

**OPERATION AND MAINTENANCE  
HOT STANDBY  
DR 6-135A AND 135EC  
SOLID-STATE AMPLIFIER  
REPLACEMENT PROCEDURES  
RADIO TRANSMITTER**

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*This practice is reissued to add RF Switch Network Replacement information. The practice is used in binders 421-105-002AC, 421-105-004AC, 421-105-080, 421-105-100, 421-106-002AC, 421-106-004AC, 421-106-020, and 421-106-060.*

This section is used to replace units in the radio transmitter using the solid-state amplifier. Any tests, adjustments, or operating requirements necessary after replacement are *not* provided in the replacement procedures. To determine if any action after replacement is required, return to the alarm-clearing procedure that called for the unit replacement. For replacing the transmitter IF shelf, the transmitter waveguide assembly units, or the backplane pin connectors, refer to the Maintenance Support document.

Each procedure lists the recommended test equipment and accessories. Each piece of equipment is keyed with an item number (e.g., Item A1) that corresponds to an item number in Table A, B, or C under the "Test Equipment and Accessories" tab.

#### ADMONISHMENTS

Admonishments are strategically-placed reminders to assure safety of personnel (*DANGER*), to minimize service interruptions (*Caution*), and to prevent equipment damage (*Warning*). The technician should read and become familiar with the "Admonishments" section in the "Maintenance" tab.

#### SERVICE PROTECTION

Service protection is necessary before performing most procedures in this section. The preface information for each procedure contains the following:

**Note:** THIS IS AN IN-SERVICE PROCEDURE.

OR

**Caution:** *THIS PROCEDURE IS SERVICE AFFECTING UNLESS THE PROPER MANUAL SWITCHING OPERATION HAS BEEN PERFORMED.*

The *Note* indicates that the procedure can be performed on a working radio transmitter without performing any service protection operations. The *Caution* indicates that manual service protection operations *must* be performed to avoid interrupting service. Generally, service on the regular channel equipment under repair *must* be manually switched to standby to prevent service interruptions. If the standby channel is under repair, it *must* be manually locked out to prevent the regular channel from switching to it during the procedure.

If necessary, refer to the "Service Protection" tab and/or the "Operations" tab to perform or verify proper service protection.

**Warning:** *To prevent ESD (electrostatic discharge) from damaging a plug-in unit, ensure all ESD precautions are followed when removing, replacing, handling, and storing circuit packs.*

**IF PREDISTORTER REPLACEMENT**

This procedure is used to replace the IF PREDISTORTER unit.

No special tools are required to perform this procedure.

**Caution:** *THIS PROCEDURE IS SERVICE AFFECTING UNLESS THE PROPER MANUAL SWITCHING OPERATION HAS BEEN PERFORMED.*

**Warning:** *To prevent ESD from damaging a plug-in unit, ensure that all ESD precautions are followed.*

| STEP | PROCEDURE  |
|------|--|
| 1    | Verify that service is protected.  |
| 2    | Obtain a replacement unit with the same unit code.   |
| 3    | <i>Connect the ESD wrist strap to the ESD jack on the radio frame.</i>   |
| 4    | On the unit faceplate, remove the cables (equipped with locking-type SMB connectors) from the IF IN and IF OUT jacks.  |
| 5    | On the unit to be removed, simultaneously release the latch catch and pull the lever forward. Pull the lever down until the unit is released from the backplane connector. |
| 6    | Hold the unit at the top and bottom; slide it out of the shelf. Place the unit in an ESD protective container.   |
| 7    | On the left side of the replacement unit, set the slide switch to the same position (A or B) as the unit removed (Table A).  |
| 8    | On the replacement unit, release the latch catch and pull the lever forward.   |
| 9    | <b>Warning:</b> <i>Misalignment of the plug-in unit in the shelf guides will cause backplane connector damage.</i>   |
|      | Carefully align the replacement unit in the top and bottom shelf guides.   |
| 10   | Slide the replacement unit into the shelf until the bottom of the lever clears the front of the shelf.   |
| 11   | Seat the plug-in by simultaneously pushing up on the lever and applying light pressure to the top of the unit. Ensure that the latch catch has engaged the lever.          |
| 12   | Reconnect the cables to the IF IN and IF OUT jacks.  |
| 13   | This procedure is complete. Return to the instruction that referenced this procedure.  |

| TABLE A<br>IF PREDISTORTER SWITCH<br>SETTINGS   |                          |
|---|--------------------------|
| SWITCH<br>POSITION  | FREQUENCY<br>CODE (NOTE) |
| A   | AA                       |
|   | B AB                     |
|   | C AC                     |
|   | D AD                     |
|   | E AE                     |
|   | F AF                     |
|   | G AG                     |
|   | H AH                     |
| B   | J AJ                     |
|   | K AK                     |
|   | L AL                     |
|   | M AM                     |
|   | N AN                     |
|   | P AP                     |
|   | R AR                     |
|   | S AS                     |
| <p><i>Note:</i></p> <p>The frequency code is stamped on the latch plate of the TRANSMITTER UP-CONV &amp; MWV GEN.</p> |                          |

**TRANSMITTER UP-CONVERTER AND MICROWAVE GENERATOR REPLACEMENT**

This procedure is used to replace the TRANSMITTER UP CONV & MWV GEN unit.

The following tools are required to perform this procedure:

- 1 - Combination wrench, 1/4" (Item C2)
- 1 - Torque wrench, SMA-type (Item C4)
- 1 - Screwdriver, 3" (Item C7).

For tool specifications and recommendations, see "Test Equipment and Accessories" under the "Tests and Adjustments" tab.

**Caution:** *THIS PROCEDURE IS SERVICE AFFECTING UNLESS THE PROPER MANUAL SWITCHING OPERATION HAS BEEN PERFORMED.*

**Warning:** *To prevent ESD from damaging a plug-in unit, ensure that all ESD precautions are followed.*

**Warning:** *The SMA connectors should be properly torqued to prevent damage to the connectors. It is also recommended that both hands be used when removing/installing a semirigid cable.*

| STEP | PROCEDURE  |
|------|--|
| 1    | Verify that service is protected.  |
| 2    | Obtain a replacement TRANSMITTER UP-CONV & MWV GEN unit with the same code as the unit being replaced.   |
| 3    | On the unit faceplate, disconnect the IF IN cable (equipped with locking-type SMB connector).  |
| 4    | Remove the semirigid cable between the unit (RF OUT) and the isolator adapter (RF FL IN).  |
| 5    | <i>Connect the ESD wrist strap to the ESD jack on the radio frame.</i>   |
| 6    | On the unit to be removed, simultaneously release the latch catch and pull the lever forward. Pull the lever down until the unit is released from the backplane connector. |
| 7    | Hold the unit at the top and bottom, and slide it out of the shelf. Place the unit in an ESD protective container.   |
| 8    | If the replacement unit already has a microwave generator installed, go to Step 9. If not equipped with a microwave generator, go to Step 13.                              |
| 9    | Check the unit code on the new microwave generator. If the code is the same as the one being replaced, go to Step 17. If the code is different, go to Step 10.             |

