TD-3 MICROWAVE RADIO
TRANSMITTER-RECEIVER BAY
TESTS
TESTING AND REPLACING RF SWITCH AND 337A RELAY

This section describes the procedure for testing and replacing the RF switch and 337A relay located in the TD-3 regular bay. The RF switch and 337A relay are mounted on the same assembly, and they are used when TD-3 is equipped for Hot Standby/Space Diversity Switching.

This issue affects the Equipment Test List.

Caution 1: Tests of the RF switch and 337A relay can be performed on an in-service basis. Replacing the RF switch and 337A relay must be done on an out-of-service basis. If service must be maintained, restoration procedures in accordance with local practices must be employed.

Caution 2: Before performing the procedure in Chart 1, check that the bay alarms and CHANNEL FAIL lamps on the SWITCH CONTROL unit are not lighted.

CHART **PAGE**

CHART 1

TESTING RF SWITCH AND 337A RELAY

APPARATUS:

KS-14510 Volt-Ohm-Milliammeter (V0M) or equivalent

CHART 1 (Cont)

STEP	PROCEDURE
1	Mechanical operation of the RF switch can be heard by listening to the RF switch. A loud audible click can be heard when the switch is operated. To operate the switch, simultaneously operate the MSTR and REG or STBY pushbuttons on the TRMTR portion of the SWITCH CONTROL unit. ***Requirement:*** An audible click is heard and the lamps on the SWITCH CONTROL unit (REG IN SERVICE or STBY IN SERVICE) should begin flashing. This indicates that a forced switch has been made. If the requirement is met, return the transmitter to the AUTO mode by simultaneously operating the MSTR and AUTO pushbuttons on the TRMTR portion of the SWITCH CONTROL unit. If the requirement is not met, the RF switch, the 337A relay, and/or the SWITCH CONTROL unit may be defective or there may be a wiring problem. Perform Steps 2 through 5 to determine the defective area.
2	To verify that the voltages on the RF switch assembly are correct, connect the VOM's positive connection to terminal F and the negative connection to terminal E3 on the switch assembly. ***Requirement:*** Indication of approximately 24 volts on the VOM. If the requirement ***is not met***, this indicates a wiring defect.
3	Connect the VOM's positive connection to terminal E1 and the negative connection to terminal E4 on the switch assembly. ***Requirement:*** Indication of 3.5 to 6.0 volts when the RF switch is on the standby channel and 0 volts when the RF switch is on the regular channel. If the requirement ***is not met***, this indicates a defective SWITCH CONTROL unit or defective wiring. Remove and replace the SWITCH CONTROL unit according to the procedure on the back of the unit. Repeat Step 3.
4	Connect the VOM's positive connection to terminal D and the negative connection to terminal E on the switch assembly. ***Requirement:*** Indication of voltage when the RF switch is on the regular channel and 0 volts when the RF switch is on the standby channel. If the requirement is not met, this indicates a defective 337A relay or defective RF switch. Perform Step 5 to locate the defective unit.
5	Connect the VOM's positive connection to terminal F and the negative connection to terminal E5 on the switch assembly.

CHART 1 (Cont)

STEP	PROCEDURE

Requirement: Indication of approximately 24 volts when the RF switch is on the regular channel and 0 volts when the RF switch is on the standby channel.

If the requirement ***is not met***, this indicates a defective 337A relay. Replace the 337A relay in accordance with Chart 2. If the requirement ***is met***, this indicates a defective RF switch. Replace the RF switch in accordance with Chart 2.

CHART 2

REPLACING RF SWITCH AND 337A RELAY

APPARATUS:

None

STEP	PROCEDURE

Caution: Replacing the RF switch and 337A relay must be done on an out-of-service basis. A failure of the RF switch assembly will interrupt service on both the regular and standby channels. Service must be restored to another facility according to local practices.

1 Remove power to the RF switch and 337A relay by turning off the TRMTR PWR circuit breaker in the standby bay (main stations) or RCVR PWR (repeater stations).

Note: At a repeater station, the STBY CHANNEL FAIL lamps on the RCVR and TRMTR portions of the SWITCH CONTROL unit will light. At a main station, the STBY CHANNEL FAIL lamp on the TRMTR portion of the SWITCH CONTROL unit will light.

2 Remove the connection at the IF IN jack on the IF LIM CARRIER RESUPPLY in the regular bay.

Note: The REG CHANNEL FAIL lamp on the TRMTR portion of the SWITCH CONTROL unit will light.

3 Disconnect the SWITCH CONTROL unit according to the instructions on the back of the unit.

4 Disconnect OSM connectors 1, 2, and 3 on the RF switch.

CHART 2 (Cont)

STEP	PROCEDURE
5	Unsolder the local cable leads from terminals D, E, F, E1, E3, and E4.
6	Remove the mounting bolts on the RF switch assembly.
7	***If the RF switch is defective,*** unsolder the leads on the back of the RF switch and replace with a new RF switch. ***If the 337A relay is defective,*** remove the relay from the printed circuit board and replace with a new relay.
8	Reconnect the local cable assembly.
9	Bolt the new RF switch assembly to the regular bay.
10	Reconnect the OSM connectors.
11	Connect the SWITCH CONTROL unit according to the instructions on the back of the unit.
12	Reconnect the cords to the IF IN jack on the IF LIM CARRIER RESUPPLY in the regular bay.
13	Apply power to the RF switch and 337A relay by turning on the TRMTR PWR (main station) or RCVR PWR (repeater station) circuit breaker in the standby bay. Verify that all alarm lamps have been extinguished.
14	Repeat Chart 1, Step 1, to ensure that the RF switch and 337A relay are operating properly.
15	Return the system to the AUTO mode by simultaneously operating the MSTR and AUTO pushbuttons on the TRMTR portion of the SWITCH CONTROL unit.