
TD-3 MICROWAVE RADIO
J68386G AND J68386H TRANSMITTER-RECEIVER BAYS
TRANSMITTER TESTS
J68387U IF DRIVER AMPLIFIER—TRANSMITTER MODULATOR

This section contains the procedures to be followed in further checking the J68387U IF driver amplifier—transmitter modulator (Fig. 1). The charts in this section are to be used in sequence when the requirements of Section 411-506-501, Transmitter Tests—Transmission, or Section 411-506-502, IF Return Loss, cannot be met.

This section is reissued to add a caution to be observed when working on systems equipped with Hot Standby/Space Diversity Switching.

This reissue does not affect the Equipment Test List.

Caution 1: *Before performing these tests, check that the transmitter is not in service.*

◆ **Caution 2:** *On Hot Standby/Space Diversity equipped repeater station bays, consult Section 411-600-500 for forced switching procedures to remove service from both the desired transmitter and receiver. On main stations bays, it is only necessary to remove service from the desired transmitter.*◆

Caution 3: *When removing and replacing waveguide units, care should be exercised to prevent foreign matter from entering the waveguide. Handle all types of waveguide carefully to prevent damage to flange mating surfaces. When connecting waveguide units, flange mating surfaces must be carefully aligned and all screws tightened securely to avoid RF leakage.*

Warning: *Do not leave energized waveguides unterminated. The RF power density that may be encountered is potentially hazardous to the eyes.*

The following sections may be used for additional information, if required:

TITLE	SECTION
General Test Information	411-500-500
Transmitter-Receiver Bay Level Diagrams	411-500-502
Transmitter Tests, Transmission	411-506-501

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1—Troubleshooting Procedure	2
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CHART 1
TROUBLESHOOTING PROCEDURE

APPARATUS:

None

STEP	PROCEDURE
	<i>Note:</i> Perform any one of Steps 1 through 4 that is pertinent to the situation.
1	If unable to meet the IF return loss requirement, replace the IF driver amplifier—transmitter modulator as directed in Chart 3. Repeat the IF return loss tests in Section 411-506-502 and align the unit as directed in Section 411-506-501.
2	If unable to meet the requirements given in Section 411-506-501, Transmitter Tests—Transmission, replace the diode as directed in Chart 2 of this section and repeat the tests in Section 411-506-501.
3	If still unable to meet the requirements in Section 411-506-501 after diode replacement, replace the IF driver amplifier—transmitter modulator as directed in Chart 3 of this section and repeat the tests in Section 411-506-501.
4	If still unable to meet the requirements in Section 411-506-501 after performing Steps 2 and 3 of this chart, the problem is probably not in the IF driver amplifier—transmitter modulator. Other possible sources of trouble are listed below: <ul style="list-style-type: none"> (a) The -19 volt supply voltage requirement is not met (Section 411-502-500). (b) The MWV GEN OUT requirement is not met (Section 411-502-500). If this requirement is not met, the BO power to the unit will not be correct. (c) The 27A or 28A integrated circuit, whichever is used, may be defective. Section 411-502-505 provides procedures for checking these circuits. (d) The 29A integrated circuit may be defective. Section 411-506-505 provides a procedure for checking this circuit.

CHART 2

DIODE REPLACEMENT (FIG. 1)

APPARATUS:

1—AT-7825 Screwdriver

STEP	PROCEDURE
1	On a repeater station bay, turn the RCVR PWR switch on the bay to the OFF position. On a main station bay, turn the TRMTR PWR switch on the bay to the OFF position. <i>Caution: The 497A diode is a fragile device susceptible to damage from static electrical discharge or mechanical shock. Extreme care should be exercised in handling the diode and diode mount when removed from the modulator assembly.</i>
2	Unscrew the diode and collet assembly by hand and remove the collet assembly from the modulator housing.
3	Turn the recessed slotted nut counterclockwise to loosen the collet that holds the diode.
4	Remove the diode from the collet.
5	Insert the replacement diode, colored dot end first, into the collet leaving as much as possible of the diode exposed. Lightly tighten the collet to the diode by turning the recessed slotted nut clockwise.
6	Touch the collet assembly to the modulator housing to remove any static-electrical charge.
7	Insert the diode and collet assembly into the diode gauge machined into the front face of the modulator and seat the assembly so that the gauge exerts pressure to seat the diode at the correct position in the collet.
8	Turning the slotted nut clockwise, tighten the collet so that the diode is held securely in the collet.
9	Remove the diode and collet assembly from the gauge.
10	Recheck the positioning of the diode by reinserting the diode and collet assembly into the diode gauge and checking that the diode is inserted far enough into the collet. If not inserted far enough, loosen the collet and repeat the procedure.
11	Remove the diode and collet assembly from the gauge.
12	Touch the collet assembly to the modulator housing to remove any static-electrical charge.
13	Insert the diode and collet assembly into the modulator housing and hand tighten.

CHART 2 (Cont)

STEP	PROCEDURE
14	On a repeater station bay, turn the RCVR PWR switch on the bay to the ON position. On a main station bay, turn the TRMTR PWR switch on the bay to the ON position.