| STEP                             | PROCEDURE   |
|----------------------------------|---|
| <b>MWV GEN Removal</b>           |   |
| 10                               | Remove the power connector for the microwave generator module from plug P1 on the printed circuit board (Fig. 1).   |
| 11                               | Remove the screws (two) holding the microwave generator module in place.  |
| 12                               | Loosen the SMA connector and remove the semirigid cable from the output of the microwave generator module. Set module aside.                                      |
|                                  | <b>Note:</b> Hold the connector on the cable with a 1/4" wrench to prevent twisting of the cable.   |
| <b>MWV GEN Installation</b>      |   |
| 13                               | Install the new microwave generator module without inserting the two mounting screws.   |
| 14                               | Connect the power connector to plug P1 on the printed circuit board.  |
| 15                               | Connect the semirigid cable to the microwave generator module. Torque the connector.  |
|                                  | <b>Note:</b> Hold the connector on the cable with a 1/4" wrench to prevent twisting of the cable. Align and install the two mounting screws previously removed.   |
| <b>Plug-In Unit Installation</b> |   |
| 16                               | On the replacement unit, release the catch and pull the lever forward.  |
| 17                               | <b>Warning:</b> <i>Misalignment of the plug-in unit in the shelf guides will cause backplane connector damage.</i>  |
|                                  | Carefully align the replacement unit in the top and bottom shelf guides.  |
| 18                               | Slide the replacement unit into the shelf until the bottom of the lever clears the front of the shelf.  |
| 19                               | Seat the plug-in by pushing up on the lever and simultaneously applying light pressure to the top of the unit. Ensure that the latch catch has engaged the lever. |
| 20                               | Apply the correct latch label to the unit if a new microwave generator module was installed.  |
| 21                               | Reconnect the IF IN cable.  |
| 22                               | If applicable, refer to the trouble isolation instruction that referenced this procedure to see if additional testing is required.                                |

| STEP | PROCEDURE  |
|------|--|
| 23   | Reconnect the semirigid cable between the unit (RF OUT) and isolator adapter (RF FL IN). Torque both connectors. |
| 24   | This procedure is complete. Return to the instruction that referenced this procedure.                            |

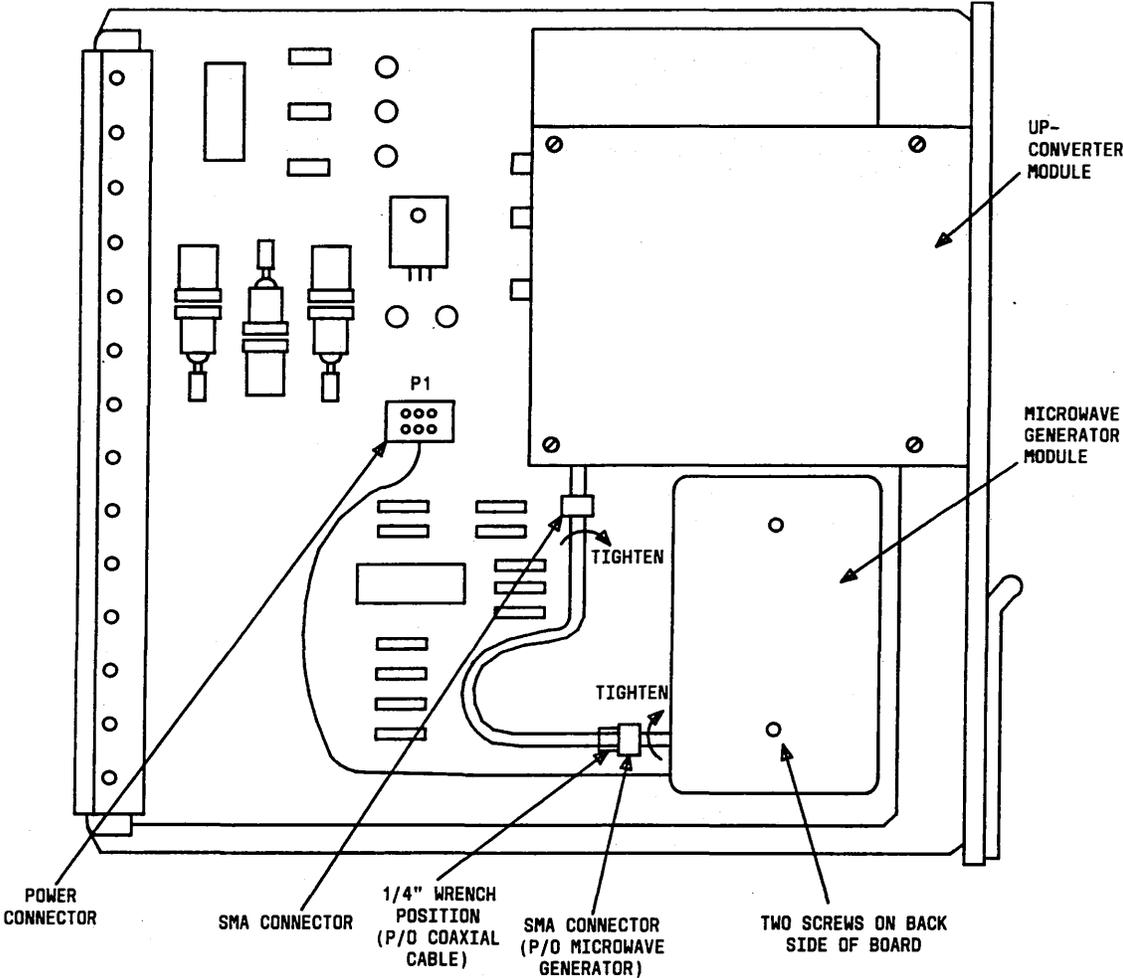


Fig. 1—Replacement of Transmitter Microwave Generator Module (6 GHz)

**SOLID-STATE AMPLIFIER REPLACEMENT**

This procedure is used to remove and reinstall the solid-state AMPL (amplifier) in the transmitter amplifier assembly.

The following tools are required to perform this procedure:

- 1 - Torque wrench, SMA-type (Item C4)
- 1 - Screwdriver, 3" (Item C7)
- 1 - Screwdriver, 10" (Item C11).

For recommendations and specifications of tools, see "Test Equipment and Accessories" under the "Tests and Adjustments" tab.

