RF-350
SYSTEM FAULT CARD

Note that, exercising the automatic full system test "BIT" sequence will bring up full power as part of the test. The system should be configured for normal operation before initiating this test. Refer to the equipment manuals for full explanation of procedures as necessary. See reverse side of this card for abbreviated initiation sequence; see operator card for preliminary setup operations.

Code	Explanation	Procedure
1A1A10	NO EXCITER MODULE.	Install and/or connect the Exciter PWB Assy.
1A1A1-1*	NO 455 KHZ MODULATOR OUTPUT.	a. If the meter indicates that the carrier is not present wth the transceiver keyed in AME mode, replace the LPA/Coupler Interface PWB Assy. b. Replace the Exciter PWB Assy.
1A1A1-2*	NO 40 MHZ MODULATOR USB OUTPUT	a. If the PPC light on the AGC/TGC PWB Assy is on during frequency and mode changes, replace the AGC/ TGC PWB Assy. b. If the meter indicates that the carrier is present with the transceiver keyed in AME mode, replace the Receiver PWB Assy. c. Replace the Exciter PWB Assy.
1A1A1-3	NO 40 MHZ MODULATOR AME OUTPUT.	a. If the ribbon cable on the AGC/TGC PWB Assy is disconnected and the RFIN meter on the LPA indicates output power from the transceiver in CW mode, replace the AGC/TGC PWB Assy. b. Replace the Exciter PWB Assy.
1A1A1-4	NO 40 MHZ MODULATOR CW OUTPUT	Replace the Exciter PWB Assy.
1A1A2-1	NO USB IF.	Replace the IF Filter PWB Assy.
1A1A2-2	NO LSB IF.	Replace the IF Filter PWB Assy.
1A1A2-3	NO CW IF.	Replace the IF Filter PWB Assy.
1A1A3-1	NO FIRST CONVERTER RX.	Replace the First Converter PWB Assy.
1A1A3-2	NO FIRST CONVERTER TX.	a. If the PPC light on the AGC/ TGC PWB Assy is always on and the meter indicates approximately 4 W of output power in CW mode, replace the AGC/TGC PWB Assy. b. Replace the First Converter PWB Assy.
1A1A4-1	NO PA OUTPUT.	a. If the forward power output of the transceiver is approximately 8.4 W, replace the First Converter PWB Assy. b. Replace the Power Amplifier Assy.
1A1A5-1	LPF BAND 1 OPEN (RX).	Replace the Low Pass Filter PWB Assy.
1A1A5-2	LPF BAND 2 OPEN (RX).	Replace the Low Pass Filter PWB Assy.
1A1A5-3	LPF BAND 3 OPEN (RX).	Replace the Low Pass Filter PWB Assy.
1A1A5-4	LPF BAND 4 OPEN (RX).	Replace the Low Pass Filter PWB Assy.
1A1A5-5	LPF BAND 5 OPEN (RX).	Replace the Low Pass Filter PWB Assy.
1A1A5-6	LPF BAND 6 OPEN (RX).	Replace the Low Pass Filter PWB Assy.
1A1A5-7	LPF LATCHED CLOSED.	Replace the Low Pass Filter PWB Assy.
1A1A5-8	VSWR FAULT.	Check the connections between the transceiver and the LPA, the LPA and the antenna coupler, and the antenna coupler and the antenna.
1A1A5-9	TX LPF OPEN.	a. If no forward power is indicated on the meter, replace the AGC/TGC PWB Assy. b. Replace the Low Pass Filter PWB Assy.
1A1A6-1	HIGH AGC.	Replace the AGC/ TGC PWB Assy.
