

**CAUTION:** Refer installation to qualified service technician to prevent personal injury or damage to the equipment.

Prior to starting installation of your new VHF converter, carefully unpack the converter PC board assembly and its associated cables and mounting hardware. You will need to use a Philips screwdriver during installation. NOTE: A magnetized screwdriver facilitates the removal and installation of screws in the procedure that follows. Identify the following items:

- (1) #1001590 VHF Converter Assembly
- (1) #3711160 Coaxial Cable, 8" Length
- (1) #3711168 Coaxial Cable, 26" Length
- (1) #2707293 6-Conductor Cable, 17" Length
- \*(1) #4350171 Retaining Bracket
- \*(1) #3320244 Screw 4-40 x 1/4" Pan Head Philips

\*NOTE: Retaining Bracket and Screw are already installed in an R8A/R8B receiver. Install the VHF Converter assembly as follows:

**DISCONNECT THE RECEIVER FROM THE AC POWER SOURCE!**

1) Remove the top cover from the receiver by removing (5) #6-32 x 1/4" BLACK Pan Head Philips screws. Retain the cover and screws for reassembly.

2) Remove the bottom cover from the receiver by removing (6) 4-40 x 1/4" Pan Head Philips screws. Retain the cover and screws for reassembly.

3) Reposition any cables at the rear panel, as necessary, to allow the converter assembly to fit at the rear panel wall. Dress these cables away from the SO-239 antenna input connectors and gently pull any excess cable toward the bottom compartment of the receiver chassis. On the R8A/R8B, the VHF Converter Retaining Bracket is already installed in the radio, holding the right side of a front panel area board shield. Remove this bracket by removing the #4-40 x 1/4" screw at the base of the bracket. Retain the bracket and screw for later reassembly. Position the VHF converter assembly into the chassis as illustrated (Figure 1). The board mounted components should face toward the outside edge of the receiver, with the larger of the two component side shields toward the rear panel of the receiver. Align the two tabs into the slots located on the rear panel of the receiver.

Locate the Retaining Bracket and position to the edge of the VHF Converter assembly as shown. On the R8A/R8B be sure to re-insert the (front panel) board shield into the slot on the retaining bracket when installing the VHF Converter. Use the supplied #4-40 x 1/4 Pan Head Philips screw to secure the bracket to the receiver chassis (Figure 2).

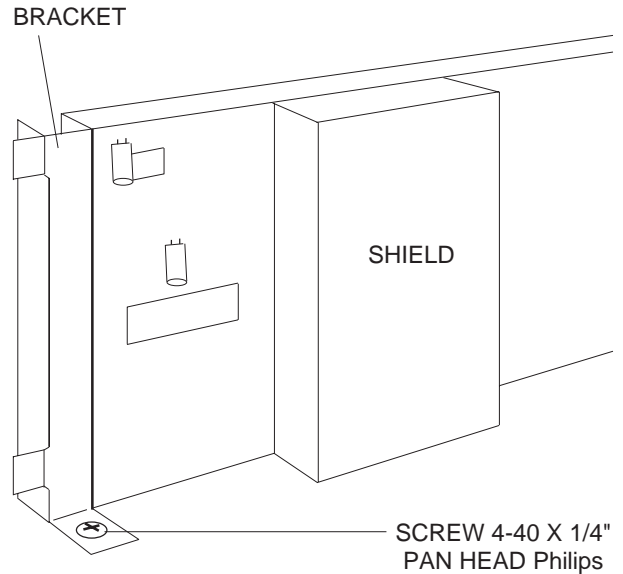


FIGURE 2

4) Identify the 6-conductor cable (17" length) and plug it onto the VHF converter assembly connector header (Figure 1). Be careful to observe that the RED conductor end of the cable connector is oriented as shown in Figure 1.

5) Route the free end of the 6-conductor VHF converter cable vertically down behind the front panel (near the Volume Control) to the board assembly exposed by removal of bottom cover. See Figure 1.