**Caution:** *THIS PROCEDURE IS SERVICE AFFECTING UNLESS THE PROPER MANUAL SWITCHING OPERATION HAS BEEN PERFORMED.*

**Warning:** *The SMA connectors should be properly torqued to prevent damage to the connectors. It is also recommended that both hands be used when removing/installing a semirigid cable. Ae*

| STEP | PROCEDURE   |
|------|---|
|      | <b>Preliminary</b>  |
| 1    | Verify that service is protected.   |
| 2    | Obtain a replacement solid-state AMPL.  |
|      | <b>Removal</b>  |
| 3    | On the TRMTR PWR unit, operate the ON/STBY pushbutton to the STBY (out) position.   |
| 4    | On the lower right corner of the AMPL, slide the locking mechanism up on the multipin POWER connector and remove the connector. |
| 5    | Remove the semirigid cable between the AMPL (RF OUT) and the transmit RF switch.  |
| 6    | Remove the semirigid cable between the isolator adapter (RF FL IN) and the TRANSMITTER UP CONV & MWV GEN unit (RF OUT).         |
| 7    | Loosen the four captive screws holding the assembly to the framework, two at the top and two at the bottom.                     |
| 8    | Lift entire assembly upward and remove free of the framework. Take to a proper work area.                                       |

| STEP | PROCEDURE  |
|------|--|
|      | <b>Installation</b>  |
| 9    | If the filter assembly was replaced, go to Step 11.  |
| 10   | Transfer the filter assembly with mounting bracket to the replacement AMPL. The mounting bracket is secured by two screws on the bottom of the AMPL.   |
| 11   | <b>Caution:</b> <i>Before installing the assembly, carefully inspect the assembly and framework to be sure there are no wires sticking out that could be caught or pinched. Observe the assembly as it is being installed to be sure that no wires catch or get pinched.</i> |
|      | Install the transmitter amplifier assembly in the bay, and tighten the four captive mounting screws.   |
| 12   | Connect the semirigid cable between the isolator adapter (RF FL IN) and the TRANSMITTER UP CONV & MWV GEN unit (RF OUT). Torque both connectors.   |
| 13   | On the TRMTR PWR unit, verify that the ON/STBY pushbutton is in the STBY (out) position.   |
| 14   | Connect the multipin POWER connector to the AMPL, and engage the sliding lock mechanism.   |
| 15   | If applicable, refer to the trouble isolation instruction that referenced this procedure to see if additional testing is required.   |
| 16   | Connect the semirigid cable between the AMPL (RF OUT) and the transmit RF switch. Torque both connectors.  |
| 17   | On the AMPL unit, set the ALC ON/OFF switch to OFF.  |
| 18   | On the TRMTR PWR unit, operate the ON/STBY pushbutton to the ON (in) position.   |
| 19   | This procedure is complete. Return to the instruction that referenced this procedure.  |

**TRANSMITTER ISOLATOR ADAPTER AND/OR FILTER REPLACEMENT**

This procedure is used to replace the isolator adapter and/or filter network in the transmitter amplifier assembly.

The following tools are required to perform this procedure:

- 1 - Combination wrench, 1/4" (Item C2)
- 1 - Torque wrench, SMA-type (Item C4)
- 1 - Screwdriver, 3" (Item C7).

**Caution:** *THIS PROCEDURE IS SERVICE AFFECTING UNLESS THE PROPER MANUAL SWITCHING OPERATION HAS BEEN PERFORMED.*

**Warning:** *The SMA connectors should be properly torqued to prevent damage to the connectors. It is also recommended that both hands be used when removing/installing a semirigid cable.*

| STEP | PROCEDURE   |
|------|---|
|      | <b>Preliminary</b>  |
| 1    | Verify that service is protected.   |
| 2    | Obtain a replacement isolator adapter and/or filter with the same code as the one being replaced.   |
|      | <b>Removal</b>  |
| 3    | Remove the AMPL and filter assembly. Refer to the Solid-State Amplifier Replacement procedure (Removal).                                  |
| 4    | Position the transmitter amplifier assembly on its back, and remove the semirigid cable between the AMPL (RF IN) and the filter assembly. |
| 5    | Remove the screws holding the filter assembly to the bracket.   |
| 6    | While holding the filter, remove the SMA connector from the rear isolator adapter and remove the filter assembly.                         |
| 7    | Change the defective component or the entire filter assembly.   |
|      | <b>Installation</b>   |
| 8    | Carefully align and connect the semirigid cable (attached to the bracket) to the rear isolator adapter. Torque the connector.             |
| 9    | Install the screws that connect the filter assembly to the bracket.   |

| STEP | PROCEDURE   |
|------|---|
| 10   | Install the filter assembly with supporting bracket to the bottom of the AMPL (two screws).                         |
| 11   | Install the amplifier and filter assembly. Refer to the Solid-State Amplifier Replacement procedure (Installation). |
| 12   | This procedure is complete. Return to the instruction that referenced this procedure.                               |

**RF SWITCH AND SWITCH CONTROL NETWORK REPLACEMENT**

This procedure is used to replace the RF Switch and/or the Switch Control Network. Before replacing, compare the installed unit with the new unit and verify that it is the correct replacement.

The following tools are required to perform this procedure:

- 1 - Cable assembly, 1-foot coaxial with SMA male connectors (Item B7)
- 1 - Torque wrench, SMA-type (Item C4)
- 1 - Screwdriver, general purpose (Item C5)
- 1 - Screwdriver, 3" (Item C6)
- 1 - Screwdriver, 10" (Item C11).

**Caution 1:** *Replacing the RF Switch will require a service outage. To shorten the duration of the outage, a procedure is included to bypass the RF Switch during replacement.*

**Caution 2:** *Normally, no special precautions are necessary to protect service when the Switch Control Network is replaced. However, if the RF Switch is in the standby position when the Switch Control Network is removed, a momentary service hit will occur because the switch will automatically revert to the regular position.*

**Warning:** *The SMA connectors should be properly torqued to prevent damage to the connectors. It is also recommended that both hands be used when removing/installing a semirigid cable.*

| STEP                                  | PROCEDURE   |
|---------------------------------------|---|
| <b>Switch Control Network Removal</b> |   |
| 1                                     | Loosen the captive screw on the Switch Control Network, and pull the unit out of the holding bracket by its handle (Fig. 2 or 4).   |
| 2                                     | If only the Switch Control Network is to be replaced, go to Step 31. If the RF Switch is to be replaced, set the Switch Control Network aside and go to Step 3.   |
| <b>RF Switch Bypass</b>               |   |
| 3                                     | Determine the standby transmitter that is feeding the RF Switch. If the transmitter pair has a left-hand waveguide feed (Fig. 2 and 3), the transmitter is in position 2 or 4. If the transmitter pair has a right-hand waveguide feed (Fig. 4 and 5), the transmitter is in position 1 or 3. |
| 4                                     | On the standby transmitter TRMTR PWR unit, operate the ON/STBY pushbutton to the STBY (out) position.   |
| 5                                     | Carefully remove the semirigid cable between the standby transmitter (RF OUT) and the circulator on the RF Switch (Fig. 2 or 4).  |