1A1A6-2	NO MANUAL RF GAIN CONTROL.	a. If the AGC voltage can be adjusted with the RF GAIN control, replace the Receiver PWB Assy. b. Replace the AGC/ TGC PWB Assy.
1A1A6-3	TGC SET POINT INCORRECT.	Replace the AGC/TGC PWB Assy.
1A1A6-4	NO TGC.	a. If the PPC light on the AGC/TGC PWB Assy is on whenever the trnsceiver is keyed in CW mode, replace the Exciter PWB Assy. b. Replace the Power Amplifier Assy in any of the following situations: (1) Code 1A1A6-4 is displayed when the BIT test in run at 1.6 MHz, but changes to a 1A1A4-1 at 29.9 MHz.
1A1A6-4 (Cont.)	NO TGC.	(2) Code 1A1A6-4 is displayed when the BIT test is run at 29.9 MHz, but changes to a 1A1A4-1 at 1.6 MHz. (3) The meter indicates approximately 50 W of forward power at 1.6 and 29.9 MHz. c. Replace the AGC/TGC PWB Assy.
1A1A7-0	NO RECEIVER MODULE.	Install and/or connect the Receiver PWB Assy.
1A1A7-1	NO 2ND CONVERTER RX SIGNAL.	a. If the S meter indicates S9 + 40 dB with the RF GAIN control set to the maximum, replace the First Converter PWB Assy. b. After power on, if there is no receive function until MODE is scrolled, replace the Reference/BFO PWB Assy c. Replace the Receiver PWB Assy.
1A1A7-2**	LOW LINE LEVEL.	Replace the Receive PWB Assy.
1A1A7-3	BAD RECEIVER T/R SWITCH (NO TX SIGNAL).	Replace the Receive PWB Assy.
A1A7-4	AGC SET POINT BAD.	a. If the receive signal strength meter does not respond to any signal and if strong signals as if they are distorted, replace the AGC/TGC PWB Assy b. Replace the Receiver PWB Assy.
1A1A8	Not Used.	
1A1A9-1	BFO UNLOCK.	Replace the Reference/BFO PWB Assy.
1A1A10-0	NO SYNTHESIZER MODULE.	Install and/or connect the Synthesizer PWB Assy.
1A1A10-1	SYNTHESIZER UNLOCK.	a. If there is no background noise in AME mode and if there is no change in the background noise with the reference oscillator cable (at J2) on the Reference/BFO PWB Assy disconnected, replace the Crystal Oscillator Assy. b. Replace the Synthesizer PWB Assy.
1A1A11	Not Used.	
1A1A12-1	A/D CONVERTER DEFECT.	Replace the Transceiver Control PWB Assy.
1A1A13-0	NO LPA/COUPLER INTERFACE PWB ASSY.	Install and/or connect the LPA/Coupler Interface PWB Assy.
1A1A14-1	HIGH MULTIVOLTAGE SUPPLY.	Replace the Multivoltage Supply Assy.
1A1A14-2	LOW MULTIVOLTAGE SUPPLY.	
1A1A15	Not Used.	
1A1A16	Not Used.	
1A1A17	Not Used.	
1A1A18-1	NO AFSK OUTPUT.	Replace the AFSK Module Assy
1A1A18-2	NO AFSK IF.	Replace the AFSK Module Assy.
1A1A19-1	INVALID BAUD RATE.	a. Check the setting of the baud rate switch on the Remote Control Interface PWB Assy and on the Audio/Microprocessor PWB Assy (in the Remote Contrl Unit). See paragraph 6-10c in manual and paragraph 6-10c in the technical manual for the Remote Control Unit. b. Replace the Remote Control Interface PWB Assy.
1A1A19-2	UART LOOPBACK FAULT.	Ensure that the Remote Control Unit is turned on and then run the BIT test again. If the fault code persists, replace the Remote Control Interface PWB Assy.

