

K4XL's **BAMA**

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160 METER KIT-HX-50

FACTORY INSTALLED OPTION HAMMARLUND PART NO. PL26860-G1
FIELD INSTALLATION OPTION HAMMARLUND PART NO. PL26860-G2

NOTE: This modification should only be attempted by experienced personnel having a thorough knowledge of the circuits and technique involved. Suitable test equipment should be employed.

INSTALLATION AND ALIGNMENT INSTRUCTIONS



HAMMARLUND MANUFACTURING COMPANY
A GIANNINI SCIENTIFIC CO.
53 WEST 23RD STREET, NEW YORK 10, N.Y.

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Follow the step-by-step installation instructions to install the 160 meter band kit into the Hammarlund HX-50 Transmitter/Exciter. See the attached installation diagrams.

INSTALLATION OF 160 METER BAND KIT

Remove the transmitter chassis from its case and place it bottom side up on a bench so that the front panel is facing left.

It is important that the lead dress to the other coils is not upset. Should it be necessary to push leads out of the way, return them to their original dress as closely as possible otherwise the bandpass characteristic of that band may be disturbed.

Step 1. Cut the wire furnished with the kit to the following lengths:

Red wire 2 pieces 5" long
Red wire 1 piece 2-3/8" long

Blue wire 2 pieces 5" long
Blue wire 1 piece 2-1/4" long

Yellow wire 4 pieces 1" long

Black wire 1 piece 2-1/4" long

White wire 1 piece 2" long

Remove 1/4" of insulation from each end of all leads.

Step 2. The coils are identified by two colored dots on the terminal ring.

- a- The 1st mixer coil-T1001-red & brown
- b- The 2nd mixer coil-T1002-gray & brown
- c- The driver coil-T1003-white & brown

Step 3. Prepare the driver coil (white & brown dots) by soldering a 1 inch long yellow wire to terminal number one, a 5 inch long red wire to terminal number two, a 5 inch long blue wire to terminal number three, and another 1 inch long yellow wire to terminal number four.

Step 4. Prepare the 2nd mixer coil (gray & brown dot) in similar manner following the procedure in step 3.

Step 5. Preparation of the first mixer coil (red & brown dots). Cut the leads of C1002 (a 680 mmf condenser) to a length of 1/2 inch and install between pins 1 & 2 and close to the body of the coil (do not solder). Cut the leads of C1003 (a 680 mmf condenser) to a length of 1/2 inch and install between pins 3 and 4 and close to the body of the coil. (Do not solder).

- Step 5. Solder a 2-3/8" red lead and the condenser lead to terminal number one, a 2-1/4" blue lead and the condenser lead to terminal two, a 2" white lead and condenser lead to terminal three, and a 2-1/4" black lead and condenser lead to terminal four.
- (Cont'd)
- Step 6. Before installing the driver coil unsolder the short black wire from the terminal lug of the 15 meter coil, leaving the other end connected to the strip. Install the driver coil (white & brown dot) by first forming the red lead and the blue lead into an "L" and feeding them between the 10 and 15 meter coil near the chassis. Line up the locating tab of the coil clip over the hole in the chassis and firmly press the coil into position. Two slight clicks will be heard when the coil is "home".
- Step 7. Solder the red wire to the unused lug on the front switch wafer, and the blue wire to the unused lug on the rear switch wafer, and with the aid of a long screw driver dress the red and blue wires next to the chassis and away from the other coils in the system.
- Step 8. Solder the two short yellow wires to the 15 meter coil terminals which are also wired with yellow leads.
- Step 9. Reconnect the black wire removed in step 6 to the 160 meter coil terminal number 4.
- Step 10. Install the 2nd mixer coil (gray & brown) in the same manner as the driver coil following steps 6 through 9.
- Step 11. Unsolder the brown lead from the 80 meter coil and bend it away to facilitate the installation of the 160 meter 1st mixer coil.
- Step 12. Carefully insert the 160 meter coil in the properly oriented manner but do not press the coil "home" into the hole.
- Step 13. Solder the leads from the coil terminal collar to the switch wafers and to the 80 and 40 meter coils as shown on the Installation Diagram. Dress the leads to clear the other coils and reasonably away from the metal work. Press the coil "home" into the hole in the chassis.
- Step 14. Resolder the brown lead from the front switch wafer to the 80 meter coil terminal and dress it away from the 160 meter coil just installed.
- Step 15. The 2.5 ohm coil (L1001) is a molded unit with two axial leads similar in physical size to a resistor. It may be identified by the wide and narrow red stripes. Cut the leads to 1/2 inch and solder in place, to the front wafer of the band switch.