| STEP | PROCEDURE   |
|------|---|
| 6    | Connect and torque one end of the 1-foot coaxial (bypass) cable to the standby transmitter (RF OUT).  |
| 7    | On the regular transmitter TRMTR PWR unit, operate the ON/STBY pushbutton to the STBY (out) position.<br><br><i>Note:</i> Both transmitters are now off the air; there may be some alarms during the short period of time that it takes to perform the next three steps.  |
| 8    | Unscrew and carefully move the semirigid cable just far enough away from the INPUT jack on the isolator adapter so that the free end of the coaxial (bypass) cable can be connected.  |
| 9    | Connect and torque the coaxial cable to the isolator adapter INPUT jack.  |
| 10   | On the standby transmitter TRMTR PWR unit, operate the ON/STBY pushbutton to the ON (in) position. The system is now back on the air.<br><br><b>RF Switch Removal</b>   |
|      | <i>Caution: The termination assembly may still be hot to touch and require some time to cool down.</i>  |
| 11   | Carefully remove the semirigid cable between the RF OUT jack on the regular transmitter and the isolator on the RF Switch.  |
| 12   | Release the holding tabs and pull the power connector apart (Fig. 3 or 5).  |
| 13   | Loosen, but do not remove, the two screws that hold the mounting bracket to the bay, and carefully remove the RF Switch (with bracket) by sliding it to the left (Fig. 2 or 4).<br><br><b>RF Switch Preliminary Installation</b>  |
| 14   | Simultaneously loosen and remove the two SMA connectors that attach the termination assembly to the two circulators on the RF Switch.   |
| 15   | On a workbench, or other suitable work surface, remove the RF Switch from the mounting bracket. Observe which holes in the bracket are being used to mount the RF Switch.   |
| 16   | Install the replacement RF Switch onto the bracket using the same screws. Observe the following directions:<br><ol style="list-style-type: none"><li data-bbox="467 1644 1276 1669">1. Use the two mounting holes furthest from the front of the bracket.</li><li data-bbox="467 1692 1406 1776">2. Install the RF Switch on the left side of the bracket (opposite the bend in the bracket). The termination assembly should face the Switch Control Network. See Fig. 3 (left-hand waveguide feed) or Fig. 5 (right-hand waveguide feed).</li></ol> |
| 17   | Remove the circulator and SMA adaptor combination from the A (NC) port on the RF Switch being replaced, and install it in the same orientation on the A (NC) port of the replacement RF Switch. The middle port of the circulator should be perpendicular to the  |

| STEP | PROCEDURE   |
|------|---|
|      | bracket and pointing to the right if it is a left-hand waveguide feed bay (Fig. 3) and pointing to the left if it is a right-hand waveguide feed bay (Fig. 5). Torque the SMA connection.   |
| 18   | Remove the semirigid cable from the C (COM) port on the RF Switch being replaced, and install it in the same orientation on the C (COM) port of the replacement RF Switch. Do not tighten at this time.   |
|      | <b>RF Switch Installation</b>   |
|      | <b>Note:</b> There should be only one circulator installed at this time, and it should be on port A (NC) of the RF Switch.  |
| 19   | Carefully align the slots of the bracket with the screws that hold it in the bay, and slide the bracket all the way to the right until the screws are in the bracket slots as far as possible. Tighten the screws to secure the bracket in place. |
| 20   | Reconnect the power connector between the RF Switch and the Switch Control Network. Verify that the locking tabs are properly engaged.  |
| 21   | Carefully align and connect the semirigid cable between the regular transmitter (RF OUT) and the circulator on the RF Switch. Torque both connectors.   |
|      | <b>RF Switch Bypass Removal</b>   |
| 22   | On the standby transmitter TRMTR PWR unit, operate the ON/STBY pushbutton to the STBY (out) position.   |
|      | <b>Note:</b> Both transmitters are now off the air; there may be some alarms during the short period of time that it takes to perform the next two steps.   |
| 23   | Remove the coaxial cable from the INPUT jack on the isolator adapter, and carefully install the semirigid cable from the C (COM) port of the RF Switch. Torque both connectors.   |
| 24   | On the regular transmitter TRMTR PWR unit, operate the ON/STBY pushbutton to the ON (in) position. The station is now on the air.   |
|      | <b>RF Switch Final Connections</b>  |
| 25   | Install the second circulator SMA adapter combination to port B (NO) of the RF Switch. Tighten the SMA connector on the adapter finger tight.   |
| 26   | Carefully connect the termination assembly to the circulators. Torque the SMA connectors where the terminations join the circulators. Verify that the screws holding the shield onto the terminations are tight.                                  |
| 27   | Torque the SMA connector on the adapter that mates with port B (NO) on the RF Switch.   |

| STEP                                       | PROCEDURE  |
|--|--|
| 28   | Carefully align and connect the semirigid cable between the RF OUT jack on the transmitter and the circulator on the RF Switch. Torque the connectors.   |
| 29   | Tighten the screws that hold the RF Switch bracket in the bay, and verify the torque on all of the accessible SMA connectors around the RF Switch, circulators, and other connections that might have been affected by this procedure. |
| 30   | On the standby transmitter TRMTR PWR unit, operate the ON/STBY pushbutton to the ON (in) position. All alarms on the radio bay should now be extinguished.   |
| <b>Switch Control Network Installation</b> |  |
| 31   | Align the replacement, or original if unit not changed, Switch Control Network with the tracks on the holding bracket, and slide the circuit all the way in until it is properly seated.   |
| 32   | Tighten the captive screw on front of the Switch Control Network.  |
| 33   | This procedure is complete. Return to the instruction that referenced this procedure.  |

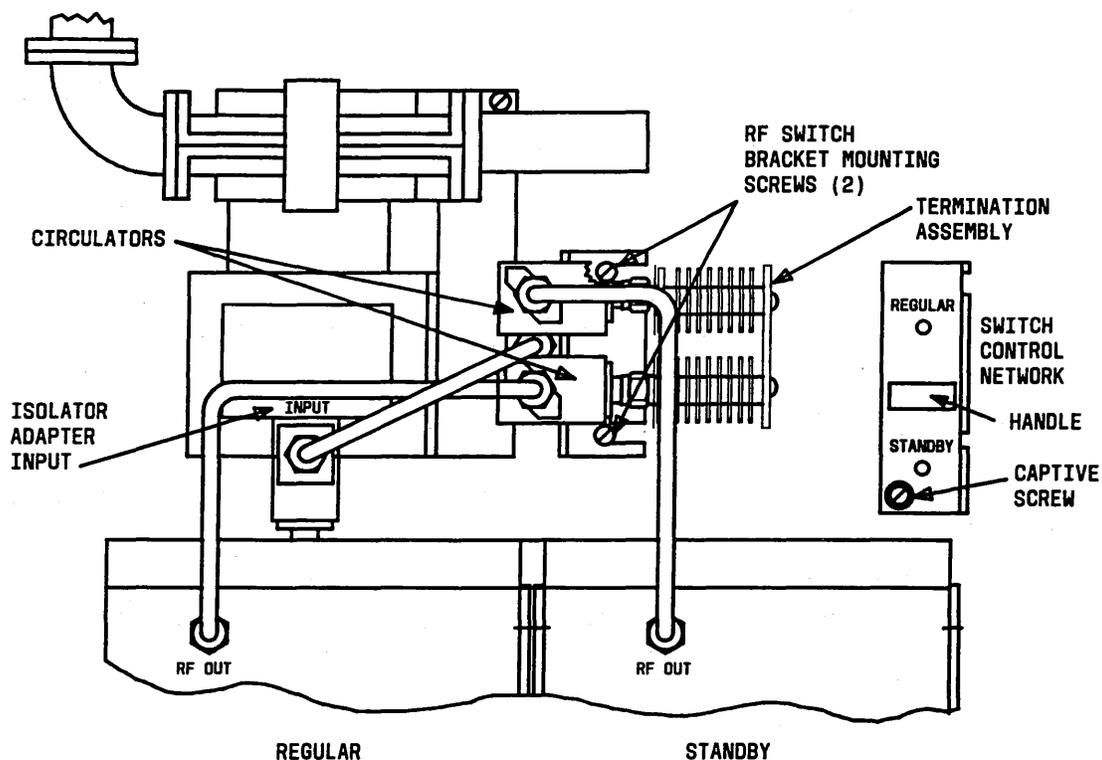


Fig. 2—Transmitter Waveguide Assembly With RF Switch and Switch Control Network—Left-Hand Waveguide Feed