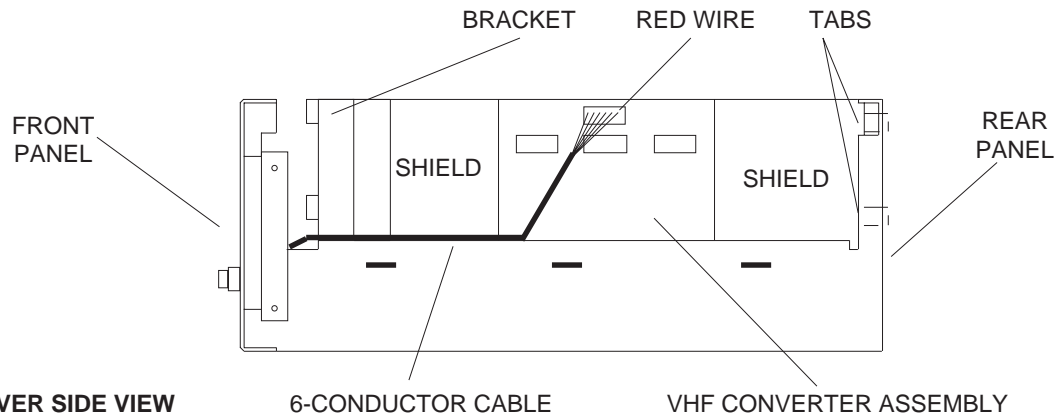


FIGURE 1, RECEIVER SIDE VIEW

6) Position the receiver so it rests on its left-hand side (facing the front of the receiver). Locate the unconnected end of the 6-conductor cable and plug it onto the synthesizer board connector header with the **RED** conductor end of the cable connector oriented as shown in Figure 3. Position the cable assembly, routing it as shown, to keep it clear of the microprocessor and related circuits area of the board assembly. Reduce any excess slack of the cable near the VHF converter to provide proper routing on its approach to the synthesizer board connector header.

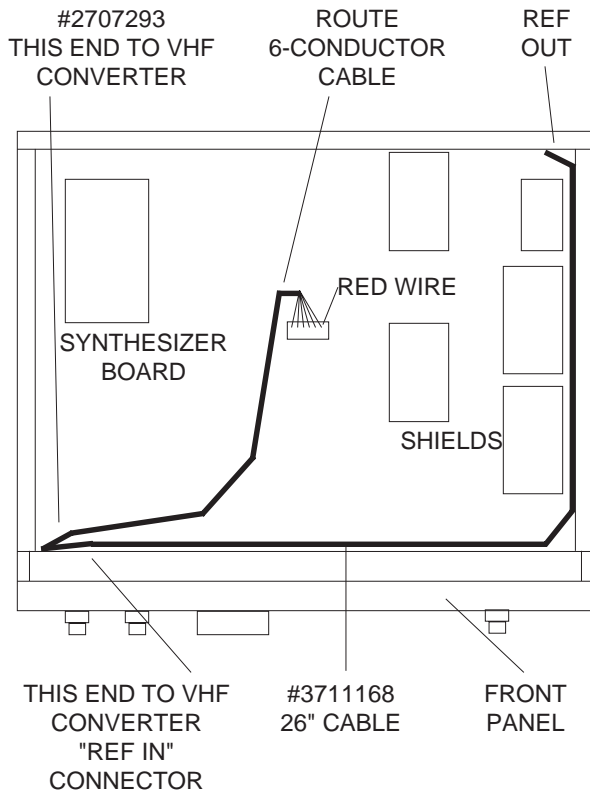


FIGURE 3, BOTTOM VIEW

7) Connect the supplied 26" "REF" coaxial cable #3711168 to the 'REF OUT' connector located near the right rear corner of the synthesizer board. Position the cable as shown in Figure 3, routing the free end of the coax cable along the front panel (near volume control) and up to the VHF Converter assembly end nearest the front panel.

8) Position the receiver so it rests on its bottom chassis with front panel facing towards you. Plug the unconnected end of the 26" 'REF' coaxial cable #3711168, into the "REF IN" connector located on the VHF converter assembly as shown in Figure 4.

9) Locate the factory installed coaxial cable connected to the rear panel "CONV" antenna input connector. Disconnect the terminal end of this coax from the Front End Board connector. Plug the coax cable into the 'RF IN' terminal of the VHF Converter as shown in Figure 4.

