembly up and towards the front panel, to allow access to the PLL Unit.
10. Remove resistor R73 and capacitor C99 from the PLL Unit.
11. Reverse the procedure in step 9 to reinstall the Digital and Speaker Units.

### ADJUSTMENTS

1. Connect an oscilloscope probe to the CAR 1 terminal (24) of the Signal Unit. Adjust L161 for 300mv p-p signal amplitude.
  2. Connect the oscilloscope probe to the emitter of Q79. Adjust L142, L144, and L145 for maximum signal amplitude, then adjust L139 for 1v p-p amplitude.
- \*NOTE: NOTE THE USB FREQUENCY BEFORE ADJUSTING L139.
3. Adjust TC4, TC5, and TC6. (Refer to Service Manual)
  4. Adjust TC3 so the frequency is again the same as measured in Step 2.
  4. Replace top and bottom covers to complete the modification.

This modification may be performed in warranty on a case by case basis.

Time required for this modification is 1 hour. Page 2 of 3 C

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SIGNAL UNIT (X57-1000-11) A/2 Foil side view

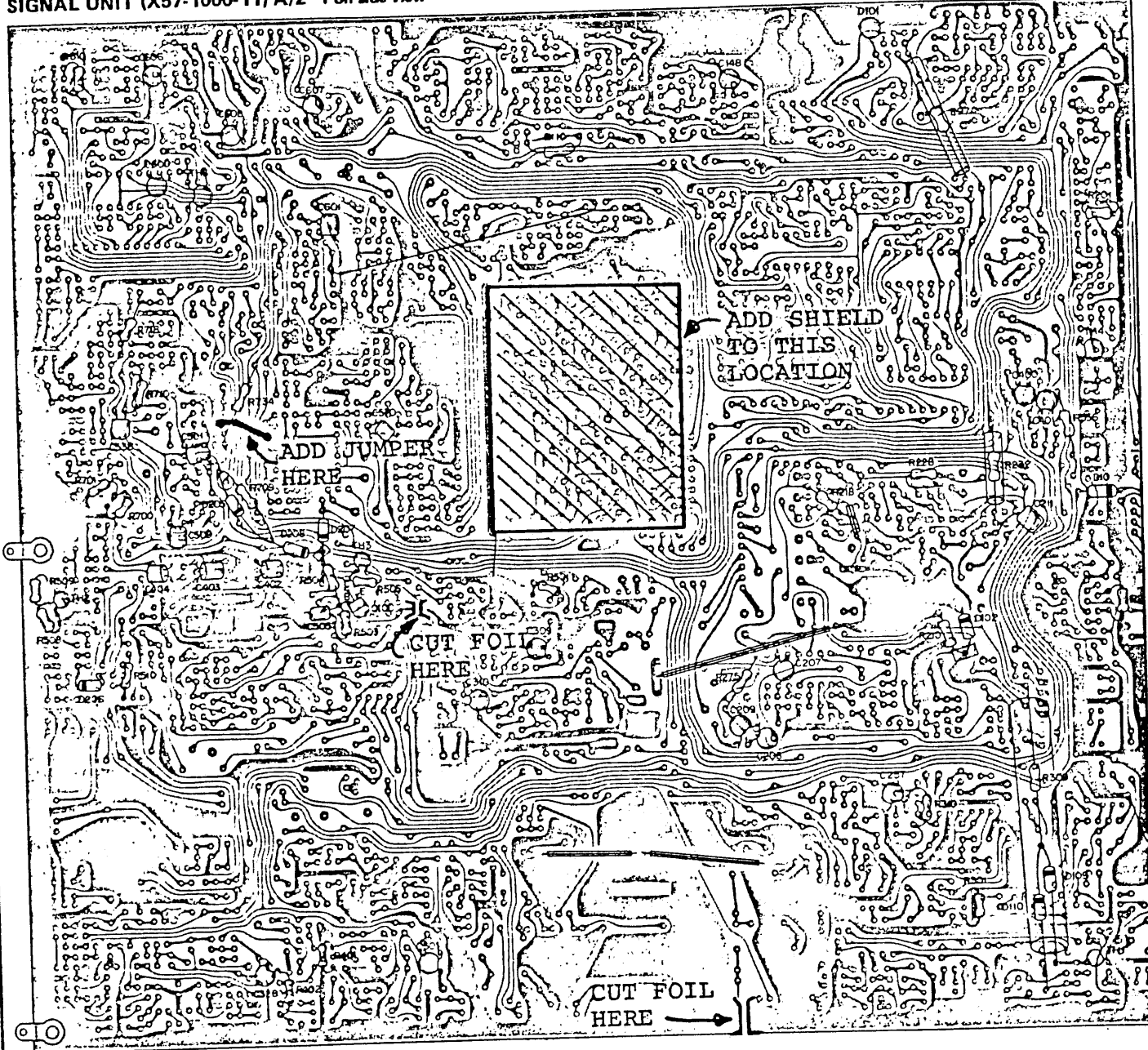


Figure 1