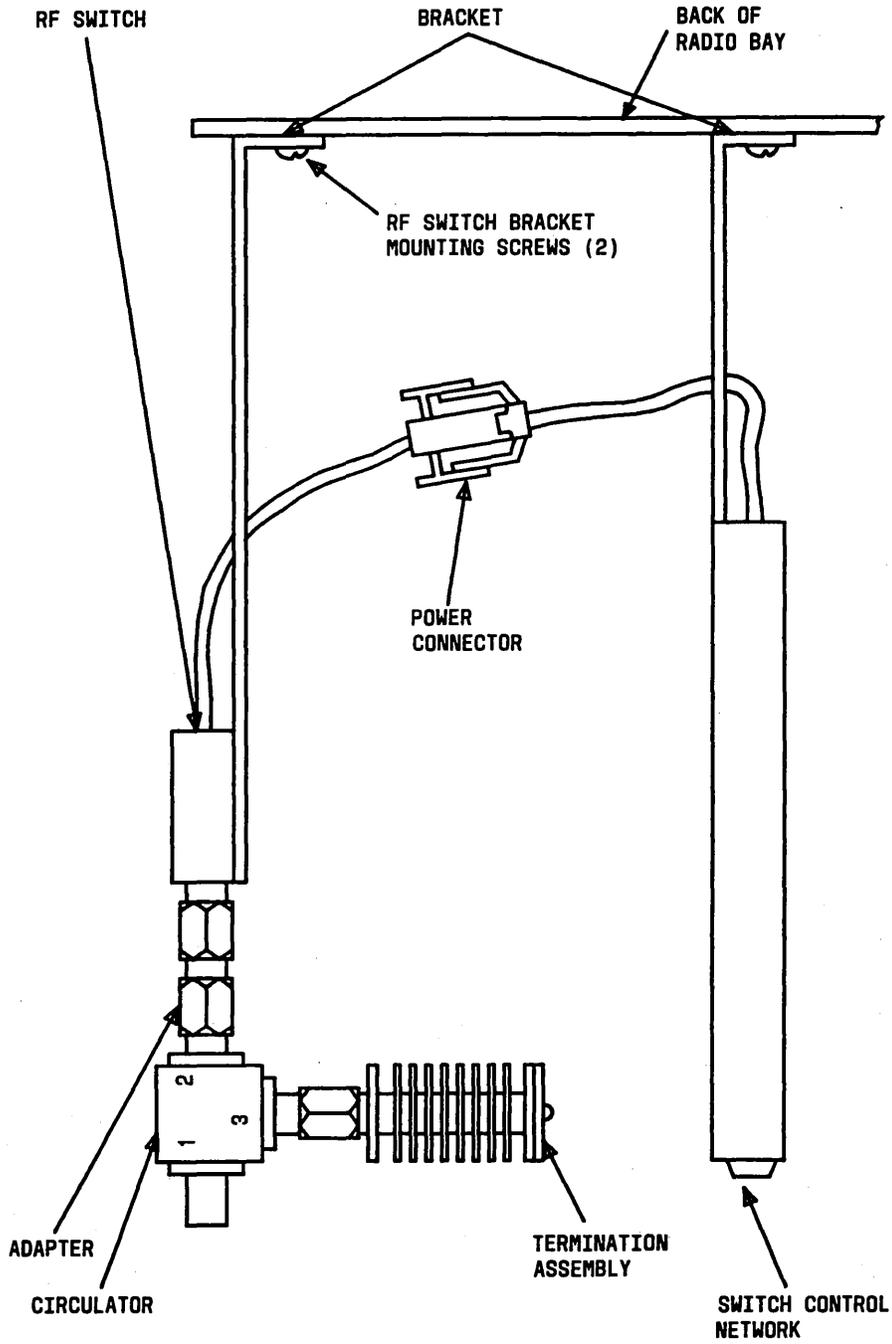


Fig. 3—Top View of Installed Transmitter Switch With RF Switch and Switch Control Network—Left-Hand Waveguide Feed

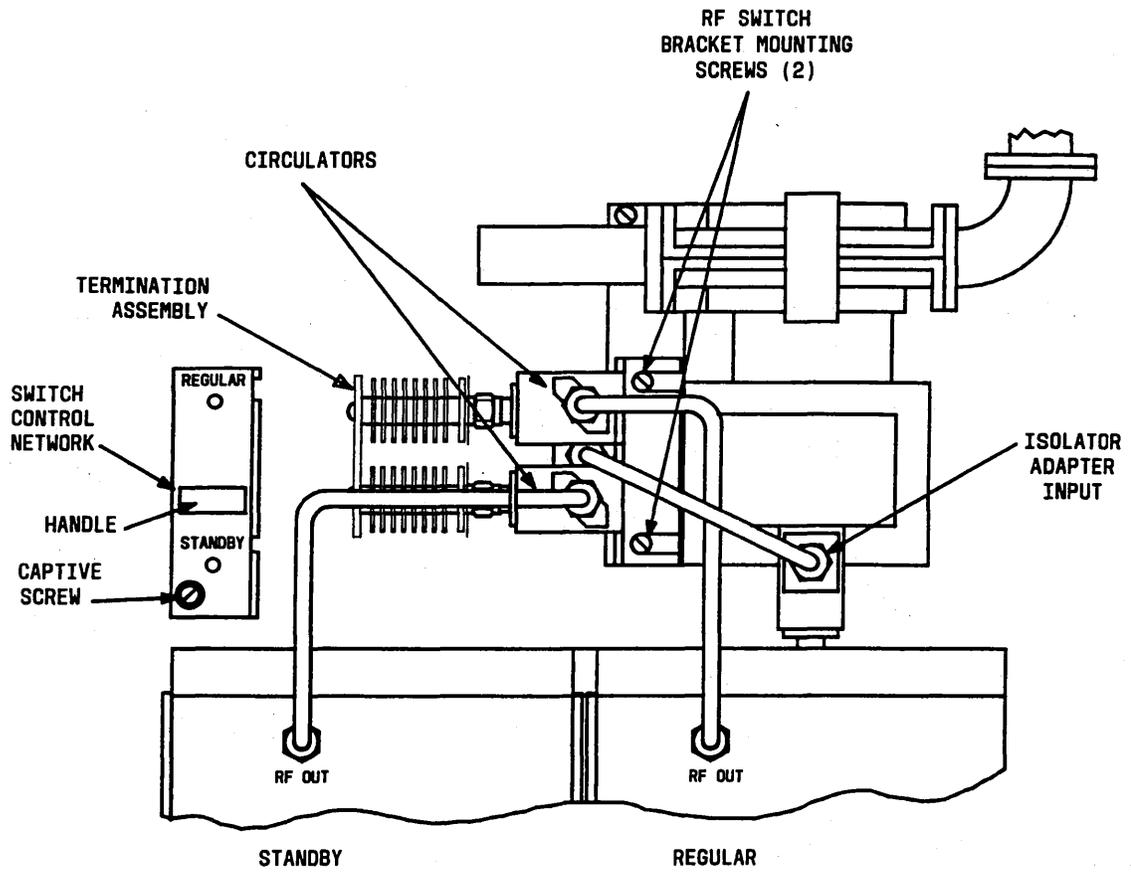


Fig. 4—Transmitter Waveguide Assembly With RF Switch and Switch Control Network—Right-Hand Waveguide Feed