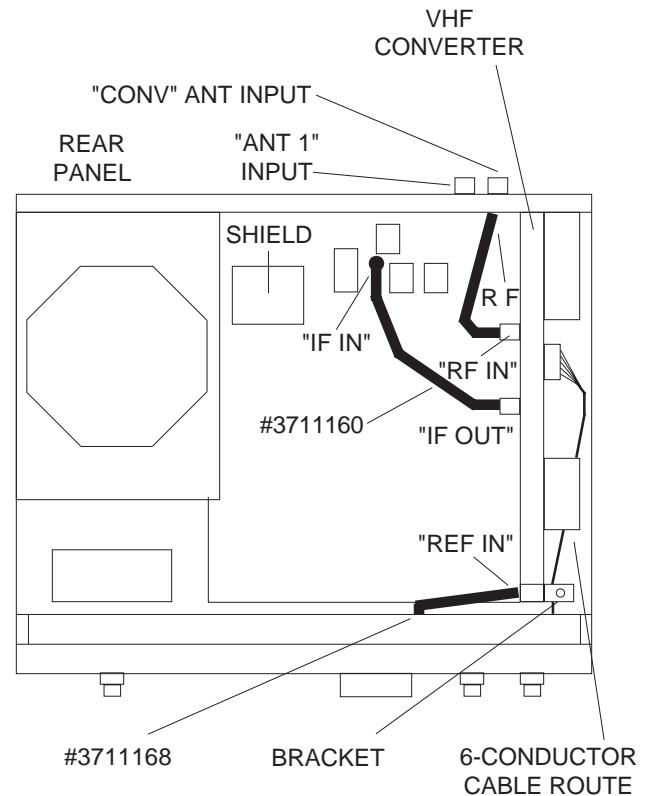


FIGURE 4, TOP VIEW

10) Identify the 8" Coaxial Cable, #3711160. Plug in one end of the cable to the 'IF IN' terminal on the Front End board assembly and plug the other end into the 'IF OUT' terminal of the VHF Converter assembly.

The VHF Converter electrical installation is complete at this point. Prior to applying AC power to the receiver for testing, proceed as follows:

**11)** Position the receiver with the bottom of the unit facing up, front panel toward you. Place the bottom cover on the unit oriented with the lever feet or metal bail toward the front panel of the receiver. Secure the bottom cover using (6) #4-40 x 1/4 " Pan Head Philips screws that were removed in step #2.

**NOTE:** You may wish to secure the bottom cover with (2) screws until after unit system check, but note that **AC power is active at all times in the receiver whenever it is connected to a source of AC power.**

**12)** Position the receiver with the top of the unit facing up, front panel towards you. Install the top cover using the (5) #6-32 x 1/4" Pan Head Philips BLACK screws retained in step #1.

#### **UNIT SYSTEM CHECK**

13) Connect the receiver to a source of AC power. Press the 'POWER' button to place the receiver in the 'ON' mode.

The unit should automatically switch to the converter antenna input if any frequency in the range of either 35 - 55 MHz or 108 - 174 MHz is selected. (If the above action does not occur, check the 6-conductor cable assembly of the VHF converter). Once proper operation is noted, tune in a known active signal in either the range of 35 - 55 MHz or 108 - 174 MHz. Select the proper mode, bandwidth and other parameters as appropriate.

**HINT:** In many areas of the U.S., the NOAA weather stations are active on one of the following frequencies: 162.400 MHz, 162.475 MHz or 162.550 MHz. One of those or a similar type station could be tuned in as a convenient operational check.

Once correct operation is verified, disconnect the receiver from the AC Power Source. Secure the top and bottom covers with remaining screws if this has not already been completed in steps #11 and #12.

The receiver with VHF Converter is now ready for operation.

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#### **VHF OPERATION**

Operation of the receiver in the VHF Bands of 35-55 MHz and 108-174 MHz is accomplished by entering the desired frequency as described in the "DIRECT FREQUENCY ENTRY" section of the *Receiver Owner's Manual*. Additionally, the receiver will automatically tune to the 35-55 MHz band followed by the 108-174 MHz band as the main tuning dial is tuned above 30 MHz. All reception modes are supported in the two VHF bands.

**SPECIFICATIONS:** (Apply to the operation of the VHF Converter assembly installed in R8 series receivers).

Frequency Range: 35-55 MHz, 108-174 MHz.

Antenna Impedance: 50 Ohms.

Sensitivity - SSB, CW  
(+10dB S+N/N): Less than 0.25  $\mu$ V (2.3 KHz Bandwidth).

Sensitivity - AM  
(+10 dB S+N/N)  
(1 KHz, 30% mod): Less than 1.0  $\mu$ V.

Sensitivity - FM  
(12 dB SINAD): Less than 0.5  $\mu$ V.

Frequency Stability: Better than  $\pm 10$  ppm, -10<sup>0</sup> to +50<sup>0</sup> C (determined by the receiver's master reference oscillator).

Power Requirements: +10 VDC @ 150 mA.

FCC Approval: Part 15 Certification.

Weight: 6.7 Oz. (0.2 Kg).

Size: Length 9-5/8" (24.4 cm),  
Width 2-1/2" (6.4 cm),  
Height 1-1/8" (2.9 cm).

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The logo for Drake, featuring the word "DRAKE" in a bold, italicized, sans-serif font. The letters are white with a thick black outline. A registered trademark symbol (®) is located to the right of the word.

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