CHART 3

IF DRIVER AMPLIFIER—TRANSMITTER MODULATOR
REPLACEMENT PROCEDURE

APPARATUS:

- 1—0X1-8 Wrench (Waveguide Wrench)
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STEP	PROCEDURE
	<i>Note:</i> The procedure given in this chart describes the replacement of the entire IF driver amplifier—transmitter modulator. No provision is made for replacement of the IF driver amplifier alone.
1	On a repeater station bay, turn the RCVR PWR switch to the OFF position. On a main station bay, turn the TRMTR PWR switch to the OFF position.
2	Remove the dc power plug from the unit.
3	Remove the eight waveguide screws that connect the transmitter modulator to the integrated circuit.
	<i>Caution: Be careful not to damage the probe in the integrated circuit that is exposed by removal of the unit.</i>
4	Reverse the procedure to install the replacement unit.
5	Return the defective unit to the maintenance center for repair.

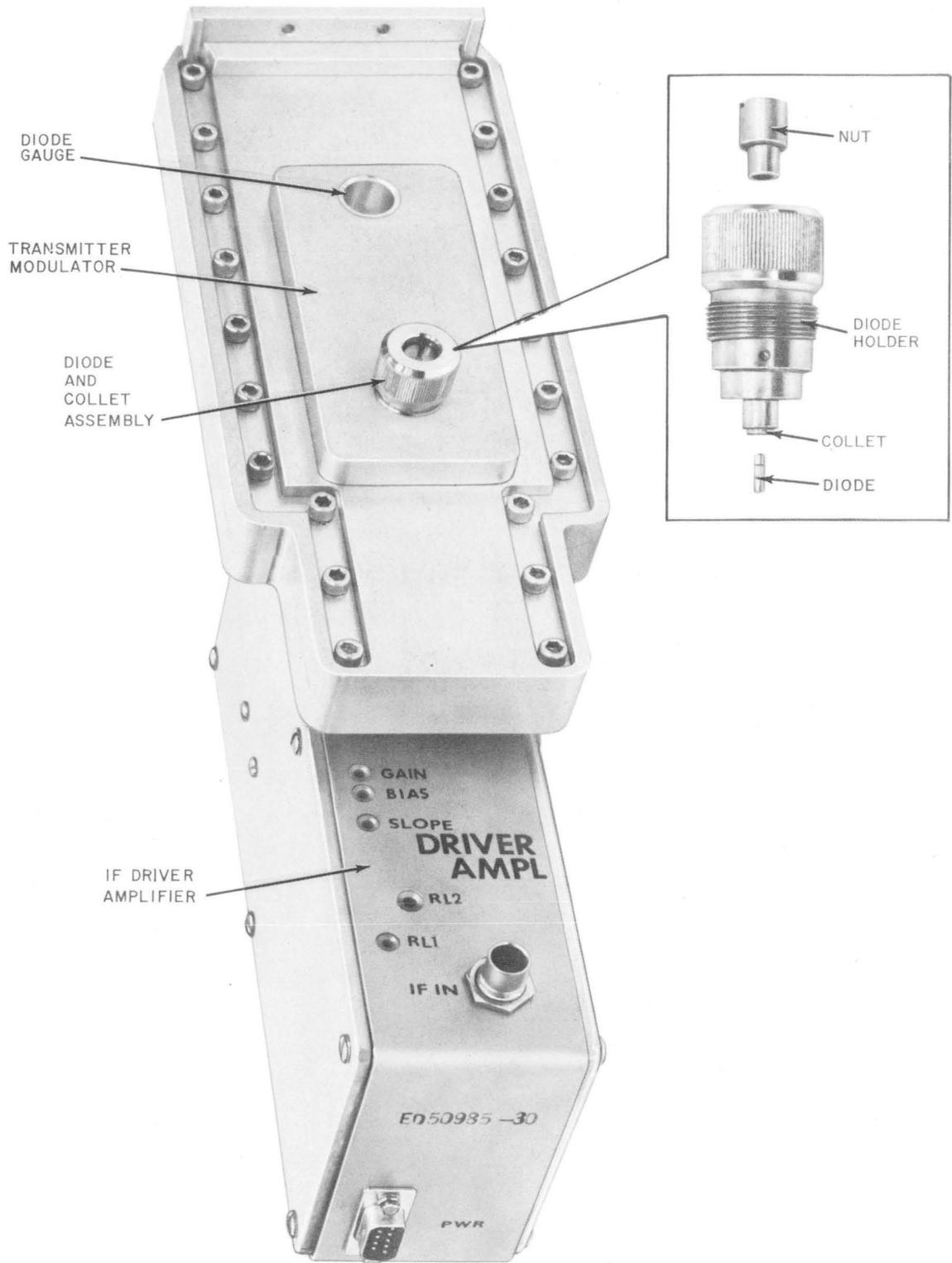


Fig. 1—J68387U IF Driver Amplifier—Transmitter Modulator