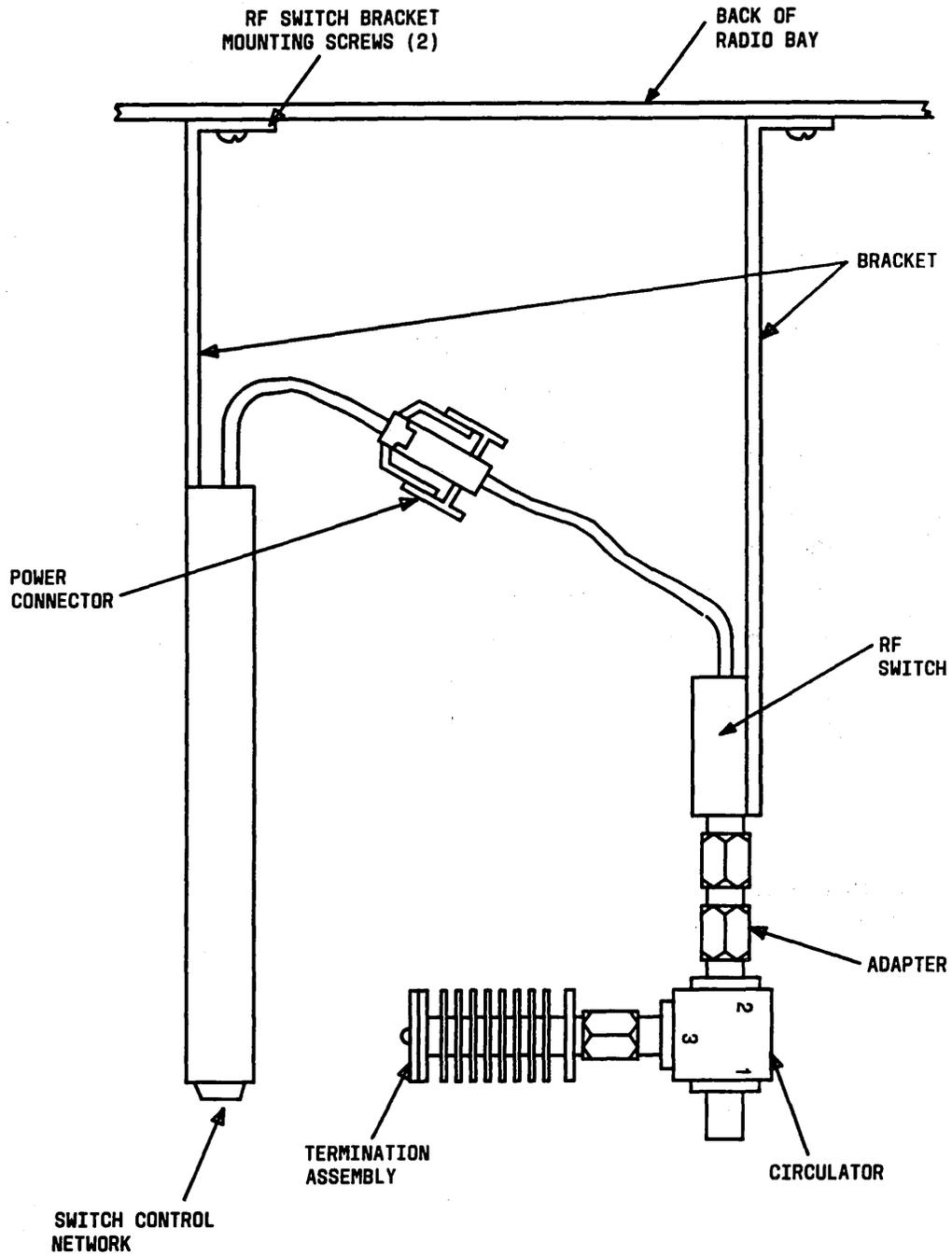


Fig. 5—Top View of Installed Transmitter Switch With RF Switch and Switch Control Network—Right-Hand Waveguide Feed

### RF SWITCH NETWORK REPLACEMENT

This procedure is used to replace the RF Switch Network. Before replacing one, compare the installed unit with the new unit and verify that it is the correct replacement.

The following tools are required to perform this procedure:

- 1 - Cable assembly, 1-foot coaxial with SMA male connectors (Item B7)
- 1 - Torque wrench, SMA-type (Item C4)
- 1 - Screwdriver, general purpose (Item C5)
- 1 - Screwdriver, 3" (Item C6).

**Caution:** *Replacing the RF Switch Network will require a service outage. To shorten the duration of the outage, a procedure is included to bypass the RF Switch Network during replacement.*

**Warning:** *The SMA connectors should be properly torqued to prevent damage to the connectors. It is also recommended that both hands be used when removing/installing a semirigid cable.*

| STEP   | PROCEDURE   |
|--|---|
| <b>RF Switch Network Bypass</b>  |   |
| 1  | Determine the standby transmitter that is feeding the RF Switch Network. If the transmitter pair has a left-hand waveguide feed (Fig. 6), the transmitter is in position 2 or 4. If the transmitter pair has a right-hand waveguide feed (Fig. 7), the transmitter is in position 1 or 3. |
| 2  | On the standby transmitter TRMTR PWR unit, operate the ON/STBY pushbutton to the STBY (out) position.   |
| 3  | Carefully remove the semirigid cable between the standby transmitter (RF OUT) and the circulator on the RF Switch Network (STBY RF IN).   |
| 4  | Connect and torque one end of the 1-foot coaxial (bypass) cable to the standby transmitter (RF OUT).  |
| 5  | On the regular transmitter TRMTR PWR unit, operate the ON/STBY pushbutton to the STBY (out) position.   |
| <p><b>Note:</b> Both transmitters are now off the air; there may be some alarms during the short period of time that it takes to perform the next three steps.</p> |   |
| 6  | Carefully remove the semirigid cable between the isolator adaptor (INPUT) and the RF Switch Network (RF OUT).   |
| 7  | Connect and torque the coaxial cable to the isolator adapter INPUT jack.  |