- Step 16. Cut the crystal leads to 1/2 inch and install the crystal between the rear wafer and the ground lug as shown in the diagram. Crimp the leads into position but do not solder.
- Step 17. Prepare the crystal trimmer capacitor in accord with detail A of the installation diagram.
- Step 18. Install the trimmer capacitor make certain that the outside leaf is connected to the ground lug. When soldering make sure the crystal leads are also soldered in place. Do not apply any more heat or solder than required to avoid damage to the crystal or switch contact.
- Step 19. Remove the bottom shield plate from the output switch assembly box (drawing #26883 sheet 2 of 2). Cut the leads of capacitors C1004 and C1005 to 3/4", install as indicated on installation drawing #26883, sheet 2 and solder connections.
- Step 20. Replace the shield plate securely.

ALIGNMENT PROCEDURE

1. Disconnect the screen resistor (R182, 100 ohm 1/2 w) of the 6DQ5.
2. With "OPERATION" switch at "STANDBY" allow 15 minutes for warmup.
3. Connect an RF voltmeter to test point B (pin 7 of V103A) to check for 11.335 mc crystal oscillation.
4. a. Disconnect RF voltmeter from test point B and connect it to test point C (pin 7 of V104).
 - b. With "OPERATION" switch on "MOX" and "FUNCTION" switch and "CW", set "RF Drive" to 8.
 - c. Peak 160 meter coils in following sequence:
 - 1- 2nd mixer grid (bottom slug). T1001
 - 2- 1st mixer plate (top slug).

Reducing RF drive to zero should cause RF VTVM to decrease.
5. a. Disconnect RF VTVM and resolder screen resistor CR182, (100 ohm 1/2 watt) to the 6DQ5. Reduce RF drive control to 0.
 - b. Connect a 50 ohm dummy load or 2 - 60 watt lamps in parallel to the RF output connector.
6. a. Set frequency dial to 2 mc. Set PA tuning to 6, PA load to approximately 6.

6. b Meter switch to output level.
- c Increase RF drive for some indication on meter (approximately 1/3 up scale).
- d Peak the other 160 meter circuits in the following sequence:
- 1 - Driver grid (bottom slug). T1002
 - 2- 2nd mixer plate (top slug). T1002
 - 3- Driver plate (top slug). T1003
7. a Set frequency dial to 1.8 mc. Set PA tuning to 9, PA load to approximately 8.
- b Peak the 160 meter circuits in the following sequence:
- 1- Power amplifier grid (bottom slug). T1003
 - 2- Driver grid (bottom slug). T1002
 - 3- 2nd mixer plate (top slug). T1002

NOTE:

Reduce drive if necessary to keep output level meter reading to approximately 1/3 up scale while tuning slugs.

8. The 160 meter band can ONLY be properly loaded from 1.8 to 2.2 mc.
Typical dial readings:

<u>Frequency</u>	<u>PA tuning</u>	<u>PA load</u>
1.8 mc	9	8
2.0	6	6
2.2	2	3

160 METER KIT -HX-50
(Field Installation)

PARTS LIST

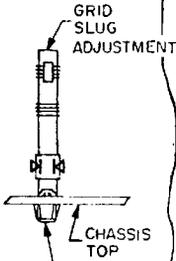
Schematic Designation	Description	Hammarlund Part Number	Qty.
C1001	Capacitor, Mica Comp'r'n 1.5 - 20 MMF	K23043-8	1
C1002	Capacitor, Dur-Mica DM-15 680 MMF $\pm 2\%$, 500V	K23006-139	1
C1003	Capacitor, Dur-Mica DM-15 680 MMF $\pm 2\%$, 500V	K23006-139	1
C1004	Capacitor, Dur-Mica VDM-20 MMF $\pm 5\%$, 1000V	K23095-4	1
C1005	Capacitor, Dur-Mica VDM-20 360 MMF $\pm 5\%$, 1000V	K23095-5	1
L1001	Choke, RF 2.2 μ (osc. plate 160 M)	K26779-7	1
T1001	Coil, 1st Mixer 160 M	P26786-21	1
T1002	Coil, 2nd Mixer 160 M	P26786-18	1
T1003	Coil, Driver 160 M	P26786-19	1
Y1001	Crystal 11.335 MC	M26753-8	1
	Lead Wire # 22 AWG (Yel) 5" Lg.	K16549-4	1
	Lead Wire # 22 AWG (Blu) 13" Lg.	K16549-6	1
	Lead Wire # 22 AWG (Red) 13" Lg.	K16549-2	1
	Lead Wire # 22 AWG (Blk) 2 1/4" Lg.	K16549-0	1
	Lead Wire # 22 AWG (Wh) 2" Lg.	K16549-9	1
	Lead Wire # 18 AWG Bare Tinned Copper 2" Lg.	K16412-6	1