*This fault code may be caused by the MIC potentiometer on the transceiver front panel being set too low. Before replacing any of the modules, try turning the potentiometer clockwise, then run the transmit-receive BIT test again to see if this corrects the problem.

**The line level may be unusually low because of the setting of the LINE potentiometer on the transceiver front panel. Before replacing the Receiver PWB Assy, try turning this potentiometer clockwise. Then run the BIT test again to see if this corrects the problem.

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To Initiate Automatic Built-In-Test Sequence (See Operator Card for Preliminary Setup).

FULL SYSTEM TEST
(Will include full power operation exercise).

1. Verify system setup as shown on OPERATOR CARD or in manual.
2. 

Push 2ND and TX KEY.
Observe indicator go to XMIT.
3. 

Push 2ND and TEST.
Observe all displays illuminate as system test begins. PASSED message indicates successful completion of test (otherwise test sequence will stop at FAULT).
4. 

Push 2ND and TX KEY.
Observe system "TOGGLE" (Switch) back to RECEIVE Mode for normal operation.

Fault Codes

Use this table as a quick reference to 500 W or 1 kW LPA fault codes. For detailed procedures, refer to manual maintenance section.

500 W/1 KW LPA FAULT CODES

Code	Explanation	Procedure
2-01	MICRO-CONTROL FAULT.	Replace Micro Control PWB Assy.
2-02	Not Used.	
2-03	PRIMARY POWER FAULT.	Refer to flowchart 2-03 in manual.
2-04	13.5 V SUPPLY FAULT.	Refer to flowchart 2-04 in manual.
2-05	TRANSMITTER FAULT.	Refer to flowchart 2-05 in manual.
2-06	BAND SWITCH DRIVE FAULT.	Replace Tank Assy. If problem persists, replace Micro Control PWB Assy.
2-07	SERVO COIL DRIVE FAULT.	Replace Tank Assy. If problem persists, replace Micro Control PWB Assy.
2-08	HIGH VOLTAGE ON IN STANDBY.	Refer to flowchart 2-08 in manual.
2-09	HIGH VOLTAGE FAULT IN OPERATE.	Refer to flowchart 2-09 in manual.
2-10	PLATE CURRENT ON W/ BIAS OFF.	Refer to flowchart 2-10 in manual.
2-11	PLATE CURRENT FAULT W/BIAS ON.	Refer to flowchart 2-11 in manual.
2-12	RF MUTE NOT WORKING.	Check interconnecting cable between transceiver and LPA. Replace if necessary. If problem persists, replace Micro Control PWB Assy. If problem still persists, replace LPA/Coupler Interface PWB Assy in 100 Watt Transceiver (see transceiver technical manual).
2-13	NO RF INPUT W/TUNE POWER. (Code 2-20 is displayed during auto tune.)	Refer to flowchart 2-13 in manual.
2-14	PLATE CURRENT FAULT WHEN KEYED.	Refer to flowchart 2-14 in manual.
2-15	NO TUNE PEAK W/RF INPUT POWER.	Refer to flowchart 2-15 in manual.
2-16	FORWARD POWER FAULT.	Refer to flowchart 2-16 in manual.
2-17	VSWR/REFLECTED POWER FAULT. (Meter indicates VSWR > 2.25:1.)	Check coax connections to Low Pass Filter Assy. If problem persists, check output coax cable to antenna system. If problem still persists, check antenna system. If problem still persists, replace VSWR/XFMR PWB Assy.
2-18	POWER GAIN FAULT.	Replace Tube Assy. If problem persists, replace Tank Assy. If problem still persists, replace Low Pass Filter Assy.
2-19	Not Used.	
2-20	AUTO TUNE FAULT. (This is not an automatic BIT fault code. This code should appear only during normal operation and only if the LPA fails to tune correctly.)	Initiate the LPA self-test (see paragraph 6-8, d in manual) and use this table to diagnose the problem.
2-21	LPA-TRANSCEIVER LINK FAULT.	Check interconnecting control cable between transceiver and LPA. Replace if necessary. If problem persists, replace LPA/Coupler Interface PWB Assy in transceiver (refer to transceiver technical manual). If problem still persists, replace Micro Control PWB Assy.
2-22	CATHODE CURRENT W/NO FWD PWR. (This is not an automatic BIT fault code. This code should appear only during normal operation. The meter indicates cathode current (I_K), but no FWD PWR.)	Initiate the automatic diagnostic BIT routine and use this table to diagnose the problem.

100/500 W ANTENNA COUPLER FAULT CODES

Code	Explanation	Procedure
3-01	TUNE-TIME FAULT.	See procedure in manual.
3-02	OVERTEMPERATURE FAULT.	Replace the Lower Shelf Assembly.

REMOTE CONTROL FAULT CODE

Code	Explanation	Procedure
4-01	AUTO LOOPBACK FAULT.	Replace Audio/Microprocessor PWB Assy.

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