| STEP | PROCEDURE  |
|------|--|
| 8    | <p>On the standby transmitter TRMTR PWR unit, operate the ON/STBY pushbutton to the ON (in) position. The system is now back on the air.</p>   |
|      | <p><b>RF Switch Network Removal</b></p>  |
|      | <p><i>Caution: The termination assembly may still be hot and may require some time to cool down.</i></p>   |
| 9    | <p>Carefully remove the semirigid cable between the RF OUT jack on the regular transmitter and the isolator on the RF Switch Network (REG RF IN).</p>  |
| 10   | <p>Loosen the captive screw on the front of the RF Switch Network, and pull the unit forward and out of the mounting bracket.</p>  |
|      | <p><b>RF Switch Network Installation</b></p>   |
| 11   | <p>Align the circuit board edges of the replacement RF Switch Network with the upper and lower tracks of the mounting bracket, and push unit in until it is fully seated.</p>                                      |
| 12   | <p>Tighten the captive screw on the front of the RF Switch Network.</p>  |
| 13   | <p>Carefully align and connect the semirigid cable between the regular transmitter (RF OUT) and the circulator on the RF Switch Network (REG RF IN). Torque both connectors.</p>                                   |
|      | <p><b>RF Switch Network Bypass Removal</b></p>   |
| 14   | <p>On the standby transmitter TRMTR PWR unit, operate the ON/STBY pushbutton to the STBY (out) position.</p>   |
|      | <p><i>Note: Both transmitters are now off the air; there may be some alarms during the short period of time that it takes to perform the next two steps.</i></p>   |
| 15   | <p>Disconnect the coaxial cable from the INPUT jack on the isolator adapter, and carefully install the semirigid cable between the RF Switch Network and the isolator adaptor (INPUT). Torque both connectors.</p> |
| 16   | <p>On the regular transmitter TRMTR PWR unit, operate the ON/STBY pushbutton to the ON (in) position. The station is now on the air.</p>   |
|      | <p><b>RF Switch Network Final Connections</b></p>  |
| 17   | <p>Disconnect the bypass cable from the standby transmitter (RF OUT).</p>  |
| 18   | <p>Carefully align and connect the semirigid cable between the RF OUT jack on the transmitter and the RF Switch Network (STBY RF IN). Torque the connectors.</p>   |
| 19   | <p>Verify the torque on all of the accessible SMA connectors around the RF Switch Network, circulators, and other connections that might have been affected by this procedure.</p>                                 |

| STEP | PROCEDURE  |
|------|--|
| 20   | On the standby transmitter TRMTR PWR unit, operate the ON/STBY pushbutton to the ON (in) position. All alarms on the radio bay should now be extinguished. |
| 21   | This procedure is complete. Return to the instruction that referenced this procedure.  |

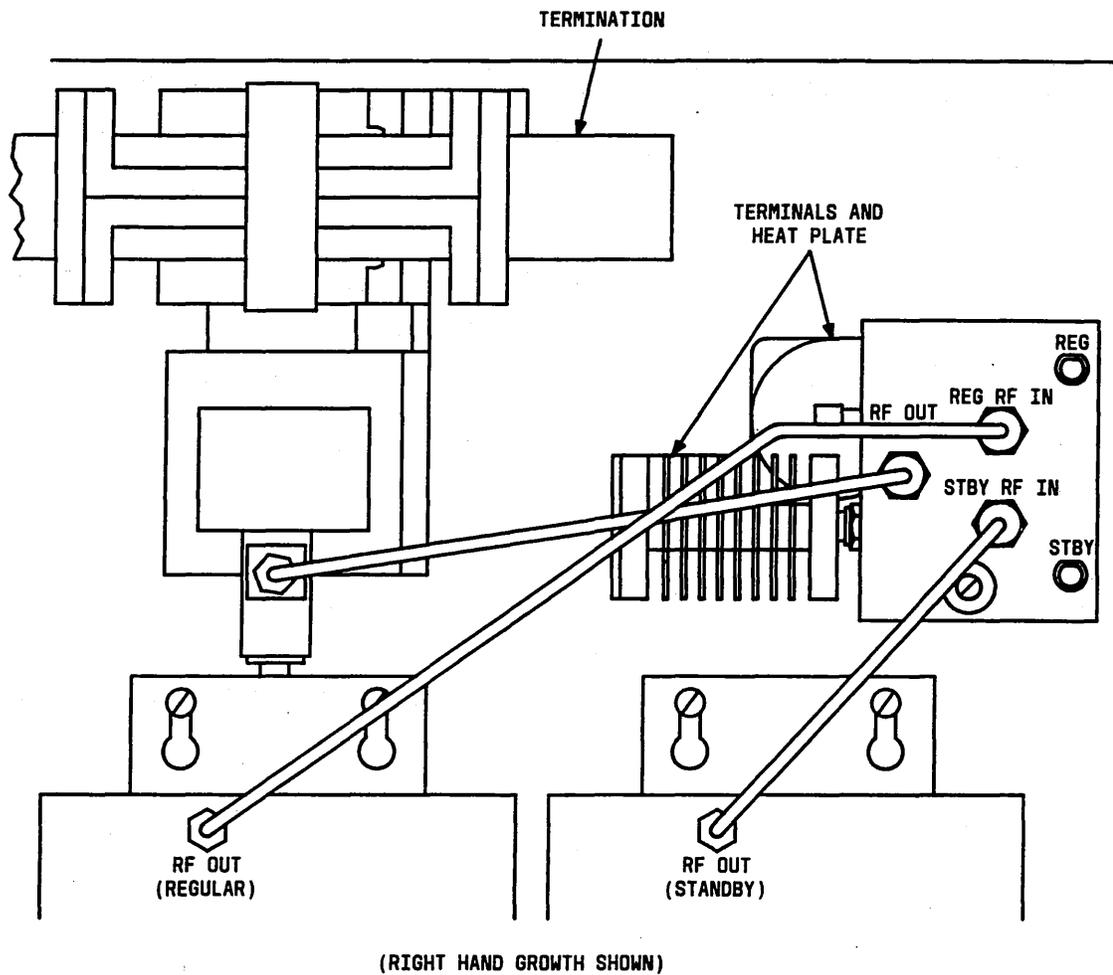


Fig. 6—Transmitter Waveguide Assembly With RF Switch Network—Left-Hand Waveguide Feed