SOLDER ROTOR TERMINAL (OUTSIDE LEAF) TO GROUND LUG ON CRYSTAL OSC. BRACKET



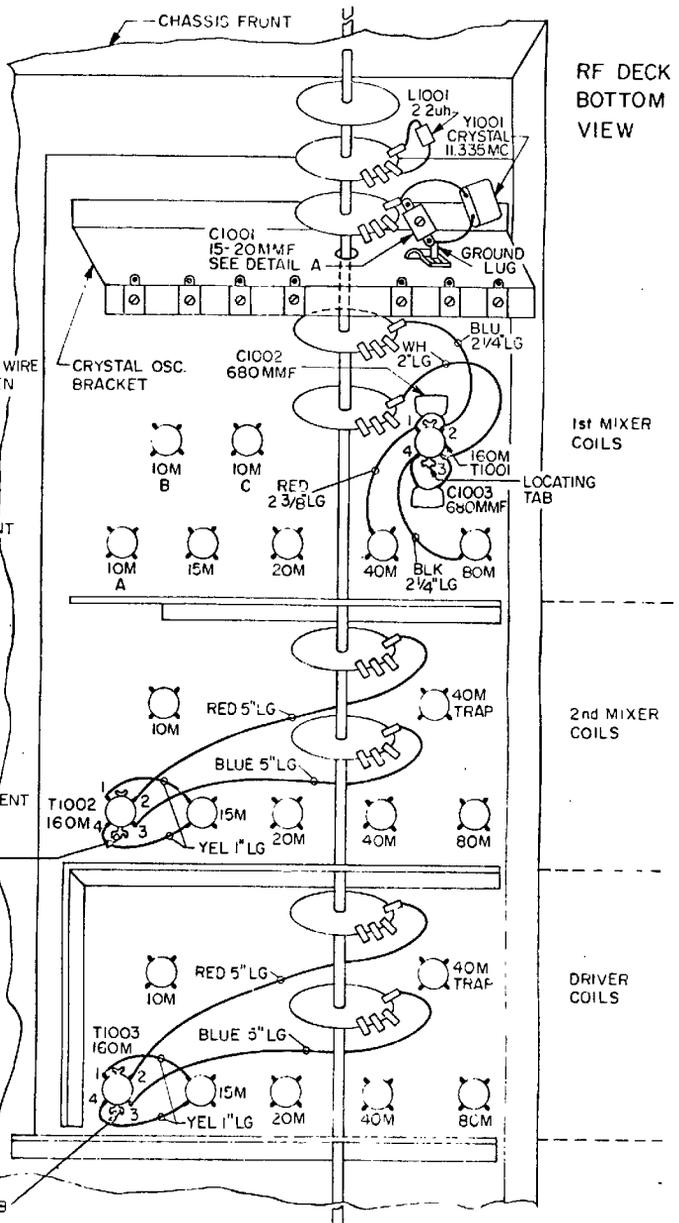
DETAIL A

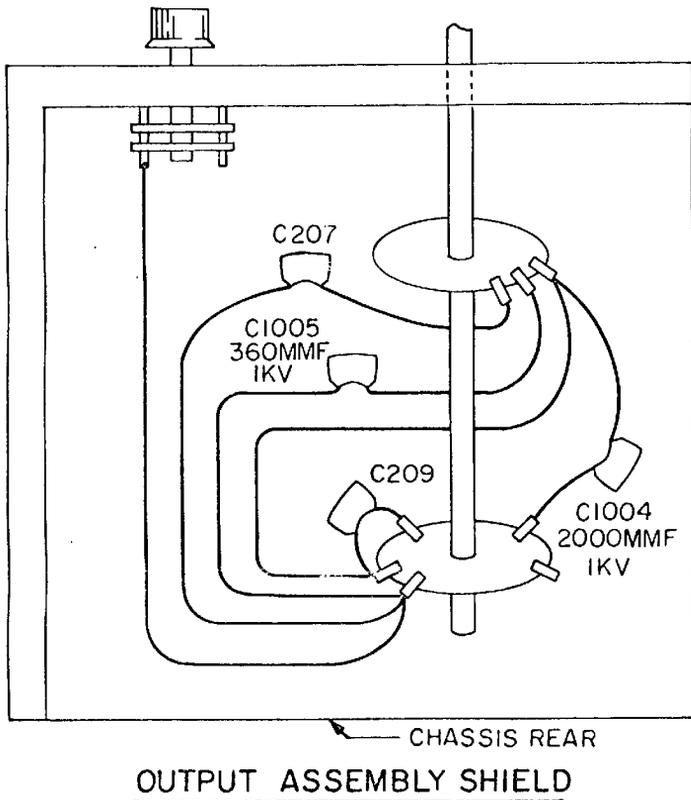
#18 BARE WIRE CRIMP THEN SOLDER



LOCATING TAB

LOCATING TAB





INSTALLATION DIAGRAM (160 METER KIT)