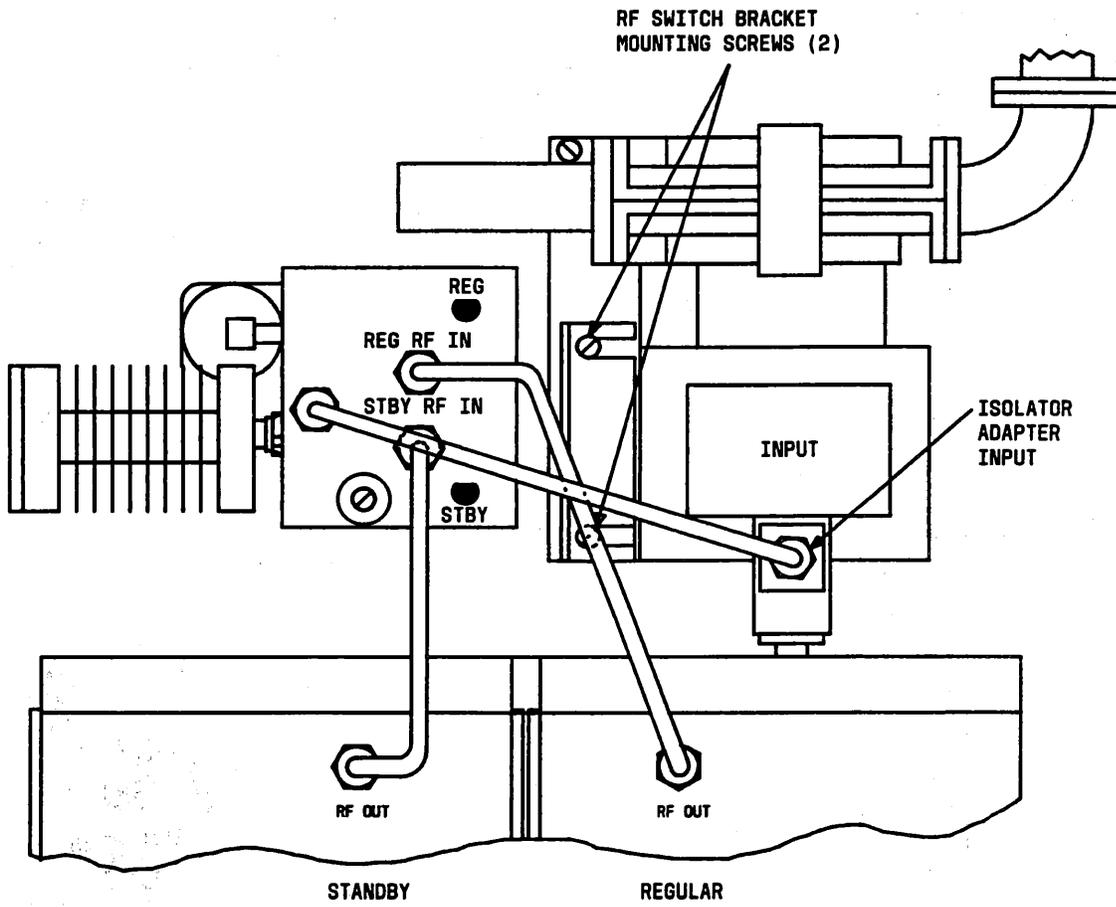


Fig. 7—Transmitter Waveguide Assembly With RF Switch Network—Right-Hand Waveguide Feed

### TRANSMITTER POWER UNIT REPLACEMENT

This procedure is used to replace the POWER UNIT and/or the TRMTR PWR unit in the radio transmitter shelf.

No special tools are required to perform this procedure.

**Caution:** *THIS PROCEDURE IS SERVICE AFFECTING UNLESS THE PROPER MANUAL SWITCHING OPERATION HAS BEEN PERFORMED. As W To prevent ESD damage, ensure that all ESD precautions are followed.*

| STEP | PROCEDURE   |
|------|---|
| 1    | Verify that service is protected.   |
| 2    | Obtain a replacement unit with the same unit code.  |
| 3    | <i>Connect the ESD wrist strap to the ESD jack on the radio frame.</i>  |
| 4    | If replacing the POWER UNIT, go to Step 6. If replacing the TRMTR PWR unit, go to Step 5.   |
| 5    | Remove power to the POWER UNIT by releasing the latch catch and pulling the lever forward (this disengages an internal switch).   |
|      | <b>Note:</b> The ALM/OFF indicator will light.  |
| 6    | On the TRMTR PWR unit faceplate, operate the ON/STBY pushbutton to the STBY (out) position.   |
| 7    | If not previously done on the unit to be removed, simultaneously release the latch catch and pull the lever forward. Pull the lever down until the unit is released from the backplane connector. |
| 8    | Hold the unit at the top and bottom, and slide it out of the shelf. Place the unit in an ESD protective container.  |
| 9    | Release the latch catch on the replacement unit, and pull the lever forward.  |
| 10   | <b>Warning:</b> <i>Misalignment of the plug-in unit in the shelf guides will cause backplane connector damage.</i>  |
|      | Carefully align the replacement unit in the top and bottom shelf guides.  |
| 11   | Slide the replacement unit into the shelf until the bottom of lever clears the front of the shelf.  |
| 12   | Seat the plug-in unit by simultaneously applying light pressure to the top of the unit and pushing up on the lever. Ensure that the latch catch has engaged the lever.                            |
| 13   | If the TRMTR PWR unit was replaced, return power to the POWER UNIT by engaging the latch catch.   |

| STEP | PROCEDURE   |
|------|---|
|      | <i>Note:</i> The ALM/OFF indicator should still be lighted.   |
| 14   | On the TRMTR PWR unit faceplate, operate the ON/STBY pushbutton to the ON (in) position.  |
|      | <i>Note:</i> The TRMTR ON indicator on the TRMTR PWR unit should light and the ALM/OFF indicator on the POWER UNIT should extinguish. |
| 15   | This procedure is complete. Return to the instruction that referenced this procedure.   |

**ALARM/ALARM AND METER UNIT REPLACEMENT**

This procedure is used to replace the ALARM or ALARM AND METER unit.

**Note:** THIS IS AN IN-SERVICE PROCEDURE.

No special tools are required to perform this procedure.

**Warning:** *To prevent ESD damage, ensure that all ESD precautions are followed.*

| STEP | PROCEDURE  |
|------|--|
| 1    | Obtain a replacement unit with the same unit code.   |
| 2    | <i>Connect the ESD wrist strap to ESD jack on the radio frame.</i>   |
| 3    | Set the selector switch (if equipped) on the unit faceplate to the OFF position.   |
| 4    | Simultaneously release the latch catch on the unit to be removed and pull the lever forward. Pull the lever down until the unit is released from the backplane connector.                        |
| 5    | Hold the unit at the top and bottom, and slide it out of the shelf. Place the unit in an ESD protective container.   |
| 6    | Verify that the two miniplugs (located near edge connector) on the replacement unit are in a vertical orientation. One miniplug is connected between J3 and J4, and the other between J5 and J6. |
| 7    | Set the selector switch (if equipped) on the replacement unit faceplate to the OFF position.   |
| 8    | Release the catch on the replacement unit, and pull the lever forward.   |
| 9    | <b>Warning:</b> <i>Misalignment of the unit in the shelf guides will cause backplane connector damage.</i>   |
|      | Carefully align the replacement unit in the top and bottom shelf guides.   |
| 10   | Slide the replacement unit into the shelf until the bottom of the lever clears the front of the shelf.   |
| 11   | Seat the plug-in unit by simultaneously applying light pressure to the top of the unit and pushing up on the lever. Ensure that the latch catch has engaged the lever.                           |
| 12   | Rotate the selector switch (if equipped) on the unit faceplate to each position, and check meter readings against the RADIO DATA CARD plug-in unit.  |
| 13   | This procedure is complete. Return to the instruction that referenced this procedure.  |

**ISSUING ORGANIZATION**

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